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The Victoria History of the
Counties of England

EDITED BY WILLIAM PAGE, F.S.A.

A HISTORY OF
LANCASHIRE

VOLUME I


A HISTORY OF LANCASHIRE
IN SEVEN VOLUMES

THE
VICTORIA HISTORY
OF THE COUNTIES
OF ENGLAND
LANCASHIRE



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TO THE MEMORY OF
HER LATE MAJESTY
QUEEN VICTORIA
WHO GRACIOUSLY GAVE
THE TITLE TO AND
ACCEPTED THE
DEDICATION OF
THIS HISTORY

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GENERAL ADVERTISEMENT

The VICTORIA HISTORY of the Counties of England is a National Historic Survey which, under the direction of a large staff comprising the foremost students in science, history, and archaeology, is designed to record the history of every county of England in detail. This work was, by gracious permission, dedicated to Her late Majesty Queen Victoria, who gave it her own name. It is the endeavour of all who are associated with the undertaking to make it a worthy and permanent monument to her memory.

Rich as every county of England is in materials for local history, there has hitherto been no attempt made to bring all these materials together into a coherent form.

Although from the seventeenth century down to quite recent times numerous county histories have been issued, they are very unequal in merit; the best of them are very rare and costly; most of them are imperfect and many are now out of date. Moreover, they were the work of one or two isolated scholars, who, however scholarly, could not possibly deal adequately with all the varied subjects which go to the making of a county history.

In the **VICTORIA HISTORY** each county is not the labour of one or two men, but of many, for the work is treated scientifically, and in order to embody in it all that modern scholarship can contribute, a system of co-operation between experts and local students is applied, whereby the history acquires a completeness and definite authority hitherto lacking in similar undertakings.

The names of the distinguished men who have joined the Advisory Council are a guarantee that the work represents the results of the latest discoveries in every department of research, for the trend of modern thought insists upon the intelligent study of the past and of the social, institutional, and political developments of national life. As these histories are the first in which this object has been kept in view, and modern principles applied, it is hoped that they will form a work of reference no less indispensable to the student than welcome to the man of culture.

THE SCOPE OF THE WORK

The history of each county is complete in itself, and in each case its story is told from the earliest times, commencing with the natural features and the flora and fauna. Thereafter follow the antiquities, pre-Roman, Roman, and post-Roman; ancient earthworks; a new translation and critical study of the Domesday Survey; articles on political, ecclesiastical, social, and economic history; architecture, arts, industries, sport, etc.; and topography. The greater part of each history is devoted to a detailed description and history of each parish, containing an account of the land and its owners from the Conquest to the present day. These manorial histories are compiled from original documents in the national collections and from private papers. A special feature is the wealth of illustrations afforded, for not only are buildings of interest pictured, but the coats of arms of past and present landowners are given.

HISTORICAL RESEARCH

It has always been, and still is, a reproach that England, with a collection of public records greatly exceeding in extent and interest those of any other country in Europe, is yet far behind her neighbours in the study of the genesis and growth of her national and local institutions. Few Englishmen are probably aware that the national and local archives contain for a period of 800 years in an almost unbroken chain of evidence, not only the political, ecclesiastical, and constitutional history of the kingdom, but every detail of its financial and social progress and the history of the land and its successive owners from generation to generation. The neglect of our public and local records is no doubt largely due to the fact that their interest and value is known to but a small number of people, and this again is directly attributable to the absence in this country of any endowment for historical research. The government of this country has too often left to private enterprise work which our continental neighbours entrust to a government department. It is not surprising, therefore, to find that although an immense amount of work has been done by individual effort, the entire absence of organization among the workers and the lack of intelligent direction has hitherto robbed the results of much of their value.

In the **VICTORIA HISTORY**, for the first time, a serious attempt is made to utilize our national and local muniments to the best advantage by carefully organizing and supervising the researches required. Under the direction of the Records Committee a large staff of experts has been engaged at the Public Record Office in calendaring those classes of records which are fruitful in material for local history, and by a system of interchange of communication among workers under the direct supervision of the general editor and sub-editors a mass of information is sorted and assigned to its correct place, which would otherwise be impossible.

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Family History is, both in the Histories and in the supplementary genealogical volumes of chart Pedigrees, dealt with by genealogical experts and in the modern spirit. Every effort is made to secure accuracy of statement, and to avoid the insertion of those legendary pedigrees which have in the past brought discredit on the subject. It has been pointed out by the late Bishop of Oxford, a great master of historical research, that 'the expansion and extension of genealogical study is a very remarkable feature of our own times,' that 'it is an increasing pursuit both in America and in England,' and that it can render the historian most useful service.

CARTOGRAPHY

In addition to a general map in several sections, each History contains Geological, Orographical, Botanical, Archæological, and Domesday maps; also maps illustrating the articles on Ecclesiastical and Political Histories, and the sections dealing with Topography. The Series contains many hundreds of maps in all.

ARCHITECTURE

A special feature in connexion with the Architecture is a series of ground plans, many of them coloured, showing the architectural history of castles, cathedrals, abbeys, and other monastic foundations.

In order to secure the greatest possible accuracy, the descriptions of the Architecture, ecclesiastical, military, and domestic, are under the supervision of Mr. C. R. PEERS, M.A., F.S.A., and a committee has been formed of the following students of architectural history who are referred to as may be required concerning this department of the work :—

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The genealogical volumes contain the family history and detailed genealogies of such houses as had at the end of the nineteenth century seats and landed estates, having enjoyed the like in the male line since 1760, the first year of George III., together with an introductory section dealing with other principal families in each county.

The general plan of Contents and the names among others of those who are contributing articles and giving assistance are as follows :—

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THE
VICTORIA HISTORY
OF THE COUNTY OF
LANCASTER

EDITED BY
WILLIAM FARRER



PRINTED BY
TAYLOR & FRANCIS
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LONDON



THE
VICTORIA HISTORY
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LANCASTER

EDITED BY
WILLIAM FARRER AND J. BROWNBILL, M.A.

VOLUME ONE



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PREFACE

THE County Palatine of Lancaster presents to the eye of the traveller and historian alike a wide diversity of characteristics, physical, social, and industrial. The western or coastal region is flat, or very slightly undulating, whilst the eastern and northern regions consist of extensive areas of moorland and fell, intersected by deep and once secluded valleys. Inhabited at the Conquest by a sparse population mainly dwelling in the open country, the hills and pastoral region in course of time afforded settlements to the gradually increasing population, under conditions somewhat removed from the old-established village communities with their feudal influences. Whilst the western and southern regions were in the main composed of large estates held by knightly families and their dependent franklins or freeholders, the eastern and northern regions consisted of small estates painfully improved from the woods and hilly wastes by the predecessors of the small yeomen and copyhold tenants, a vigorous and thrifty race of men, whose rapid disappearance during the last half-century amounts almost to a grave national and social disaster. From the race inhabiting these small pastoral estates sprang the great bulk of the spinners and weavers, artisans and colliers, who have done so much to give to this county that industrial supremacy which has long distinguished it in common with the neighbouring county of York. The impetus which led to the result was largely due to the limited application of labour required upon small pastoral estates, whereby the leisure time of the inhabitants was available for home industries, a condition which did not obtain on the arable lands of western and south-western Lancashire. A hardy life, an invigorating climate and surroundings, engendered industry, thrift, and inventiveness. Wool, the raw material for manufacture, and water power for the fulling mills necessary to finish the woven cloth, were available in every valley, whilst an unlimited supply of materials for building and of fuel for burning engendered amongst the people a love of substantially built homesteads and homely comforts.

Trading centres naturally sprang up in such places as Manchester, Liverpool, Warrington, Wigan, Preston, and Lancaster, due to their situation upon frequented roads giving communication between the west of England and the lowlands of Scotland on the one hand, the eastern

PREFACE

shires and Ireland by way of Chester, Liverpool, Formby, Preston, and Lancaster on the other.

Such is a brief outline of the causes and conditions which have made the Lancashire of to-day. To give some account of the race of men who utilized these natural conditions for the development of their native county, and of the gradual growth and ultimate result of their work, is one of the main purposes of this history. In this and in other directions the design and scope of *The Victoria County Histories* differ materially from any other county history hitherto published. The plan of execution is described in the general advertisement, and will be found to embrace natural history; pre-historic, Roman, and Anglo-Saxon remains; a topographical account of each parish, township, and manor; chapters on ecclesiastical history, architecture, agriculture, industries, social conditions, schools, sport, and family history. In dealing with the wide field of learning, the services of specialists in the various branches of knowledge here represented have been secured, with the object of placing upon record in a scientific and entirely original manner as much matter touching local history and its kindred subjects as may be contained in a work of limited size and cost. The chapters on pre-historic, Roman, and Anglo-Saxon remains are admittedly brief and fragmentary; but there is, unfortunately, no such interest or activity of research in these directions as to encourage the hope that greater light may be thrown locally upon these periods of history within the era of the present generation.¹ In the department of natural history a great amount of work has been and is being done.²

In the department of topography only one important history of the county has been written. In 1836 Edward Baines, M.P. for Leeds (1834-1841), published *A History of the County Palatine and Duchy of Lancaster* in four quarto volumes, a work which since then has been slightly enlarged, but not greatly improved, in an edition edited by John Harland, F.S.A., in two quarto volumes issued in 1868-1870, and another edition by James Croston, F.S.A., in five quarto volumes issued in 1888-1893. A more scholarly work dealing with a portion of north-east Lancashire is *The History of the original Parish of Whalley and Honor of Clitberoe* by Thomas Dunham Whitaker, LL.D., F.S.A., 1801.³ The same author also wrote *An History of Richmondsbire*, two volumes, 1823, a work dealing with part of the ancient archdeaconry of Richmond, in which were formerly included the Lancashire hundreds of Lonsdale and Amounderness. In scope, however, this work can hardly be described as a topographical history, consisting merely of historical collections illustrated by engravings of local scenery painted by Turner.

Valuable collections of historical materials in the history of the

¹ The published works illustrating this department are *The History of Manchester*, by the Rev. John Whitaker, 1771-5; *Roman Lancashire*, by W. Thompson Watkin, 1883.

² *The Natural History of Lancashire, Cheshire, and the Peak in Derbyshire*, by Charles Leigh, Doctor of Physick, 1700.

³ A second edition was issued by the author in 1806, followed by a third edition in 1818. In 1872 a fourth edition, revised and enlarged, was edited by John Gough Nichols, F.S.A., and the Rev. Ponsonby A. Lyons, B.A.

PREFACE

county were made by Roger Dodsworth¹ (1585-1654), Christopher Towneley² (1604-1674), Richard Kuerden³ (1623-c. 1690), Randle Holme (1627-1699), and his son Randle Holme⁴ (died 1707), and the Rev. F. R. Raines⁵ (1805-1878), but no attempt has hitherto been made to utilize these collections for the history of the county. During the last twenty years transcripts of charters from these collections and of a great part of the Duchy and Palatinate of Lancaster records have been made, these being supplemented by abstracts of many records of the Crown, and of documents in museums, public libraries, and in private hands.

In the department of printed works the volumes of the Chetham Society, the Lancashire and Cheshire Record Society, the Lancashire and Cheshire Antiquarian Society, and the Historic Society of Lancashire and Cheshire contain a vast amount of original material, which in the main has been critically and carefully edited.

By utilizing a selected portion of this mass of material it will be possible to give a succinct and precise account of each parish and township with the descent of each manor and large estate from the earliest time to the present day. Four or five volumes will be devoted to this department of history, the remaining subjects being dealt with in volumes i, ii, and vii.

The editors are under great obligations to Mr. Edmund Dickson, F.G.S., Mr. Harper Gaythorpe, F.S.A. (Scot.), and Mr. H. Murray for information in the department of Natural History and Mr. W. E. Gregson, Mr. W. F. Irvine, Mr. R. D. Radcliffe, Mr. J. P. Rylands, Mr. C. W. Sutton, and other members of the Lancashire Committee for their active and friendly services.

They also wish to express their thanks to Sir John Evans, K.C.B., Col. Fishwick, F.S.A., Messrs. Longmans, Green & Co., and the Society of Antiquaries for the use of blocks, and to the British Numismatic Society, and Mr. P. W. P. Carlyon-Britton, F.S.A., for the loan of a series of casts of the coins found in the Cuedale hoard.

¹ In the Bodleian Library, Oxford. For material relating to this county the most important volumes are Nos. xxxix, liii, lviii, lxi, lxii, lxx, lxxxvii, cxxxi, cxlii, cxlix, cliii.

² The greater part of these MSS. was dispersed at the Towneley Hall sale in 1883. Twenty volumes of transcripts of charters were acquired by the Trustees of the British Museum; the most important being Add. MSS. Nos. 32,103, 32,104 (B.B.), 32,105 (C.T.), 32,106 (E.E., F.F.), 32,107 (G.G.), 32,108 (R.R.). A dozen volumes are in the possession of William Farrer, the most important being those marked by Chr. Towneley D.D., H.H., and O.O. Eighteen volumes were acquired by the Feoffees of Chetham's Library, the most important volumes being C. 8-13 (A-Y), C. 8-14 (C.C.), C. 8-7 (P.P., W.W.).

³ Six volumes are preserved in the College of Arms, one volume is in the British Museum, Harl. MSS., No. 7,386, and two volumes are in Chetham's Library. These MSS. consist of brief abstracts made from original documents, mostly charters, and of abstracts of Chr. Towneley's MSS. The caligraphy and the paper and ink used by the compiler render the deciphering of these MSS. a work of great difficulty.

⁴ Preserved in the British Museum, the most important volumes being Harleian MSS., Nos. 2,042, 2,063, 2,077, 2,085, and 2,112.

⁵ These consist of forty-five volumes of Lancashire MSS., and are preserved in Chetham's Library

TABLE OF ABBREVIATIONS

Abbrev. Plac. (Rec. Com.)	Abbreviatio Placitorum (Record Commission)	Chartul.	Chartulary
Acts of P.C.	Acts of Privy Council	Chas.	Charles
Add.	Additional	Ches.	Cheshire
Add. Chart.	Additional Charters	Chest.	Chester
Admir.	Admiralty	Ch. Gds. (Exch. K.R.)	Church Goods (Exchequer King's Remembrancer)
Agarde	Agarde's Indices	Chich.	Chichester
Anct. Corresp.	Ancient Correspondence	Chron.	Chronicle, Chronica, etc.
Anct. D. (P.R.O.) A 2420	Ancient Deeds (Public Record Office) A 2420	Close	Close Roll
Ann. Mon.	Annales Monastici	Co.	County
Antiq.	Antiquarian or Antiquaries	Colch.	Colchester
App.	Appendix	Coll.	Collections
Arch.	Archæologia or Archæological	Com.	Commission
Arch. Cant.	Archæologia Cantiana	Com. Pleas	Common Pleas
Archd. Rec.	Archdeacons' Records	Conf. R.	Confirmation Rolls
Archit.	Architectural	Co. Plac.	County Placita
Assize R.	Assize Rolls	Cornw.	Cornwall
Aud. Off.	Audit Office	Corp.	Corporation
Aug. Off.	Augmentation Office	Cott.	Cotton or Cottonian
Ayloffé	Ayloffé's Calendars	Ct. R.	Court Rolls
		Ct. of Wards	Court of Wards
		Cumb.	Cumberland
		Cur. Reg.	Curia Regis
Bed.	Bedford	D.	Deed or Deeds
Beds	Bedfordshire	D. and C.	Dean and Chapter
Berks	Berkshire	De Banc. R.	De Banco Rolls
Bdle.	Bundle	Dec. and Ord.	Decrees and Orders
B.M.	British Museum	Dep. Keeper's Rep.	Deputy Keeper's Reports
Bodl. Lib.	Bodley's Library	Derb.	Derbyshire or Derby
Boro.	Borough	Devon	Devonshire
Brev. Reg.	Brevia Regia	Dioc.	Diocese
Brit.	Britain, British, Britannia, etc.	Doc.	Documents
Buck.	Buckingham	Dods. MSS.	Dodsworth MSS.
Bucks	Buckinghamshire	Dom. Bk.	Domesday Book
		Dors.	Dorsetshire
		Duchy of Lanc.	Duchy of Lancaster
		Dur.	Durham
Cal.	Calendar	East.	Easter Term
Camb.	Cambridgeshire or Cambridge	Ecll.	Ecclesiastical
Cambr.	Cambria, Cambrian, Cambrensis, etc.	Ecll. Com.	Ecclesiastical Commission
Campb. Ch.	Campbell Charities	Edw.	Edward
Cant.	Canterbury	Eliz.	Elizabeth
Cap.	Chapter	Engl.	England or English
Carl.	Carlisle	Engl. Hist. Rev.	English Historical Review
Cart. Antiq. R.	Cartæ Antiquæ Rolls	Enr.	Enrolled or Enrolment
C.C.C. Camb.	Corpus Christi College, Cambridge	Epis. Reg.	Episcopal Registers
Certiorari Bdles. (Rolls Chap.)	Certiorari Bundles (Rolls Chapel)	Esch. Enr. Accts.	Escheators Enrolled Accounts
Chan. Enr. Decree R.	Chancery Enrolled Decree Rolls	Excerpta e Rot. Fin. (Rec. Com.)	Excerpta e Rotulis Finium (Record Commission)
Chan. Proc.	Chancery Proceedings	Exch. Dep.	Exchequer Depositions
Chant. Cert.	Chantry Certificates (or Certificates of Colleges and Chantries)	Exch. K.B.	Exchequer King's Bench
Chap. Ho.	Chapter House	Exch. K.R.	Exchequer King's Remembrancer
Charity Inq.	Charity Inquisitions	Exch. L.T.R.	Exchequer Lord Treasurer's Remembrancer
Chart. R. 20 Hen. III. pt. i. No. 10	Charter Roll, 20 Henry III. part i. Number 10		

TABLE OF ABBREVIATIONS

Exch. of Pleas, Plea R.	Exchequer of Pleas, Plea Roll	Memo. R.	Memoranda Rolls
Exch. of Receipt	Exchequer of Receipt	Mich.	Michaelmas Term
Exch. Spec. Com.	Exchequer Special Commissions	Midd.	Middlesex
		Mins. Accts.	Ministers' Accounts
		Misc. Bks. (Exch. K. R., Exch. T. R. or Aug. Off.)	Miscellaneous Books (Exchequer King's Remembrancer, Exchequer Treasury of Receipt or Augmentation Office)
Feet of F.	Feet of Fines	Mon.	Monastery, Monasticon
Feod. Accts. (Ct. of Wards)	Feodaries Accounts (Court of Wards)	Monm.	Monmouth
Feod. Surv. (Ct. of Wards)	Feodaries Surveys (Court of Wards)	Mun.	Muniments or Munimenta
Feud. Aids	Feudal Aids	Mus.	Museum
fol.	Folio		
Foreign R.	Foreign Rolls	N. and Q.	Notes and Queries
Forest Proc.	Forest Proceedings	Norf.	Norfolk
		Northampt.	Northampton
Gaz.	Gazette or Gazetteer	Northants	Northamptonshire
Gen.	Genealogical, Genealogica, etc.	Northumb.	Northumberland
Geo.	George	Norw.	Norwich
Glouc.	Gloucestershire or Gloucester	Nott.	Nottinghamshire or Nottingham
Guild Certif.(Chan.) Ric. II.	Guild Certificates (Chancery) Richard II.	N.S.	New Style
		Off.	Office
Hants	Hampshire	Orig. R.	Originalia Rolls
Harl.	Harley or Harleian	O.S.	Ordnance Survey
Hen.	Henry	Oxf.	Oxfordshire or Oxford
Heref.	Herefordshire or Hereford		
Hertf.	Hertford	p.	Page
Herts	Hertfordshire	Palmer's Ind.	Palmer's Indices
Hil.	Hilary Term	Pal. of Chest.	Palatinate of Chester
Hist.	History, Historical, Historian, Historia, etc.	Pal. of Dur.	Palatinate of Durham
Hist. MSS. Com.	Historical MSS. Commission	Pal. of Lanc.	Palatinate of Lancaster
Hosp.	Hospital	Par.	Parish, parochial, etc.
Hund. R.	Hundred Rolls	Parl.	Parliament or Parliamentary
Hunt.	Huntingdon	Parl. R.	Parliament Rolls
Hunts	Huntingdonshire	Parl. Surv.	Parliamentary Surveys
		Partic. for Gts.	Particulars for Grants
Inq. a.q.d.	Inquisitions ad quod damnum	Pat.	Patent Roll or Letters Patent
Inq. p.m.	Inquisitions post mortem	P.C.C.	Prerogative Court of Canterbury
Inst.	Institute or Institution	Pet.	Petition
Invent.	Inventory or Inventories	Peterb.	Peterborough
Ips.	Ipswich	Phil.	Philip
Itin.	Itinerary	Pipe R.	Pipe Roll
		Plea R.	Plea Rolls
Jas.	James	Pop. Ret.	Population Returns
Journ.	Journal	Pope Nich. Tax. (Rec. Com.)	Pope Nicholas' Taxation (Record Commission)
		P. R. O.	Public Record Office
Lamb. Lib.	Lambeth Library	Proc.	Proceedings
Lanc.	Lancashire or Lancaster	Proc. Soc: Antiq.	Proceedings of the Society of Antiquaries
L. and P. Hen. VIII.	Letters and Papers, Hen. VIII.		
Lansd.	Lansdowne	pt.	Part
Ld. Rev. Rec.	Land Revenue Records	Pub.	Publications
Leic.	Leicestershire or Leicester		
Le Neve's Ind.	Le Neve's Indices	R.	Roll
Lib.	Library	Rec.	Records
Lich.	Lichfield	Recov. R.	Recovery Rolls
Linc.	Lincolnshire or Lincoln	Rentals and Surv.	Rentals and Surveys
Lond.	London	Rep.	Report
		Rev.	Review
m.	Membrane	Ric.	Richard
Mem.	Memorials		

TABLE OF ABBREVIATIONS

<p>Roff. Rochester diocese Rot. Cur. Reg. Rotuli Curiae Regis Rut. Rutland</p> <p>Sarum Salisbury diocese Ser. Series Sess. R. Sessions Rolls Shrews. Shrewsbury Shrops Shropshire Soc. Society Soc. Antiq. Society of Antiquaries Somers. Somerset Somers. Ho. Somerset House S.P. Dom. State Papers Domestic Staff. Staffordshire Star Chamb. Proc. Star Chamber Proceedings Stat. Statute Steph. Stephen Subs. R. Subsidy Rolls Suff. Suffolk Surr. Surrey Suss. Sussex Surv. of Ch. Livings (Lamb.) or (Chan.) Surveys of Church Livings (Lambeth) or (Chancery)</p>	<p>Topog. Topography or Topographical</p> <p>Trans. Transactions Transl. Translation Treas. Treasury or Treasurer Trin. Trinity Term</p> <p>Univ. University</p> <p>Valor Eccl. (Rec. Com.) Valor Ecclesiasticus (Record Commission) Vet. Mon. Vetusta Monumenta V.C.H. Victoria County History Vic. Victoria vol. Volume</p> <p>Warw. Warwickshire or Warwick Westm. Westminster Westmld. Westmorland Will. William Wilts Wiltshire Winton. Winchester diocese Worc. Worcestershire or Worcester</p> <p>Yorks Yorkshire</p>
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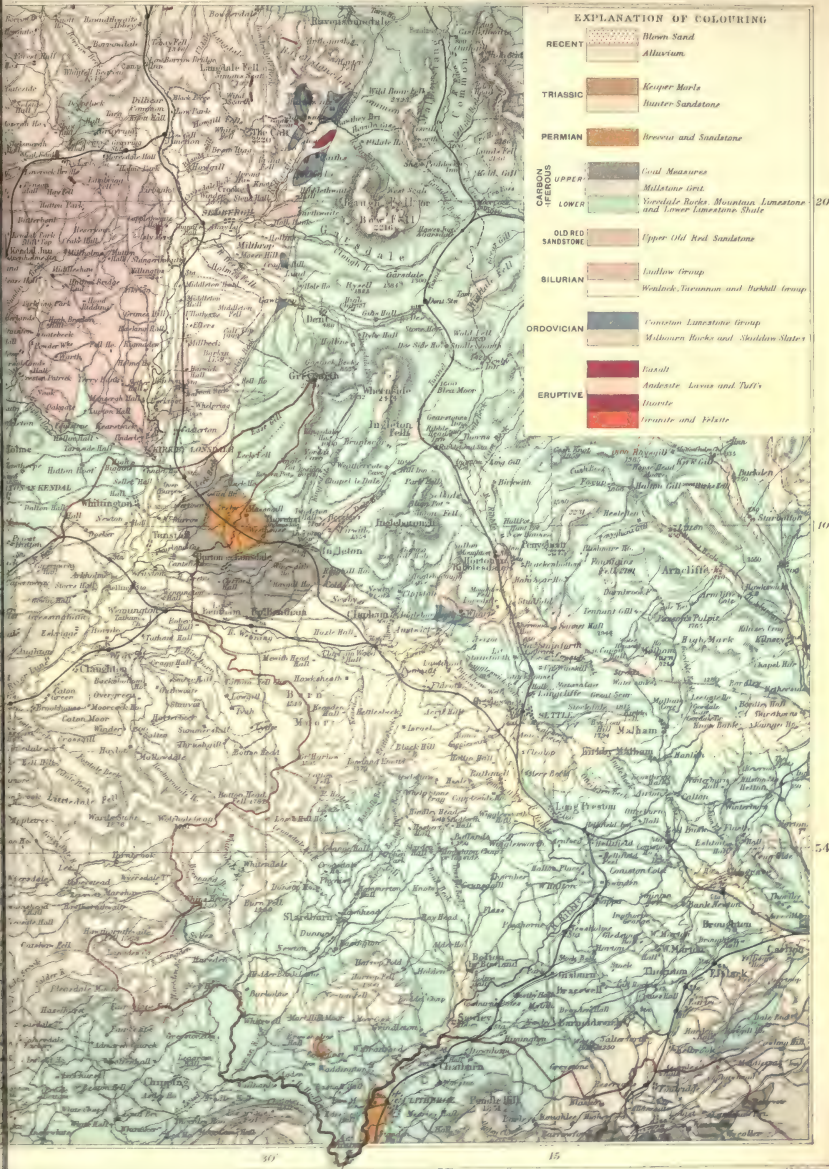
A HISTORY OF
LANCASHIRE





30'

16'



EXPLANATION OF COLOURING

RECENT	Blown Sand
	Alluvium
TRIASSIC	Keeper Marls
	Hunter-Sandstone
PERMIAN	Brescia and Sandstone
CARBONIFEROUS	
UPPER	Coal Measures
	Milstone Grit
LOWER	Strevellie Rocks Mountain Limestone and Lower Limestone Shale
OLD RED SANDSTONE	Upper Old Red Sandstone
SILURIAN	Enallin Group
	Wendock, Tarannon and Birkhall Group
ORDOVICIAN	Coniston Limestone Group
	Milnarth Rocks and Skiddaw Slates
ERUPTIVE	
	Faxall
	Andesite, Lavae and Tuff
	Granite
	Gneiss and Gelsite

30'

16'

GEOLOGY

THE Geology of Lancashire is of such a character that probably no other county in England can so well show the mercantile development due to its mineral wealth. The Furness and Ulverston districts with their rich deposits of hæmatite have furnished an abundance of iron ore, and the rich Coal measures which cover a large portion of the county have alone rendered possible the creation of huge manufacturing towns crowded with factories and workshops, whilst the low Triassic plains, with overlying superficial deposits, which form the seaboard from Liverpool to Fleetwood yield a soil well adapted for agriculture. The Carboniferous Limestone and Millstone Grit are admirably fitted for road-making and building purposes, and many of the shales and under-clays associated everywhere with the coal, and the thick layers of boulder clay, are equally useful in the manufacture of bricks and coarse pottery. Many of the large towns are crowded so closely together as to be practically continuous, and it is no fanciful figure of speech to say that at least the southern half of Lancashire is one great workshop.

The general sequence of formations is as follows :—

Blown Sand	. . .	
Alluvium	. . .	
Glacial Drift	. . .	Boulder Clay and Sands.
Trias	. . .	{ Keuper Marls and Sandstone. Bunter Sandstone and Pebble Beds.
Permian	. . .	{ Sandstones, Marls, and thin Limestones. Magnesian Limestone.
Carboniferous	. . .	{ Coal Measures. Millstone Grit. Mountain Limestone Series.
Silurian	. . .	{ Bannisdale Flags. Coniston Grits and Flags. Stockdale Shales.
Ordovician	. . .	{ Coniston Limestone Series. Borrowdale Volcanic Series. Skiddaw Slates (in part Cambrian?).

PALÆOZOIC

The only exposures of the older Palæozoic rocks (Ordovician and Silurian) in Lancashire are limited to the Ulverston, Coniston, and Cartmel area, which is geographically a part of the Lake District. They consist of a small patch of Skiddaw Slates, the Borrowdale Volcanic series, and the Coniston Limestones seen in the neighbourhood of Ireth, and a much larger northern area covered by the Stockdale Shales, Coniston Flags and Grits, and the Bannisdale Flags.

ORDOVICIAN

SKIDDAW SLATES

The Skiddaw Slates, which occupy a considerable area in the adjacent county of Cumberland, consist of from 10,000 to 12,000 feet of dark grey slates, mudstones, and grits, which have undergone so much alteration since they were deposited that the task of determining their general

A HISTORY OF LANCASHIRE

sequence and stratigraphical position has proved a most difficult one. At one time they extended much farther to the south-west, as a great part of the northern portion of the Isle of Man is made up of them. The Skiddaw Slates are, as a rule, unfossiliferous, although some of the less altered beds have yielded a fauna sufficiently distinctive to determine their true position. The most abundant organic remains are those of graptolites, of which 59 species are known. Other forms are brachiopods, such as *Lingula brevis*, genera of trilobites belonging to *Æglina*, *Agnostus*, and *Asaphus*, small crustaceans known as *Caryocaris*, and doubtful remains of plants. Miss G. L. Elles, who has made a special study of the Skiddaw Slates,¹ is of opinion that the fauna is in the main of Arenig age, but that certain of the beds belong to lower and higher horizons.

BORROWDALE VOLCANIC SERIES

Towards the close of the Skiddaw Slate period the Lake District became a centre of great volcanic activity, showers of ashes and streams of lava being thrown out intermittently, and alternating for a while with the sediments then forming on the sea floor. Eventually the only accumulations taking place were those derived from the volcanoes, one or more of the latter rising above the sea-level into enormous mountains. The total thickness of lavas and ashes has been estimated at about 12,000 feet. They overspread a great portion of the Lake District, which owes most of its wild, rugged and mountainous character to them.

The Borrowdale Volcanic Series crosses the Lancashire border on its north-western side, and occupies a north-east and south-west strip of ground some sixteen miles in length and four miles in breadth at the widest point, lying between the boundary and a line drawn from the northern end of Lake Windermere to Broughton-in-Furness. This area presents all the characteristic features of the Lake District, and is very mountainous, the chief elevations being Dunnerdale, Coniston Old Man and Grey Friars. Most of the earlier lavas poured out during the Borrowdale Volcanic period were andesitic in character, whilst towards the close they assumed the condition of rhyolitic felsites. Many of the fine ash beds have undergone cleavage, and are now quarried for roofing slates. Near Coniston, ores of copper and iron occur in the beds, and mining of the former was carried on for many years.

THE CONISTON LIMESTONE SERIES

This series represents the upper limit of the Ordovician in North Lancashire, and has been classified by Dr. J. E. Marr as follows:—

	Ashgill Group . . .	{	Ashgill Shales, 50 feet. Staurocephalus Limestone, 5 feet.
Coniston Limestone Series } . . .	Sleddale Group . . .	{	Applethwaite Beds, 100 feet. Conglomerate, 10 feet. Stile End Beds, 50 feet. with Yarlside Rhyolites above.
	Roman Fell Group . . .		Corona Beds, 100 feet.

The series is generally accepted as the equivalent of a part of the Bala Beds of Wales, the remaining part of the Bala Beds and the Llandeilo being represented by the Borrowdale Series, whilst the Skiddaw Slates are, without doubt, in part of Arenig age, and may also in part correspond to the Tremadoc Slates and *Lingula* Flags.

On the Lancashire border, the Coniston Limestone Series does not seem to attain a greater thickness than 300 to 500 feet, and only the upper members are represented, namely, the Applethwaite Beds, *Staurocephalus* Limestone, and Ashgill Shales.

The Applethwaite series consists of very fossiliferous calcareous shales and limestones, with a white horny limestone at the top of the series, which in Dr. Marr's opinion is the equivalent of the Keisley Limestone. At Ireth the beds rest on the Borrowdale rocks, whilst they can also be traced from the mouth of the Duddon northwards to near Ambleside. Good exposures of the Coniston Limestone Series are seen near Sunny Brow on the west of Windermere, and on the high moorland to the south-west of Coniston Water, the Applethwaite beds being especially fossiliferous. Dr. Marr, who has given considerable attention to these beds, states that the best section of the lower part of the series is shown at High Pike Haw, near the head of Appletreeworth Beck, whilst the upper portion is excellently displayed in Ashgill Quarry.

The Ashgill Shales.—These consist of grey and green calcareous shales with limestone, and have a variable thickness. They are well developed at Ashgill; at Rebecca Hill quarry, north of Dalton in Furness; near Coniston, and at various places in Westmorland.

¹ *Quart. Journ. Geol. Soc.* liv. 463 (1898).

GEOLOGY

LIFE DURING ORDOVICIAN TIMES

The abundant graptolite fauna of the Skiddaw Slates has been well worked out by Miss G. L. Elles, and her general conclusions have been already mentioned. It must not be supposed, however, that the whole of the fauna of these beds has been fully determined, as such is hardly likely to be the case for a long time to come owing to the great changes which have taken place in the character of the beds since they were deposited. Strong cleavages have been induced sufficient to convert the mudstones into slates, and the beds have also been invaded by intrusive rocks and much altered by contact-metamorphism. Before the close of the Skiddaw Slate period the volcanic eruptions which were to give rise to the overlying Borrowdale Volcanic Series had commenced, so that thick ash beds and lava flows alternated with the last phases of marine sedimentation. Many of the ash-beds have undergone a later cleavage development, and are at times almost indistinguishable from the true slates.

The Coniston Limestone series has yielded a large number of fossils peculiar to the Bala Beds of North Wales. Amongst these are several corals, including *Monticulipora (Favosites) fibrosa* and *Heliolites interstinctus*. Brachiopods are especially distinctive, and include such well-known forms as *Orthis calligramma*, *O. porcata*, *O. elegantula*, *Leptaena sericea*, and *L. (Strophomena) rhomboidalis*.

The Ashgill Shales are characterised by the trilobites, *Trinucleus concentricus*, *Phacops mucronatus*, and *P. apiculatus*, together with species of *Orthis* and *Strophomena*.

A very complete list of fossils from various horizons is given in Dr. Marr's paper on the Coniston Limestone Series.¹

It is needful to remember that the Ordovician strata of the English Lake District and North Lancashire are the equivalents of the vast mass of slates, grits, and limestones which in North Wales form the Arenig, Llandeilo, and Bala groups, and that it is also quite possible that the lower portion of the Skiddaw Slates may prove of Cambrian age and to belong to the Tremadoc or Lingula Flag series.

SILURIAN

Rocks of Silurian age form a broad fringe to the south of the Borrowdale Volcanic Series in the Lake District, the Ordovician beds already considered forming but a narrow ribbon between them. Almost the whole of North Lancashire north of a line drawn from Lindale and Ayside to Cartmel, Ulverston, and the Duddon is occupied by these rocks, and they stretch across the eastern half of Cumberland to Yorkshire.

The series consists of shales or mudstones, flags and grits which reach a thickness of between 14,000 and 15,000 feet. They have been divided as follows:—

	Kirkby Moor Flags	. . . . .	2,000 feet
	Bannisdale Flags	. . . . .	5,200 "
Upper	{	Coniston Grits and Flags	. . . . . 4,000 "
Coniston		Browgill Beds	
Group	{	Stockdale Shales	200-450
		Graptolitic Mudstones	
		Basement Bed	

The Basement Bed which at Austwick possesses the character of a calcareous conglomerate, rests unconformably upon the upper members of the Ordovician series,² or, as near Souththwaite, upon a series of slates with gritty bands, which pass into rocks sometimes called ash-beds. Below the latter are flaggy slates passing down into the Coniston Limestone. At Skelgill and Pullbeck, near Ambleside, the place of the conglomerate is taken by grit bands and calcareous beds, whilst in other places it seems to be absent. A marked unconformity separates the basement beds from the underlying Ordovician, and this is also accompanied by a marked Silurian fauna in the upper beds.

STOCKDALE SHALES

These consist of blue mudstones and calcareous and graptolitic shales, which are divided into—

Browgill Beds and
Graptolitic Mudstones.

The Graptolitic Mudstones are of great interest notwithstanding the thinness of the beds, owing to the prevalence of graptolites. The dark shales or mudstones are especially prolific in species of graptolites, the chief zones being in descending order as follows:—

<i>Monograptus spinigerus</i>	<i>Monograptus argenteus</i>
" <i>Clingani</i>	" <i>fimbriatus</i>
" <i>convolutus</i>	<i>Dimorphograptus confertus</i>

¹ *Geol. Mag.*, Dec. iii. (1892), ix. 108-110.

² T. McK. Hughes, *Geol. Mag.*, iv. 352 (1867).

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The lower zone lies in calcareous shales. Numerous other genera and species occur, amongst them being *Rastrites peregrinus*, *Diplagraptus Hughesii*, *Climacograptus normalis*, etc. Crustacea are represented by trilobites such as *Acidaspis*, *Prætus*, *Harpes*, *Phacops*, *Encrinurus*, etc.; brachiopods by *Leptaena quinquecostata* and *Atrypa flexuosa*; cephalopods by *Oriboceras*.

Dr. J. E. Marr, when discussing the general facies of these beds,¹ drew attention to the fact that the dominant forms were almost all Silurian, and indicated a relation to the May Hill beds of Wales. A similar conclusion has been reached by other observers, and the beds together with the overlying Browgill or Pale Shales series are now classed as equivalents of the Llandoverly Group.

The Browgill beds, which are frequently termed the Pale Shales, are very similar to certain beds associated with the Graptolitic Mudstones. They have a thickness of about 130 feet, and have yielded graptolites and brachiopods, examples of *Monograptus lobiferus* having been found in them on Appleshwaite Common, and *Stricklandinia lirata* in the Pale Shales of Rebecca Hill near Ulverston.

CONISTON GRITS AND FLAGS

Coniston Flags.—The Coniston Flags, which have a great thickness and are well exposed in the Coldwell and Brathay quarries, about two miles south-west of Ambleside, consist of finely laminated blue flags, overlaid by three series of flaggy and calcareous grits. Dr. Marr divides them as follows:—

Coldwell Beds	} Upper Middle Lower

Brathay Flags.—The Brathay Flags are of fine texture, and cleave readily, and make up about a third of the total thickness. They are sparingly fossiliferous, and have yielded *Favosites aspera*, *Monograptus priodon*, *Retiolites Geinitzianus*, and a few other forms, chiefly in the neighbourhood of Stockdale.

The Coldwell Beds are made up of basal coarse grey grits, middle calcareous flaggy grits of a blue colour and fairly fossiliferous, and an upper series of blue to grey gritty flags, which exceed in thickness the middle and lower beds and Brathay Flags combined.

The Upper Coldwell beds are well seen in a quarry 200 yards south of the Coldwell quarry. The numerous fossils obtained from the Middle and Upper series include the corals, *Petraia*, and *Favosites fibrosa*; a trilobite, *Phacops obtusicaudatus*; brachiopods such as *Orthis* and *Strophomena*, cephalopoda, amongst which are six species of *Oriboceras*, and malacostraca; *Ceraticaris* and *Peltocaris* being found in the upper beds at Troutbeck and Rebecca Hill. The Brathay Flags are of Wenlock Group age, whilst the Coldwell Beds correspond to the lower portion of the Lower Ludlow Group.

Coniston Grits.—These beds have a thickness of from 4,000 to 4,200 feet and consist of flags and felspathic grits. In the Sedbergh district they have yielded a suite of fossils which show them to be closely related to the Coniston Flags below, the grits and flags together corresponding to the whole of the Lower Ludlow Group of Shropshire and Wales.

BANNISDALE FLAGS

This series of beds, which attains a thickness of over 5,000 feet in the adjoining counties of Westmorland and Cumberland, consists of slates, grits and flags. Their representatives in the Lancashire area are to be found in the Upper Ireleth Slate group described by Sedgwick in 1846, whoshowed that they could be traced along the line of strike by Coniston Water and Windermere to Long Sleddale and Bannisdale Foot. The great slate quarries at Ireleth are opened in these rocks.

KIRKBY MOOR FLAGS

This group overlies the Bannisdale series beyond the Lancashire border on the north-east.

OLD RED SANDSTONE

Between the uppermost members of the Silurian in Lancashire which we have now dealt with, and the Carboniferous, there intervenes the Old Red Sandstone, a great deposit of red and grey sandstone, and flagstones, with conglomerates and shales. Although representatives of this system occur in adjacent counties, there is yet no evidence of its occurrence within the county beneath the Carboniferous Limestone. As, however, the Upper Old Red conglomerate underlies the Carboniferous Limestone in Cumberland, it is possible that if the base of the latter was exposed in Lancashire, we should also find the conglomerate beneath it. The conditions which existed in

¹ On Some Well-defined Life-zones in the Lower Part of the Silurian (Sedgwick) of the Lake District, *Quart. Journ. Geol. Soc.* (1878), xxxiv. 879.

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Old Red Sandstone times were a natural prelude to those which brought about the formation of the limestone and limestone-shale of the Lower Carboniferous Series, and it is therefore necessary to a full knowledge of the latter that the main facts be at least outlined.

There is abundant evidence to show that a prolonged period elapsed after the formation of the Silurian, during which the deposits of the latter were subjected to considerable change and denudation. Only after prolonged erosion of their upturned edges, which formed part of a land surface, did a period of subsidence set in, and a series of depressions form, within which the red sandstones, shales, and conglomerates of the Old Red Sandstone were deposited. The character of these deposits clearly shows that they must have been accumulated not far from land, and the accepted belief is that the areas of subsidence, whilst in all probability connected with the sea at first, gradually became inland waters, passing in fact from a marine to a lacustrine condition.

The extensive development of the Old Red Sandstone deposits indicates also that a large continental tract must have existed around the areas of sedimentation from which the material was derived. The sandstone and conglomerates formed at the close of that period gradually gave place to calcareous muds and limestones, the latter showing that after a period of rest a slow and widespread period of depression had again set in. As subsidence went on the Old Red Sandstone lakes became once more merged into the sea, and as the movement continued the continental land surface also sank beneath the water, until marine conditions were established over almost the whole of England, Wales, and Ireland, and the southern half of Scotland, with the exception of a few island masses, one of which stretched from Leicestershire into Wales, occupying what is now St. George's Channel, and striking northward to the North of Ireland and the western coast of Scotland. As the sea area increased, beds of silt and mud took the place of pebbles and sand banks, to be overlaid in turn by purely marine deposits.

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The thick limestone beds which were gradually accumulated over the sea floor show that the water was clear and fairly destitute of material derived from the land. That these marine conditions were permanent for a long time is shown by the thickness of the Carboniferous Limestone, which in the neighbourhood of Clitheroe has been estimated at over 3,000 feet, without the base being seen. The waters of the carboniferous sea were tenanted with an abundant marine fauna, crinoids and corals predominating, the former to such an extent that great thicknesses of rock were built up almost entirely of the broken-up and commingled stems. Limestones of this character are well seen in the neighbourhood of Clitheroe, Whalley, and Whitewell, and also at the Salt Hill quarries. The corals grew either singly or in colonies, the latter often covering large areas with a thick layer of one species only. This was especially the case with forms like *Lithostroton*, *Syringopora*, etc.

Brachiopods and pelecypods were well represented, and abundant evidence is furnished of shark-like fishes by the presence of teeth, spines, and scales. The boundaries of the Carboniferous sea are indicated by the intercalation of beds of mud and sand around the edges of the massive limestone, and by a thinning of the latter. It is by the careful mapping of these estuarine and littoral deposits that it has been possible to determine the main outlines of the sea area.

The formation of the thick limestone gradually began to fill up the sea-floor, and the materials brought to the sea margin by rivers, or derived from the eroded coastlines of the land, were carried farther and farther out until muddy and detrital deposits extended over the greater part of the sea-floor, and the formation of the Pendleside Group ('Yoredale Series')¹ began. The filling up still continued until large areas of the sea were cut off wholly or partially from the rest, and by the constant discharge into these of river waters marine conditions gave place to brackish, and the latter to fresh water, until, by the accumulation of sand and silt, the Millstone Grit Series was formed. At times, shallowing of the enclosed areas proceeded so far that vegetation extended from the land over the muds and sands, so giving rise to the thin coal seams occasionally found in the Millstone Grits. Subsidence still continued, but irregularly, so that a prolonged period of rest resulted in some lagoons becoming filled up and overgrown by coal forests, whilst very slow subsidence, and the continuance of shallow conditions, permitted the deposition of inshore materials, such as coarse sands, to be overlaid in turn by fine muds, when a greater subsidence caused the shore line to recede, and only finer water-borne material to be carried so far out. In this way arose the alternation of sandstones, grits, shales, and coals which make up the Lower Coal Measures.

The same process of subsidence followed by periods of rest brought about the formation of the Middle Coal Measures, only in this case, the land-derived waste was mainly deposited in the form of fine mud, probably owing to the general level of the land from which it was derived being so low that only the finer material could be carried in suspension by rivers. The existence of a low

¹ The name 'Pendleside Group' is here used in preference to 'Yoredale Series,' as the latter division at the typical locality in Wensleydale is considered to be on a lower horizon and equivalent to the upper portion of the Carboniferous Limestone. Hind and Howe, *Quart. Journ. Geol. Soc.* 1901, lvii. 376.

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land surface with sluggish rivers would thus account for the greater prevalence of shales and the feeble development of sandstones which mark the Middle Coal Measures.

Similarly it has been held that the great development of grits and sandstones which form the Millstone Grit can only be accounted for by a general and rapid upheaval of the land surface at the close of the Pendleside period, by means of which rivers acquired greater velocity and destructive power, and were thus able to carry heavy loads of sand and pebbles from the land into the sea.

The former wide extension of the Coal Measures over England, and their development over many parts of the continent of Europe, point unmistakably to the existence of vast tracts of alluvial land at this time, and these in turn were probably but the maritime plains of a huge continent whose inland surface was very mountainous, watered by a heavy rainfall, and drained by mighty rivers.

The Upper Coal Measures, best seen in the neighbourhood of Manchester and along the southern borders of the Lancashire coalfield, differ markedly from the rest of the Carboniferous series in being made up mostly of red, green, and purple shales and clays, with thin limestones and sandstones. Coal seams only occur in the lower portion. The character of these deposits seems to indicate that the conditions we have already described were followed by the formation of freshwater lakes cut off from the sea and subject to evaporation. The limestones are such as would be formed by precipitation, whilst the prevalence of ferric oxide would seem to show that it was deposited as the sediments were formed, every grain being coated with it, a circumstance hardly likely to occur in sea-water or where the sea had access. As is evidenced to-day in many parts of the world, landlocked waters subject to evaporation are but little fitted to support life, and the deposits formed under similar conditions in Upper Coal Measure times show a great reduction in numbers as contrasted with the rest of the series, whilst, with the exception of the ostracods and *Spirorbis*, those species which persisted are found to be dwarfed and thin-shelled, whilst fish remains are rare.

Considerable attention has been paid of late years to the palæontology of the Carboniferous System and the occurrence of life zones, and it may be regarded as certain that the facts which are being collected will result in some modification of the existing and generally recognised subdivisions.

These at present are as follows:—

Upper Carboniferous	{	Coal Measures	{	Upper.
				Middle.
		Millstone Grit Series.		Lower.
Lower Carboniferous	{	Pendleside Group ('Yoredale Series').		
		Mountain or Scar Limestone.		
		Lower Limestone Shale.		

THE CARBONIFEROUS OR MOUNTAIN LIMESTONE

This lowest visible member of the series rises to the surface in North Lancashire, occupying a tract of country between Barrow in Furness, Dalton in Furness, and Ulverston, thence passing eastwards by a few outliers to Cartmel and Burton in Kendal, from which it trends south by Carnforth to near Morecambe. The rocks then dip to the south-east under the Millstone Grit country, rising again to the surface in the Forest of Bowland, or Bolland, and the Longridge Fells. From here they sweep round the Millstone Grit hills to the river Hodder, Whalley, and Clitheroe, where they form a strong anticline known as the 'Clitheroe Anticline.' To the south-east of Whalley and Clitheroe they dip from the anticline under the Pendle Range and the Burnley Coalfield, to again re-appear in the Todmorden and Hebden Bridge valleys over the Yorkshire border.

The Carboniferous Limestone country is well marked, rising into bold hills along the flanks of which are majestic mural cliffs or 'scars' formed by the outcrop of the massively bedded limestone. Such 'scars' are perhaps best seen in Derbyshire, but examples are not uninfrequent in North Lancashire, in the Cartmel and Ulverston districts, in the Longridge Fells, and near Clitheroe, Whitwell, and Whalley.

It will be perceived that the Carboniferous Limestone really forms two basin-shape depressions or troughs, with the Clitheroe Anticline between. The Carboniferous Limestone of the Furness and northern district is chiefly remarkable for the extensive deposits of hæmatite which occur in it, usually in the form of irregular masses and pockets.¹ At Clitheroe it consists of a lower black bituminous bed overlaid by shales containing *Fenestella*, and a massive light-coloured limestone seen at Salt Hill and Coplow quarries, near Clitheroe, Worsaw Hill, and other places. The lower black limestone can be seen at Horrocksford quarries, the Bold Venture limeworks, and Tiviston

¹ J. D. Kendall, *The Iron Ores of Great Britain and Ireland* (1893), pp. 54, 64.

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Lane, whilst on the north side of the latter is a quarry showing the intervening shales. It is in the higher bed of limestone that crinoid stems occur in greatest abundance, the upper 40 feet at Salt Hill being almost entirely made up of them. The same, or a similar bed, is seen at Whitewell. Many of the rough field walls are built of this rock, which readily breaks up, the crinoid stems weathering out in high relief.

Both the lower and upper beds are much quarried for lime-burning, that derived from the black limestone being especially good.

PENDLESIDE GROUP

This group, as its name implies, occurs on the flanks of Pendle Hill, of which it forms what have been called the buttresses of the north-western slope. This slope rises to a height of 1,831 feet, and shows a regular succession of deposits from the Carboniferous Limestone to the Pendle Grit. The stream courses from the summit have cut down through the beds, so that it is possible to work out in them the full succession, and Dr. Wheelton Hind and Mr. J. Allen Howe have determined the sequence as follows¹ :—

Pendle Grit, or 'Upper Yoredale Grit.'

Bolland Shales, including the 'Lower Yoredale Grit,' or Pendleside Grit.

Pendleside Limestone with overlying Shales and Mudstones.

Black Shales with a few bands of impure Limestones.

Shales with Limestones.—These beds consist of shales, thin limestones, mudstones, and at times thin ironstone. They are exposed in the Pendle branch of the Worston Brook by the lane east of Worston, and the brooks flowing from Lower Gills to Ings Beck near Skeleron Mines.² The upper beds consist of limestone from one to three feet in thickness, which regularly alternate with clayey shale.

In brook courses, as at Angram-Green near Worston, the rocks form a series of waterfalls, owing to the markedly unequal erosive action of the streams upon the clay-shale and limestones.

The Geological Survey calculated the thickness of this division as close upon 2,500 feet thick, but the estimate is considered too high by Dr. Hind and Mr. Howe, who calculated it at 1,500 feet.³ Many of the springs issuing from these shales are charged with sulphuretted hydrogen.

The Pendleside Limestone has a thickness estimated by Professor Hull at 350 feet, and consists of a series of thin limestones and shales below, passing into thicker beds of limestone and a few shales above, the upper member being a bed of large hard 'bullions,' which contain a goniatite, *Glypticeras reticulatum*.

The upper limestones contain crinoid stems and examples of *Productus scabriculus* and *P. semireticulatus*, forms which pass up into the Millstone Grit and Lower Coal Measures. The black shales at the base contain species of *Chonetes*, *Productus*, *Prolecanites*, and *Orthoceras*.

The series is also developed around the flanks of Longridge Fell, where it contains well-bedded dark limestones and shales. Sections can be seen in a quarry north of the Longridge and Clitheroe road, three-quarters of a mile east of Thornley Hall.⁴

At Black Hall and Cold Coats quarries, the lower beds are fairly fossiliferous, numerous species of goniatites being found, together with *Posidoniella lewis* and *Posidonomya Becheri*.

Bolland (Bowland) Shales, with the 'Lower Yoredale Grit.'—The 'Lower Yoredale Grit' forms a lenticular mass of grits and sandstones, with shales and ironstone interbedded. By the officers of the Geological Survey it was regarded as lying at the base of the black Bolland Shales, but by Messrs. Hind and Howe it is included in the latter. By these authors it is also termed the Lower Yoredale or Pendleside Grit. The beds are local, although acquiring a thickness of 750 feet at Weets, immediately west of the Great Barnoldswick Fault. The topmost bed is well shown in Little Mearley Hall Clough, where it forms a well-marked conglomerate.

The Bolland Shales on the northwest side of Pendle Hill are about 700 feet thick, and consist mainly of black shales. They are usually calcareous, very fissile, and full of flattened fossils in a poor state of preservation. In the thin ironstones which accompany the shales the fossils are better preserved and uncrushed. The shales are very bituminous and not unfrequently smell strongly of rock oil. This bituminous character has in the past often led astray coal seekers, who have been convinced that the beds belonged to the coal measures, the shales of which they so much resemble. Not merely is there a superficial resemblance, but many of the fossils of the Bolland Shales are identical with those of the Lower Coal Measures; amongst these may be noted *Posidoniella lewis*, *Orthoceras*, *Goniatites*, and fragmentary fish remains.

¹ 'The Geological Succession and Palæontology of the Beds between the Millstone Grit and the Limestone-Massif at Pendle Hill.' *Quart. Journ. Geol. Soc.* 1901, lviii. 348.

² Prof. E. Hull, 'The Geology of the Burnley Coalfield,' *Mem. Geol. Survey*, p. 17.

³ Op. cit., p. 349.

⁴ Hind and Howe, op. cit., p. 352.

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We are strongly of opinion that the identity of lithological character of these beds with those of the Millstone Grit Series and Lower Coal Measures, coupled with a fauna which is practically the same in all, will eventually result in the old stratigraphical boundaries between them being set aside, and the whole series grouped together, as indeed they ought to be.

Pendle Grit, or 'Upper Yoredale Grit.'—The summit of Pendle Hill is occupied by a massive bed of grit sometimes known as the Pendle Grit. It is a fine-grained sandstone, rarely passing into a conglomerate, and containing much felspar and mica. It has been correlated with 'Farey's Grit' in the Peak district of Derbyshire.¹ Quarries are opened in it on the south side of the Nick of Pendle, where it is seen to contain large ovoid concretions marked with brown and yellow bands. The same beds form the summit of Longridge Fell, and constitute the greater part of the Fells around the Ribble and Hodder basins. It is also to be seen near Mellow, along the north side of Billington Moor, and so on to Whalley.

The occurrence of the massive Pendle Grit on the summit of Pendle has served to protect the latter from suffering so heavily from the effects of denuding agents, which have lowered the surrounding country. That Pendle was subjected to these forces is shown by the deep ice scratchings impressed on the surface of the grit during the glacial period, and still to be seen on a freshly exposed surface.

Probably also, this Sandstone capping was equally effective at a still earlier period, just as it is to-day, now that Pendle rises so grandly out of the surrounding low country to an elevation which can be seen across two score miles of country.

Lying above the Yoredale or Pendle Grit are a series of shales but seldom seen, but where exposed, as in the road between Offa Hill and Stank Top, having a thickness of about 200 feet. Shales and sandstones occupying the same position are seen north of Foulridge.

Above these shales we meet the lowest member of the Millstone Grit Series, known as the Fourth Grit, or Kinder Scout Rock.

MILLSTONE GRIT SERIES

The Millstone Grit Series is extremely well developed in Lancashire, where it forms a well-marked boundary to the Coal Measures on the east and north.

The eastern flanks of the Millstone Grit rise up into the elevated moorland hills which form a natural boundary to Lancashire and Yorkshire.

This region may be rightly regarded as an outlying portion of the Pennine Chain, which runs as an elevated ridge from Derbyshire to the borders of Scotland.

The Millstone Grit of the northern border of the coalfield rises up into a similar range of bare and bleak moorlands, running from a little west of Blackburn to Colne and Skipton, between which places it merges into the hill ranges of the eastern side; on the western side, the series extends northwards by Longridge and Great Mitton.

South of a line drawn from Blackburn to the Holme Valley between Burnley and Todmorden, the coalfield encloses two other areas of Millstone Grit, the most westerly forming Anglezark Moor, and the easterly the hill district of Rossendale. In the latter area the grits form what is known as the 'Rossendale Anticline.'

North of a line drawn from Garstang to Long Preston is an extensive area of Millstone Grit the westerly border of which reaches the coastline in the neighbourhood of Heysham, where it forms a line of low cliffs, upon which Heysham Church is built. From Heysham the grits pass in a northerly direction to a little east of Kirkby Lonsdale. Skirting the whole of the comparatively unimportant Ingleton Coalfield, except on the north-eastern side, they swell out into Yorkshire as far as Clapham and by Giggleswick. Within this area are included the Bleasdale Moors and the Forest of Bowland with its two inliers of Carboniferous Limestone. Throughout the Lancashire coalfield wherever the Millstone Grit occurs, the surface features are of a remarkable character. The moorlands are everywhere bare, lofty hills, rising in many places to heights of 1,200-1,900 feet, and supporting a sparse vegetation of heather, cotton grass, &c., whilst extensive areas are covered with thick beds of peat. The hill sides are often steeply scarped, and stand out as bold bluffs of grit, sometimes fantastically weathered, and deeply indented along their margins by steep narrow gullies, usually termed 'cloughs,' which form the beds of mountain streams. The cloughs, or ravines, run upwards into the hills, where they finally disappear on the moorland. For the greater part of their length, however, they present features widely different from those of the hills which enclose them.

The steeply sloping sides are usually formed in their lower half of scree material derived from the weathering of the sandstones and shales above, and on the material thus accumulated, vegetation

¹ R. H. Tiddeman, in 'Geology of the Burnley Coalfield,' *Mem. Geol. Survey*, p. 23.

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grows rank and abundant. Many of the common forest trees grow along the sides of the cloughs, whilst the undergrowth is a tangle of the wild raspberry, bramble, honeysuckle, and ivy. Marshy spots are carpeted with Sphagnum moss, whilst great clumps of bracken fern, horse-tails, and mare's-tails grow in sheltered spots. The bracken fern frequently grows up above the timber line amidst the grass and heather.

The stream courses are littered along the greater part of their length with flood débris of stones, and frequently it has happened that a period of flood has caused a great pile of débris to accumulate in the main track of the stream, so that further progress downwards of the water could only be effected by the cutting of a new passage to one side, when the stream, once diverted, has continued to cut into the side of the clough until a vertical cliff has been formed, often of great height. In this way a clough is sometimes seen to suddenly widen out into a sort of sylvan amphitheatre, the bottom of which is filled with a level tract of bog or meadow land covered with ferns and trees, and bounded by the stream, which margins on the opposite side a tall cliff festooned with trailing ivy, honeysuckle, ferns, and flowering plants.

Another special feature of these moorland cloughs is the frequency of waterfalls, owing to the marked difference in hardness of the sandstones and intervening shales.

When the stream of water in its downward course passes from a sandstone to a shale, the rate of destruction of the latter is greater owing to its softness. It therefore follows that after a time there is a perceptible drop in the stream level at the point where it passes from one rock to the other.

This alteration of level is naturally increased in the course of time, both by the weight of water dropping from the higher level and by the wearing effect of débris brought over, until a well-defined waterfall results.

Once the waterfall is formed, it begins to be cut backwards by reason of the shale which underlies the grit rock being picked out by the water of the pool formed below the fall, and by spray being continually driven against it, until the outer ledge of rock over which the water pours ceases to be supported from below, and it is hurled down, a new ledge or lip appearing behind it. The destruction of the outer lip of the fall is accelerated by the fact that the grits are usually open-jointed, and water continually finds its way down to the pool by a passage through these crevices, some distance back from the edge of the fall. The passage of water through these open joints results in their widening and thus allows more water to pass, the process, when long continued, cutting off more or less completely the outer masses of rock until the succeeding flood waters dislodge them altogether.

Waterfalls which have arisen in this manner are common in all cloughs and add considerably to their beauty.

Where a rock is massively bedded and well jointed, the fall is broken up into irregular steps formed of the various bedding planes, and the water leaps from step to step, forming miniature cascades all the way. Where the sandstone is passing into a shale or where the rock of the fall consists of bands of shale and grit, the face of the fall slopes outwards, and the water rushes down its length like broken water down a weir.

In some cases, a thick bed of hard grit rock overlies a still thicker bed of softer shale, and where this occurs the water drops clear from a projecting ledge of sandstone into the pool below.

The increased volume of mountain streams due to lateral feeders results in the cloughs becoming widened out, and the sides are thus better exposed to the action of storms of wind and rain, and frosts. As a result, they are destroyed more rapidly, and the greater part of the cliff-like character is lost in the steep scree slopes already mentioned.

The characteristics of these cloughs have been thus fully dealt with because they are one of the most distinctive physical features of the moorland areas formed by the Millstone Grit, and also because along their stream courses it is possible to trace the upward or downward succession of the strata over great distances.

The Millstone Grit Series everywhere underlies the productive measures, and rises into moorlands on the north and east.

As its name implies, the series consists of beds of hard quartzose grits, often very coarse, and interbedded with bituminous shales and a few thin coals. In a few cases, the coals have been worked to a limited extent, but they are generally much too thin to pay for working.

The grit rocks are largely quarried for flags, building-stone, paving-stone, and road-metal. The massively bedded rock bands furnish huge blocks, used as engine beds and supports for heavy machinery.

The grits contain casts of Lepidodendroid and Sigillaroid trees, not unfrequently many feet in length, and two to three feet in diameter at the base. In most cases, these tree trunks have been much flattened, but erect stumps, still circular and 6 to 100 feet in height, are found, as at Oldham Edge, with the marks of the leaf-bases clearly impressed upon them.

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On the other hand, the intervening shales contain brackish and marine forms of life more nearly related to those of the Yoredale shales and Carboniferous limestone below. A species of *Lingula* is most common, but species of *Productiæ*, *Streptorhynchus*, *Spirifera*, *Aviculopecten*, *Madiola*, *Posidoniella*, and *Goniatites* also occur. Fish remains are rare.

The Millstone Grit Series is separated into four divisions :—

- First Grit, or Rough Rock.
- Second Grit, or Haslingden Flags.
- Third Grit.
- Fourth Grit, or Kinder Scout Rock.

<i>Rough Rock.</i>	One or, more usually, two beds of massive coarse grit, separated by a twelve to eighteen inch seam of coal called the 'Feather Edge' Mine.
<i>Shales</i>	Usually thin and at times absent. In the Rossendale area from 30 to 100 feet thick.
<i>Second Grit, or Haslingden Flags.</i>	Fine-grained hard grey sandstone forming three beds in the Rossendale district.
<i>Shales</i>	A shale series containing a thin coal at the base, and a workable seam at Mossley and Mottram, in Cheshire.
<i>Third Grit.</i>	Fine grits and flagstones, the lower beds being especially thick and coarse.
<i>Shales</i>	Shales with two thin coals near the base.
<i>Fourth Grit, or Kinder Scout Rock</i>	Massive coarse sandstone grits, with conglomerates and shales.

It must not be supposed that the sequence of beds given here can always be determined. Many of the grits are much current-bedded, whilst their thickness is constantly changing, and important members are in some places absent. The Kinder Scout and Rough Rocks are the most stable members of the series, the Second and Third Grits being more lenticular in form, so that their thickness, even in adjoining districts, may vary extremely.

Kinder Scout Rock.—This rock consists of two or more beds of grit, varying in their character from ordinary sandstones into conglomerates, the pebbles consisting of quartz which is mainly milky in colour, the glassy form being less constant. Rotten felspar and flakes of mica are also abundant, so that the coarser grits have a granite-like appearance. The extensive Millstone Grit capping of the Anglezark, Wheelton, and Withnell Moors and Bromley Pastures is formed of this grit.

To the north of Anglezark Moor is a long elevated ridge of Kinder Scout Rock, passing from Holster Hill two miles north of Hoghton Tower in a direction E 38° N. by Mellor, Whalley Nab, and Wiswell Moor to Nick of Pendle. Along the foot of Pendle and at Newchurch-in-Pendle outcrops are numerous. In the neighbourhood of Cocker Hill the grit consists of two beds of coarse sandstone separated by about 125 feet of shale. The total thickness has been estimated by Prof. Hull as between 750 and 800 feet. It forms a well-marked feature in the neighbourhood of Foulridge, north of Colne.

The Kinder Scout Grit is well seen to the east of Oldham cropping out in the valley of the Tame from Warmton Wood to Harrop Edge, and stretching on into Cheshire and Yorkshire. On the Yorkshire side of the boundary at Chew Brook and Greenfield the grit rises into bold, majestic cliffs. The thickness is here estimated at 500 feet, but this is increased at Saddleworth owing to the greater development of one of the beds of shale.

A fine section is exposed along the Mottram and Staleybridge road at Roe Cross, where the total thickness has increased to about 1,000 feet.

Shales.—The shales seen on the flanks of Winter Hill are supposed by Prof. Hull to lie above the Kinder Scout Rock and below the Third Grit. They attain a thickness of 350 to 400 feet. In the river Darwen below Malmesbury Mill they show a thickness of 625 feet, and the bottom is not seen. They have been traced to Whalley, where they occur in the bed of the river Calder and also between Wiswell Moor and Sabden.

Between Rough Lea Water and the road from Colne to Foulridge exposures are difficult to find, but numerous sections occur south of the canal reservoir.

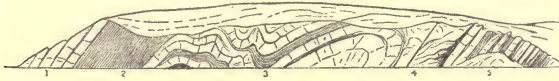
In ironstone nodules from the shales, and in the shales themselves, have been found *Goniatites*, *Posidoniella levis*, and fish remains, together with *Calamites*.

Two thin coal seams occur at the base of the shales in Dean Brook at the northern end of Rivington Hill, and also at Grange Brook near Belmont.

At Pule Hill on the eastern side the shales vary from 100 to 300 feet in thickness. They show a tendency in both localities to become sandy or flaggy.

GEOLOGY

The Third Grit.—This consists of two, sometimes three, beds of grit, flagstones, and shales, the lowest bed being especially massive and at times passing into conglomerate. The grit occurs at Belmont between Turton and Rivington, where it forms the cliff known as 'the Ratchers,' and then runs northwards, being again seen in Roddlesworth Brook below Tockholes. Along the Pendle range two and sometimes three beds of grit divided by shales are met with, the basement bed being especially coarse or passing into conglomerate. A good section of this bed is exposed in a cutting of the Lancashire and Yorkshire Railway at Brown Hill, about two miles north of Blackburn. Here the beds are violently contorted, owing to the proximity of a fault passing from N.N.W. to S.S.E.



Contorted Beds in Clitheroe and Blackburn Railway.

The Third Grit is exposed at various places along the Sabden valley north-eastwards to Colne and Foulridge, and down the eastern side of the coalfield by Widdop and Stiperden Moor to the heights above Littleborough, where the top bed is pierced by the Summit tunnel on the Lancashire and Yorkshire Railway, and southwards to Stalybridge. At Ramsden Clough and Clough Foot in Dulesgate, a thin coal and shale parting occurs in the top bed of grit. A similar thin coal seam lies under the grit at Black Clough.

The Third Grit is well exposed at Gauxholme in Dulesgate, and along the Irwell valley between Rawtenstall and Waterfoot in Rossendale. In the latter district it contains two thin coal seams. Below Rawtenstall it forms the floor and sides of the Irwell valley from Holden Wood to Ramsbottom, where it can be seen at several places along the railway. Shuttleworth Moss and Harden Moor are capped by the upper beds of grit.

Shales below Second Grit.—These shales have not received much attention, except from the late E. W. Binney, who described them as the 'Holcombe Brook Series,' at which place they contain three thin seams of coal, one being 15 inches thick and formerly worked at Cheeseden Brook. Similar thin coals have been found in the shales in the Foulridge district, notably at Laneshaw Bridge, and on Pule Hill on the eastern side.

Second Grit, or Haslingden Flags.—This valuable series reaches its highest development in the Rossendale area and the Whitworth and Facit valleys. It consists of fine grained sandstones well bedded and exceedingly hard and durable. The utilisation of these beds has increased considerably during recent years, so that over large areas on the Brandwood Moors, Cowpe Moss, and at Back Cowm, the hill crests are being studded with great quarries. In the Rossendale area the Haslingden Flag Rock consists of three beds of grit, averaging 36 feet in thickness, and separated by 30 to 100 feet of shale.

Away from this particular area the beds deteriorate in character, and even pass into 'raggy' shale as at Newchurch-in-Rossendale. In the Pendle Range they approach the overlying Rough Rock, being only separated by 15 to 20 feet of shale. On the eastern side they are feebly represented. North of Rivington the series is well developed and can be seen in the valley below the Anglezark Lead Mines on the western and southern slopes of Rivington Pike, and at Tockholes, and in the river Roddlesworth.

First Grit, or Rough Rock.—The Rough Rock forms the highest member of the Millstone Grit, and may usually be recognized by its coarse character and the presence of a thin coal seam in its upper portion. It is not very useful as a building stone, being often soft and incoherent and readily breaking down into a coarse sand. For this reason it is sometimes called the 'Sandrock,' and the coal seam the 'Sandrock Mine.' More commonly the latter is styled the 'Feather-Edge' Mine. Quartz pebbles occur abundantly in the beds, and hand specimens of the latter may at times be mistaken for a conglomerate. The Rough Rock forms a capping to many of the hills in the Millstone Grit areas, and hence can be easily traced around the coalfield. From Hoghton Towers, where it forms a lofty hill and is estimated at 400 feet thick, to the south slopes of Pendle and eastwards to Colne, it is well in evidence, the latter town being built on a ridge of this rock. Good exposures can be seen in the river bottom on the eastern side of the town. In the Anglezark area it is found at Pike Low, Withnell, and Stanworth Edge, and crops in massive beds at the top of Blackburn Park. At Winewall, near Colne, large quarries are opened in it, and south from this point it forms a hilly crest by Entwistle Moor, Shedden Edge, and Stiperden Moor to the Ports-mouth valley at Red Water Brook. On the opposite side of the valley it is continued along the side

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of Thieveley, Flower Scar Hill, and Dulesgate (where the 'Feather-Edge' coal is seen at Banks Mill) to Shore and Littleborough.

In the Rossendale area, the lower bed of grit and the 'Feather-Edge' coal are present as a surface bed below the peat over the Brandwood, Cowpe, and Knoll Moors, whilst at Bacup the upper bed can be seen in Bankside Quarry resting directly upon the coal.

The conformation of Brandwood Moor, Seat Naze, and the flanks of Cribden have been largely dependent upon the occurrence of this grit. In the case of the former it forms a complete capping, and, judging from the abundant evidence of glaciation, has served to protect it during the glacial period. At Bury the 'Feather-Edge' coal is two feet thick, and is not overlaid by grit. It has been worked on Scout Moor, near Edenfield. Holcombe Moor is largely capped by this rock, and we also find it on Darwin Moor, Bunkers Hill, Tockholes Fold, and other places. Along the northern side of the Burnley coalfield the various members of the Millstone Grit series dip southwards, the Rough Rock having a strong dip. The same upheaval has brought up the overlying Lower Coal Measures, the seams of which were formerly termed 'Rearing mines.'

It must not be forgotten that the Millstone Grit series in Lancashire forms but a small portion of an extensive mass of sandstones and shales which spread over the high ground of the West Riding of Yorkshire and stretch southwards and eastwards into Cheshire, Derbyshire, and North Staffordshire. Taken as a whole, these irregular deposits of sandstones and shales are indicative of a lengthy period of subaerial denudation of older crystalline rocks of a granite texture; hence the prevalence of decayed felspar and mica in the sandstones, and also of a corresponding sedimentation along the borders of the old Carboniferous limestone sea. The labours of Professor Green and others have shown that the greatest amount of deposition took place over Lancashire and South Yorkshire. Outside this area the grits thin off, especially to the north and north-west. Dr. Sorby, from a study of the current-bedding which is so marked a feature of the sandstones, concluded that the material of the grits in Lancashire and Yorkshire was brought by currents flowing from north-east to south-west, and an examination of the mineral constituents led him to suppose that the main mass of the grits was derived from the destruction of a western prolongation of what is now Scandinavia, this prolongation, if we follow Professor Hull's view, being part of a continental land which stretched from Scandinavia over the north of Scotland and Ireland into the North Atlantic. It is quite possible also that some of the grits and shales on the southern side of these counties were derived from a central land area which occupied the middle of the old Carboniferous sea.

At this time, as during the deposition of the Pendleside ('Yoredale') Group, the north-easterly part of this sea had become landlocked, either by blocking up of its outlets or by upheaval of the sea floor. The enclosed inland sea, by the gradual spreading out over its floor of sand and mud brought by rivers from the north and east and south, became converted into a huge swampy marshland, enclosing large lagoons with communicating channels, and over these the Coal Measures were in turn deposited.

COAL MEASURES

The Lancashire Coal Measures, which were accumulated upon the substructure of grits and shales, are divided into the lower, middle, and upper series, but the boundary lines are purely arbitrary and drawn for convenience rather than as indicating any real change in the deposits or their contents.

Speaking generally, the Lower Coal Measures are specially marked by shales containing supposed marine forms of life, thick beds of grit, and but few and thin coals. The Middle Coal Measures form the productive measures, marine bands, with a single exception, being absent.

The Upper Coal Measures contain a few coal seams in their lower half, the upper beds consisting of red shales and thin limestones.

Topographical Features.—The topographical features of the Lancashire Coalfield are well marked. On the south and west it is bounded along a line of faulting by the low Triassic plain of Cheshire and western Lancashire. Along the northern and eastern sides it is shut in by a series of lofty moorlands covered by extensive peat deposits and overgrown with heather.

The flanks of the moorlands are deeply gashed by the narrow ravines called 'cloughs' (see p. 8), the sides of which, clothed with the bracken and other ferns, lodge a few hardy trees and shrubs. Here and there the ravines have vertical walls of massive grits or well-bedded shale.

At the base of the highest moorlands are low rounded foot-hills whose sides and crests are clad with trees or occupied by grazing farms. These hills consist of the upper members of the Millstone Grit, or of the Lower Coal Measures, in which grit rocks are a strong feature. The hill slopes are usually steep. Most of the mining of the Lower Coal Measures is done by means of 'adits' which pass into the sides of the hills or else by shafts which rarely exceed 100 yards in depth.







EXPLANATION OF COLORING

RECENT		Blown Sand
		Alluvium
TRIASSIC		Keuper Marls
		Keuper Sandstone
		Rauter Sandstone
PERMIAN		Boveen and Sandstone
CARBONIFEROUS		Coal Measures
UPPER		Millstone Tost
LOWER		Snowflake Rocks, Mountain Limestone and Lower Limestone Shale

GEOLOGY

The southern fringe of the coalfield might be described as a hummocky country, a series of shallow river valleys separated by low, broadly rounded hills. It is along this southern fringe that the rich Middle Coal Measures chiefly occur, only a few isolated patches being found in the northern half, the chief of which is known as the Burnley Coal Basin.

The large cotton and iron manufacturing towns of Lancashire lie along the lower parts of the valley systems, the flanks of the moorlands being occupied by grazing farms, and the crests by quarries.

On the south and west of the Lancashire Coalfield is the great Cheshire and west Lancashire plain of Triassic rocks. The district is almost entirely agricultural, flat and monotonous.

Mining History.—Whether coal mining was practised in Lancashire by the ancient Britons is a point upon which there is no certain evidence.

Previous to the time of the Roman occupation, the county was largely forests and swamps, and the ease with which wood could be obtained discounts any theory of coal working by the Britons.

That coal was mined and used as fuel by the Romans is very probable, for Whittaker, the Lancashire historian, has recorded that the evidence of a large coal fire, and an abundance of ashes and scoræ were dug up in the 'Castle Field' in the Roman centre of Mancunium or Manchester.¹

Whether coal was used in Lancashire by the Saxons is not known.

That the coal was taken out at a remote period has been proved by the finding of old workings and old implements of mining, such as oaken shovels tipped with iron, etc.

Coal was mined in the Burnley area in the time of Henry VIII.,² but only with the commencement of the nineteenth century did mining become important, its progress being synchronous with the development of woollen, iron, and cotton industries.

LOWER COAL MEASURES

These measures bound the northern side of the South Lancashire Coalfield, and send three arms northwards through the Millstone Grit country to the Burnley Coalfield, which they completely encircle. Immediately to the south of the latter coalfield they cover a tract of country fifteen miles long from east to west, and three to five miles broad from north to south.

The Lower Coal Measures include all the beds lying between the Upper Rough Rock of the Millstone Grit Series and the floor of the Arley Mine (also known as 'Little Delf' at St. Helens, 'Riley Mine' at Bolton, and 'Dogstone Mine' at Bury). They consist mainly of shales, with thin bands of nodular ironstone, sandstones and thin coals, reaching in all a thickness of 1,200 feet along the line of the 'Rossendale Anticlinal.' Not more than six coal seams are present in the series, the total thickness rarely exceeding ten feet.

The accompanying generalized section in the Rossendale area serves to illustrate the position and thickness of the seams:—

	ft.	in.		ft.	in.		
Pasture, Bassey and other thin coals	43	0	Shales and Grits	20	0		
Upper Mountain Mine Coal	1	6	Lower Foot Mine Coal	0	8		
Shales	36	0	Strata	40	0		
Fireclay Coal	0	2	Bassey or Salts Mine Coal	2	3		
Strata	56	0	Shales and Grits	100	0		
Mountain Four Feet Mine where they unite.	}	Upper Foot Mine Coal	0	8	First Coal	0	10
		Shales	30	0	Rough Rock		
		Lower Mountain or Gannister Mine Coal	2	6			

The coal seams are frequently termed 'Mountain Mines,' owing to their general occurrence on the high ground. But three are of commercial importance, viz. the 'Gannister,' 'Yard' or 'Lower Mountain Mine,' the 'Upper Foot' or 'Bullion Mine,' and the 'Upper Mountain Mine.' The 'Bassey' or 'Salts Mine' is a very impure coal and not much used. It is worked to some extent in the Blackburn area. The Upper Mountain Mine and the Gannister seam have been largely worked by adits and shafts to supply the wants of the numerous cotton manufacturing towns of Lancashire, and are still largely used. The chief coal supply from the Lower Coal Measures will, in the future, have to be drawn from a four-foot seam formed by a union of the

¹ *History of Manchester*, i. 301.

² *Hull's Coal Fields of Great Britain*, ed. 4, 1891, p. 220.

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Gannister and Upper Foot seams, which takes place along an irregular north-west and south-east line a little to the north of the Rossendale anticlinal. Although up to the point of union the individual thicknesses of the two mines are but two feet six inches and eight inches respectively, yet at their junction the united seams swell out to a thickness of nearly eight feet, and the average over a great area is four feet.

The special features of the union of these two seams were dealt with by J. Aitken,¹ and his explanation is probably the correct one, viz., that a part of the Gannister area was one of subsidence, the submergence going on until a sufficient depth beneath water was obtained to allow of the deposition of sufficient detritus to form the rock mass overlying that mine and separating it from the thin coal above. He goes on to say in his paper: 'It would further appear that the surface over which the four-foot coal was then in process of formation remained stationary and undisturbed, and that the operations of nature were not in any way interrupted.'

This view is supported by the fact that the coal of the Four-Foot Mine is considerably thicker than the aggregate of the two mines while separate, the growth of vegetation over the area being evidently continuous during the period in which the submerged portion was being silted up. When the latter had taken place, the coal forest grew out over the shallows, giving rise to the thin 'Upper Foot' coal, after which the whole area occupied by the Four-Foot Mine and the Upper Foot coals was submerged, and a uniform deposit of mud took place.

The Upper Foot Mine is worthy of note, not on account of its thickness, which is almost invariably 12 inches, but because of the occurrence of great quantities of 'bullions' or coal balls within it, each bullion ball containing portions of coal plants in which the structure has been so well preserved as to allow of the closest microscopical investigation. From these bullions were obtained the stems, etc., of coal plants described by Binney, Carruthers, Williamson, Hick, Scott, and others.

Upon the coal are found numerous flattened limestone nodules called 'bawn-pots,' each with a thin crust of iron pyrites and containing well-preserved examples of *Goniatites*, *Orthoceras*, *Pterinopecten* (*Aviculopecten*), and *Posidoniella*.

The coals are all bituminous and caking. Iron pyrites occurs as nodules in some of the coals, and also as a thin film upon joint planes, in some cases (the upper seams) so abundantly as to seriously injure the usefulness of the coal. The demand for these coals is entirely local, and their use as fuel is restricted to engine boilers and the open fireplaces of the people.

The fireclays under the Gannister seams have been worked at times in conjunction with the coal, as they make excellent firebricks, drain pipes, etc. Works of this description can be seen at Colne, Townley near Burnley, Sharneyford, north-east of Bacup, Littleborough, and other places.

MIDDLE COAL MEASURES

We have already alluded to the broken-up character of these measures, whereby small isolated portions have been dignified with the name of coalfields. The most southerly patch is the Manchester coalfield, which is about four miles long from north-north-west to south-south-east, and a mile and a half broad across its greatest diameter. This coalfield, whilst relatively insignificant and now little used, is of considerable geological importance in that the upper coal measures are well developed. The Middle Coal Measures are deep seated and scarcely touched, owing to the great thickening of the barren measures below the Four-Foot coal of Bradford and Clayton.

This latter seam was formerly supposed to be the equivalent of the Worsley four-foot seam, which marks the upper limit of the Middle Coal Measures in other parts of Lancashire, but more recent researches seem to render this correlation doubtful. Attempts to reach the thick coals of the Middle Coal Measures have hitherto failed, the unproductive beds lying below the Bradford Four-Foot having been penetrated by Mr. Livsey to a depth greater than should have been necessary had the Crumbourke and Rams Mines occupied the same position relatively to the Bradford Four-Foot as they do to the Worsley Four-Foot.

Professor Hull is of opinion that at least 616 yards of barren measures will have to be penetrated below the Bradford and Clayton Four-Foot seam before a workable coal is reached.

In this present state of our knowledge it is best to regard the presence of the Middle Measures as certain, and the upper limit as undetermined.

The Upper Coal Measures which have been worked in this coalfield will be dealt with elsewhere.

SOUTH LANCASHIRE COALFIELD

This coalfield, which is extremely irregular and much cut up by faults, can be best dealt with by a division into districts.

¹ *Trans. Manchester Geol. Soc.*, v. 185.

GEOLOGY

As a whole it covers a tract of country thirty-two miles long from east to west, and averaging six miles in breadth.¹ To the north it runs out upon the Lower Coal Measures, to the south it dips under a narrow band of Permian sandstones and marls, the whole being faulted down beneath the Trias of the Cheshire plain, which extends into the margin of the coalfield in a few broad triangular tongues. To the east, as to the north, the measures run out upon the Lower Series, whilst to the west they are faulted down to a great depth under the Trias, which here forms a low, flat maritime plain.

Although it would thus appear that the coalfield is compact, yet faulting and denudation have been so extensive that no complete correlation of the coal seams has yet been established.

Whilst also some of the seams are fairly persistent, others thin or swell out, whilst hundreds of feet of shale in one place are represented by a few feet of sandstone in another.

It is possible that some of the thicker and more valuable coals are persistent over a great part of the coalfield, being known under different names in different districts, and altering somewhat in their character. The extreme east of the coalfield we may define as the

(A) OLDHAM AND DUKINFIELD AREA

The best general section is that given by Professor Hull² and reproduced here.

COAL SERIES OF OLDHAM AND MIDDLETON

<i>Bardsley Colliery</i>	Ft.	Ins.	Blenfire Coal :	Ft.	In.
'Bardsley Rock' Sandstone	45	6	Coal and cannel, 1 ft. 11 in.	} 5	0
Shale	31	7	Dirt, 0 ft. 6 in. (very variable)		
Stubb's Mine (Coal)	1	5	Coal, 0 ft. 11 in.		
Metal (Shale)	25	6	Dirt, 0 ft. 11 in.	} 76	7
Fairbottom Mine	2	0	Coal, 0 ft. 9 in.		
Shale, with three thin seams of coal	76	6	Sandy Shale and shale		
Park Mine (coal, with parting of clay)	3	6	Great Mine :	} 9	10½
Shale 29 ft., Foxhole's rock 79 ft. 8 in.	108	8	Top coal, 1 ft. 11 in.		
Foxhole's Mine	2	4	Clay, 0 ft. 5 in.		
Soft Metal	32	6	Coal, 3 ft. 6 in.	} 33	9
Cannel	1	6	Clay, 0 ft. 1½ in.		
Strata, principally shales, with a coal seam 16 inches	187	8	Bottom coal, 4 ft. 0 in.		
Hathershaw Mine	2	2	Sandstone with shale, with shells	66	9
Shale, with two seams of coal	51	0	Little Coal	2	3
Rock and rock bands, with water (Chamber rock)	88	6	Sandstone and shale with fish remains	4	2
Shale and sandstone	38	3	Black Mine (the best seam in the district)	117	6
Nield or Upper Chamber Mine (sometimes absent)	2	0	Shales, sometimes strong with two coal seams	} 3	4
Shale and Sandstone	54	6	Stone Mine ;		
Lower Chamber Mine :	} 4	} 3	Top coal, 0 ft. 11 in.		
Coal, 1 ft. 5 in.			Stone, 1 ft. 2 in. (roof' dark stone')		
Dirt, 0 ft. 4 in.			Bottom coal, 1 ft. 3 in.		
Coal, 1 ft. 2 in.			Soapstone (sandy shale), with a band of white rock		
Dirt, 0 ft. 8 in.	21	4	Upper Bent Mine	2	2
Coal, 0 ft. 8 in.	4	3	Hard Soapstone, with ferns	29	8
			Lower Bent Mine	2	8
			Strata	37	6
			Hollingworth Coal	1	6
			Strata	234	0
			Neddy Mine	2	6
			Strata, with several thin coals, about	441	0
			Royley Mine (with a parting of shale)	4	0

The two sections are practically continuous, the interval between the base of the Bardsley Colliery section and the Blenfire rock of Glodwick being occupied by a series of shales and sandstones.

¹ Hull's *Coalfields of Great Britain*, ed. 4 (1881), p. 197.

² 'Geology of the Country around Oldham,' *Mem. Geol. Survey*, p. 24, 1864.

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The chief coal seams of the Oldham area¹ are about ten in number. The most valuable and the one which has been most worked is the Black Mine, averaging four feet in thickness. Another seam of considerable importance is the 'New Mine' of the Ashton-under-Lyne district, which lies below the Black Mine, and about 100 yards above the Royley or Arley seam. It may be equivalent to the Neddy Mine of Oldham, or one of the thin seams below it. The Lower Bent Mine or Peacock coal is of good quality and much used.

The 'Great Mine' of Oldham yields over 8 feet of coal, but at Ashton-under-Lyne it includes dirt bands.

Higher in the series than any given in Professor Hull's list are the Great and Roger Mines of Ashton-under-Lyne and Dukinfield. The former is 6 feet thick, the latter 4 feet, and the interval is but 32 yards.

Still higher in the series, and at some 400 to 500 yards above the Great Mine, is the Yard Mine of Moston, which is supposed to represent the Bradford Four-Feet.

Nowhere in this area is the whole of the Middle series present from summit to base, unless it be to the south of Dukinfield and at Moston.

Between the Great and Yard Mines at Dukinfield is a coal seam about eighteen inches in thickness, the shale roof being rich in fossils, and containing ironstone balls very similar to those over the Upper Foot of the Lower Coal Measures. This horizon is exposed in the banks of the river Tame, near the bend west of Dunkirk Colliery, and was also cut through in sinking the shaft of the Ashton Moss colliery. The remarkable feature of this horizon is that it has yielded *Goniatites*, *Pterinopecten*, &c. The late J. W. Salter regarded the fauna of this horizon as comparable to that of the Lower Coal Measures of Shropshire, and as markedly different from that of the Lancashire Lower Coal Measures. This can now hardly be said to be correct, as the observations of the writer have shown that the 'Marine Band,' as it is often called, has yielded several species of fossils characteristic of the latter. The fauna of the Marine Band most closely approximates that of the Upper Foot or Bullion and Mountain Four-Feet Mines, and the differences are probably those naturally due to a later development.

(B) BOLTON AND BURY AREA

In this area the Middle Coal Measures reach fully a thousand yards in thickness, and scarcely any portion remains untouched, mining being particularly active.

The best generalised section of it is that of Professor Hull, curtailed from a much more detailed section published by J. Dickinson, Esq., late Chief Inspector of Mines.

GENERALISED SECTION BETWEEN MANCHESTER AND BOLTON

	Ft.	In.		Ft.	In.
Worsley Four Feet Coal	4	3	Five Quarters Coal	3	6
Strata	782	0	Strata	266	0
Bin Coal	3	6	Trencherbone Coal	5	0
Strata	78	0	Strata	102	0
Albert Mine	3	3	Cannel Mine (Cannel only 6 inches)	4	6
Strata	42	0	Strata	58	0
Crumbourke Coal	4	0	Saplin Coal	4	0
Strata	144	0	Strata	107	0
Rams Mine	5	6	Plodder Coal	3	0
Strata	254	7	Strata	114	0
White Coal	3	0	Yard Mine	3	0
Strata	21	0	Strata	168	0
Black Coal	3	0	Three Quarters Mine	2	0
Strata	45	0	Strata	206	0
Old Doe Coal	8	0	Arley Mine	4	0
Strata	31	0			

(Slightly modified from Hull's *Coalfields of Great Britain*, 1881, pp. 202, 203.)

Fourteen seams are worked, yielding nominally about sixty feet of coal, but from this must be deducted the thickness of shale partings, bass, and dirt bands, which frequently occur. The lowest bed of the series is the Arley Mine.

¹ It must not be forgotten that the Oldham Middle Coal Measures are flanked to the north and east by ground in which coals of the Lower Series are extensively mined.

GEOLOGY

The Cannel Mine, which occurs some way above it, is remarkable in that it consists of a basal layer of bituminous coal and an upper layer of cannel which has a thickness of 3 feet at Wigan and thins away in all directions from it; the common coal thickens as the cannel diminishes.

The coal itself has yielded numerous remains of fish-teeth, spines, scales, &c., as well as large Stigmarian roots.

The Trencherbone is of good quality in some parts of the area, whilst in others it contains so much dirt as to prove unworkable. At Tyldesley it is associated with a bastard cannel. It is in great demand as a house coal, and large quantities are sent into Manchester and other towns. The Doe Mine and Rams Mine are also good and in great request. The Worsley Four-Foot, which marks the upper limit of the Middle Measures, has been worked at Leigh, Pendleton, and other places, and is a good coal.

A great fault known as the Irwell Valley Fault cuts through this area from the Millstone Grit, north of Bolton, in a south-east direction to Manchester, along the line of the valley of the river Irwell; the downthrow is to the north-east, and is over one thousand yards. The various seams given on the section abut against the fault in regular order from north to south on the upthrow side; on the downthrow side the seams are shifted to the northwards, and a narrow tongue of the Trias runs up into the middle of the coalfield.

(C) WIGAN AND ST. HELENS AREA

The St. Helens district forms the most westerly section of the South Lancashire Coalfield, that of Wigan lying between it and the Bolton area.

In this area, as in that previously mentioned, the Middle Coal Measures are about 1,000 yards in thickness.

Notwithstanding their nearness only two seams of St. Helens—the Little Delf and Rushy Park—have been directly correlated with two of Wigan, viz. the Arley Mine and Smith Coal.

The remaining seams are not equally capable of correlation owing to the changing character of the coals themselves, to alterations in thickness and character of the intervening non-productive measures, and to extensive faulting.

¹ COMPARATIVE COAL SERIES AT ST. HELEN'S AND WIGAN

<i>St. Helen's</i>	Ft.	In.	<i>Wigan</i>	Ft.	In.									
Lyon's Delf	2	8	Coal-seam of Red Rock Brow	4	6									
Measures	55	0	Riding Mine	3	8									
London Delf	2	6	Measures	36	0									
Measures	86	2	Ince Yard Mine	2	6									
Potato Delf (with partings)	5	3	Measures	108	0									
Measures	41	9	Ince 4-foot Mine	3	6									
Earthy Coal (with partings)	6	2	Measures with 3 coal-seams	150	9									
Measures with Coal, 2ft.	121	6	Ince 7-foot Mine	6	0									
Coal (with partings)	6	4	Measures	71	5									
Measures	157	8	<table border="0" style="margin-left: 20px;"> <tr> <td rowspan="3" style="font-size: 2em; vertical-align: middle;">{</td> <td style="font-size: 0.8em;">Wilcock or</td> <td rowspan="3" style="font-size: 0.8em;">{</td> <td style="font-size: 0.8em;">Coal 2 ft. 11 in.</td> <td rowspan="3" style="font-size: 2em; vertical-align: middle;">}</td> <td rowspan="3" style="vertical-align: middle;">4</td> <td rowspan="3" style="vertical-align: middle;">7</td> </tr> <tr> <td style="font-size: 0.8em;">Furnace</td> <td style="font-size: 0.8em;">Clay 0 ft. 6 in.</td> </tr> <tr> <td style="font-size: 0.8em;">Coal</td> <td style="font-size: 0.8em;">Coal 1 ft. 8 in.</td> </tr> </table>	{	Wilcock or	{	Coal 2 ft. 11 in.	}	4	7	Furnace	Clay 0 ft. 6 in.	Coal	Coal 1 ft. 8 in.
{	Wilcock or	{			Coal 2 ft. 11 in.		}				4	7		
	Furnace		Clay 0 ft. 6 in.											
	Coal		Coal 1 ft. 8 in.											
St. Helen's Main Delf	9	0	Measures	252	0									
Measures	9	0	<table border="0" style="margin-left: 20px;"> <tr> <td rowspan="2" style="font-size: 2em; vertical-align: middle;">}</td> <td style="font-size: 0.8em;">Pemberton 5-foot Mine</td> <td style="font-size: 0.8em;">5</td> <td style="font-size: 0.8em;">2</td> </tr> <tr> <td>Measures</td> <td style="text-align: center;">30</td> <td style="text-align: center;">9</td> </tr> </table>	}	Pemberton 5-foot Mine	5	2	Measures	30	9				
}	Pemberton 5-foot Mine	5			2									
	Measures	30	9											
Cannel	2	3	Little Coal	2	6									
Measures	18	2	Measures	45	1									
Four-foot Coal	3	2	Pemberton 4-foot Mine	4	6									
Measures	56	0	Measures	387	0									
Pigeon-house Coal	2	0	Wigan 5-foot Mine	5	0									
Measures	271	0	Measures	90	0									
Ravenhead Higher Coal	3	10	Wigan 4-foot Mine	4	0									
" Warrant	4	2	Measures	72	0									
" Main Delf	7	0												
Measures	66	9												
Bastion's Coal	4	3												
Measures	22	0												

¹ 'Geology of the Country around Wigan,' *Mem. Geol. Survey*, by Prof. E. Hull (1862), p. 12.

A HISTORY OF LANCASHIRE

<i>St. Helen's (continued)</i>		<i>Wigan (continued)</i>	
	Ft. In.		Ft. In.
Higher Roger coal	6 6	Wigan 9-foot mine (inferior)	9 0
Measures	123 0	Measures	280 0
Sir John coal	3 4	<div style="display: flex; align-items: center;"> <div style="font-size: 3em; margin-right: 5px;">{</div> <div> Cannel (varying from 1 ft. 8 in. to 3 ft.) average 2 6 Measures (varying from 0 ft. to 15 ft.) 1 to 15 0 King coal 3 6 Measures 66 0 Ravin Mine (inferior) 3 0 Measures with 2 ft. coal 168 0 </div> </div>	
Measures	48 3		
Flaggy Delf	4 8		
Measures	78 0		
Lower Roger coal (with partings)	5 3	Haigh Yard coal	3 0
Measures (with thin coal seam)	333 8	Measures	150 0
Rushy Park Coal	4 6	Bone coal	2 3
Measures	161 0	Measures	7 8
Little Delf	3 0	Smith coal (Orrell 5 ft.)	3 6
Strata, principally shales	300 0	Measures	186 0
Gannister beds	1800 0	Arley Mine (Orrell 4 ft.)	4 0
		Strata principally shales	300 (?) 0
		Gannister beds	1800 0

The best coals are those averaging from 3 to 4 feet. Seams which are thicker are usually of poorer quality and contain dirt bands.

Northwards of St. Helen's, a great slice of the Middle Measures is cut out by the great Up-Holland Fault, which has a throw of 700 yards. This fault, like all great faults in the Lancashire area, ranges approximately N.N.W. and S.S.E., and is roughly parallel to the Irwell Valley Fault already mentioned. It brings in the Lower Coal Measures on its eastern side.

(D) BURNLEY COAL FIELD

This area of Middle Coal Measures is surrounded by the lower series and overlaid by Glacial drifts, no upper series being present. The best section obtainable is that of Fullede, which, omitting detail, is as follows:—

FULLEDGE SECTION			
	Ft. In.		Ft. In.
Strata	14 0	Strata	77 8
Doghole Coal	5 0	Low Bottom Coal	3 6
Strata	16 0	Strata	23 0
Charley Coal	1 0	Cannel	2 5
Strata	2 9	Strata	62 0
Kershaw Coal	3 5	Fullede Thin Bed Coal	2 10
Strata	71 0	Strata	44 0
Coal	3 10	Great Mine Coal	4 11
Strata	10 2	Strata	116 7
Burnley 4-feet.	4 0	China Bed Coal	2 0
Strata	25 0	Strata, with thin coal.	96 0
Old Yard Coal	5 1	Dandy Bed Coal	2 9
Strata	177 6	Strata	98 0
Lower Yard Coal.	2 11	Arley Mine Coal	4 0

Neglecting thin coals, the section shows about 40 feet of coal lying in a dozen seams. Of these, the Arley Mine is most valuable and has the greatest development, outcropping around the whole Coalfield. One seam, the Californian or Thin Bed, possesses a strong shale roof which is remarkably fossiliferous, no less than 26 species being recorded from it, most of which are fishes.

When surveying the Burnley Coalfield prior to 1874, Professor Hull calculated the Arley Mine to have an area of about 23 square miles. Allowing 5,000 tons per acre, he estimated the total yield as 73,600,000 tons, of which about one-tenth had been extracted, leaving, after deduction for loss and waste, 65,000,000 tons to be mined in the future.¹ The total yield to 1874 of the whole coalfield was estimated at 18,500,000 tons, leaving 89,000,000 tons to be mined.²

¹ 'Geology of the Burnley Coalfield,' *Mem. Geol. Survey* (1875), p. 76.

² *Op. cit.*, p. 83.

GEOLOGY

The basin-like area of this coalfield causes the mines lying above the Arley to have a much diminished superficial area, so much so that Professor Hull calculated that the Mountain Four-Foot Mine, which passes under the whole of the Middle Measures, may yet be made to yield 100,000,000 tons, or more than the whole of the seams of the Middle Series.

UPPER COAL MEASURES

These measures are better developed in the Manchester area than in any other part of England. The development is, however, altogether local, the other areas of Upper Coal Measures in Lancashire being of insignificant proportions.

A small patch of shales and flaggy sandstones in the Wigan area, overlying a coal supposed to be the Worsley Four-Foot, belongs probably to the lower part of the Upper Series.

Another small patch occupies the southern border of the South Lancashire Coalfield in the neighbourhood of Leigh, Worsley, and Pendleton. A portion of the same measures forms a similar border to the Middle Series from Kingley to Prestwich, but has been carried to the north by the great Irwell Valley Fault.

The Upper Coal Measures along the southern border are partially concealed by the overlap of Permian and Trias. Since they are mainly unproductive, they have not been exploited. They consist of reddish shales, clays, and sandstones with thin bands of limestone and a calcareous hæmatite, worked at Patricroft. They also contain a coal known as the Yard Coal of Pendleton.

MANCHESTER COALFIELD

This small coalfield has already been mentioned as one in which the Middle Coal Measures are still untouched, the rocks nearest the surface belonging solely to the upper series.

Considerable light has been thrown upon these by the construction of a new line of railway along the eastern outskirts of Manchester in 1890-91. The succession of beds belonging to the Upper Coal Measures was exposed, as well as their junction with the Permian. Full details of the sections are to be found in papers of C. Roeder, C. E. De Rance and J. W. Brockbank.¹

The series as a whole consists of reddish mottled clays, shales, and sandstones, with thin bands of limestone. At Ardwick, near the centre of the coalfield, and in the railway section to the south, twelve beds of limestone are shown, the total thickness in the former case being 29 feet, in the latter 21 feet 4 inches.

The general dip is southwest, the lowest members of the series cropping in the north-east of the district, and being succeeded regularly by others until the thin limestones of the upper part come in along the southwest border. Below the lowest limestone are about 200 yards of strata under which the following section was obtained at the Bradford Colliery:—²

BRADFORD AND CLAYTON COAL SERIES

	Ft.	In.		Ft.	In.
Openshaw Mine	3	0	Four Feet Mine	3	10
Strata about	135	0	Strata	108	0
Charlotte Mine	2	0	Yard Mine	$\frac{1}{2}$	1
Strata	210	0	Strata	210	0
Three Quarter Mine	1	7	Two Feet Coal	2	0
Strata	15	0	Strata	120	0
			Coal	0	10

The total thickness will not fall far short of 2,000 feet. All the seams have now been worked out, but twenty years ago several collieries were busily engaged. It must not be supposed however that the coalfield is exhausted, for underneath the 2,000 feet of Upper Measures is a rich Middle Series similar to that of Oldham, Ashton-under-Lyne, and Dukinfield, and it is very probable that this will eventually be sought for and mined.

Should this ever be the case, and the Middle Coal Measures be reached, another 80 feet of coal, spread over nearly 4 square miles, will be added to the coal resources of Lancashire.

¹ *Trans. Manch. Geol. Soc.*, xxi (1890-1-2), and *Proc. Lit. and Phil. Soc., Manchester*, for same year.

² 'Geology of Country around Oldham, including Manchester and its suburbs,' *Mem. Geol. Survey* (1864), p. 35.

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POST-CARBONIFEROUS CHANGES

The causes which have operated in altering the character of the Lancashire Coal Measures since their deposition are of three kinds, viz. flexures or folding, denudation, and faulting.

FORMATION OF SYNCLINES AND ANTICLINES

1. Careful mapping has shown that the whole of the Carboniferous system of Lancashire has been thrown into a number of anticlines and synclines along a line running west of north and east of south, the axes of the folds being north of east and south of west. This folding caused the separation of the Burnley Coalfield from that of South Lancashire, the crest of the intervening arch, 'the Rossendale Anticlinical,' being afterwards denuded down to the Millstone Grit Series. The former field owes its preservation to the formation at this time of the Pendle Hill Range, in which the lower beds are brought up again to the north of the coalfield in a line parallel to the Rossendale anticlinical.

The approximate age of this system of folds is indicated by the occurrence of Permian deposits in the Pendle range lying upon the upturned and denuded edges of the Coal Measures, and even overlapping on to the Millstone Grit.¹

This evidence shows that the development was post-Carboniferous and pre-Permian, and that denudation of the Coal Measures preceded the deposition of the Permian.

2. The high ground on the east of the Lancashire Coalfield, in which the Millstone Grit Series outcrops, owes its origin to a simple fold formed subsequently to those we have considered, and developed along a north and south line. The fold as a whole gave origin to the Pennine chain of hills now forming the main axis of elevation in the north of England.

This huge fold cuts off the Lancashire Coalfield on the west from that of Yorkshire on the east. That the two were formerly continuous is abundantly proved by the close correlation which can be established between them, and the regularity of succession upon each side of the axis of upheaval.

The age of this north and south flexure is not by any means clearly determinable. That it was formed before the deposition of the Trias is proved by the latter lying upon the Lower Carboniferous along the southern extremity of the Derbyshire hills,² but that it was post-Permian, as is supposed by Professor Hull, rests upon the belief that a great anticlinal fault traversing Lancashire and contemporaneous in its development with the upheaval of the Pennine chain is older than a second fault which it meets to the south of Staffordshire. The anticlinal fault fractures the Coal Measures, and passes under the Trias in Staffordshire without fracturing them, but the second fault which it joins fractures both.

Immediately to the south of the Lancashire Coalfield the anticlinal fault is accompanied by a parallel series, one of which, known as the 'Red Rock Fault,' throws in the Permian Sandstone against the Carboniferous.

If the anticlinal fault and the parallel system above mentioned are of the same age, as seems most probable, it follows that the former, as well as the latter, is of post-Permian age; and since the anticlinal fault is directly connected with the upheaval of the Pennine Chain, the age of the latter appears to be established as post-Permian and pre-Triassic. It would thus appear that the dominant features of the topography of Lancashire were determined by the formation of two systems of folds and the denudation of their crests before the commencement of the Mesozoic.

FAULTING

3. The third change which was induced in the Lancashire Coal Measures was caused by the great system of faults which strike across the coalfield from N.N.W. to S.S.E. That these are post-Triassic is shown by their continuance into the Trias of the Cheshire plain. That they are possibly post-Jurassic is assumed, because the continuity of deposition was not interfered with from the top of the Trias to the close of the Jurassic so far as is known. The more important of these faults will be dealt with under their respective districts.

OLDHAM DISTRICT

Several faults start in the neighbourhood of Ashton-under-Lyne and range north-west as far as Rochdale and Heywood, with downthrows of from 100 to 200 yards. Immediately to the east of this district in the Millstone Grit country runs the great Pennine Fault, passing almost north and south, and bringing up the Pendleside ('Yoredale') shales against the Millstone Grits.

¹ Hull 'Observations on the Relative Ages of the Leading Physical Features and Lines of Elevation of the Carboniferous District of Lancashire and Yorkshire,' *Quart. Journ. Geol. Soc.*, xxiv. 323 (1868).

² Hull, *op. cit.*, p. 329.

GEOLOGY

BOLTON AND BURY AREA

The chief fault is that known as the Great Irwell Valley Fault, having a downthrow to the east of over 1,000 yards, and crossing the whole of south Lancashire. Further to the south it is continued into the Trias of Cheshire. A great fault bounds the north-east border of the Manchester Coalfield, and passing N.N.W. across the Trias, runs fairly parallel to the Irwell Valley Fault across the coalfield to a little west of Bury.

WIGAN AND ST. HELEN'S DISTRICT

The main faults of this district are the Great Upholland Fault, with a downthrow of 650 yards and a set of five faults at nearly equal distances of 1,400 yards from one another; these are:—

1. Great Pemberton Fault.
2. Great Shevington Fault.
3. Giants Hall Fault.
4. Great Standish Fault.
5. Great Haigh Fault.

All the faults mentioned thus far belong to the N.N.W. or post-Jurassic System. They are accompanied by smaller faults which run out from them at acute angles or remain parallel, and by a system of east and west faults of less importance which break up the ground between them. This latter series was doubtless in part developed when the Pendle range system of folds was formed.

COAL MEASURE FLORA

The flora of the Lancashire Coal Measures has long been famous, largely because of the excellent preservation of vegetable tissues in nodules overlying the Bullion Seam or Upper Foot Coal. These nodules supplied material to Lindley, Hutton, Brongniart, Binney, Carruthers, Williamson, Solms-Laubach, and Hick, whereby they were enabled to throw a flood of light upon the structure and relationship of the coal flora.

The study of the minute structure of coal plants has also been a favourite subject with the miners, and many can be found to-day with valuable cabinets of coal slides and all the machinery necessary for their production. Their knowledge of the structure of these plants is considerable, and Williamson and others have testified repeatedly to the energy and skill with which these men have prosecuted their studies and produced valuable results.

The study of the external features of coal plants has not been followed so assiduously, probably because of a perplexing synonymy, and the want of books dealing with this section of the subject. As a result, the published list of coal plants is by no means complete.

The great bulk of the coal flora consisted of ferns and Lycopodiaceæ, the latter, however, not restricted to the coal measures, the casts of large trunks being not unfrequently found in the sandstones of the Millstone Grits.

The shale roofs of the coal seams are the chief repositories of fossil plants; ferns, *Calamites*, and *Lepidodendra* occurring in abundance. All the under-clays or seat-rocks contain *Stigmaria*, whilst the roof of the Bullion Seam contains the irregularly rounded nodules already mentioned, in which, amidst a tangle of broken-up vegetable matter, are found stems, twigs, and fruit of *Calamites*, *Lepidodendron*, and other plants, with their minute structure perfectly preserved.

In addition to the shale-roofs, plant fossils are found in some of the shales and sandstones.

In some cases ironstone nodules occur in the shales containing well-preserved ferns and *Lepidostrobus*, especially in the shales under the Doe Mine of the Middle Coal Measures of Pendleton. The sandstones often contain casts of trunks and faint impressions of leaves and ferns, covered by a thin layer of carbon. Ferns are most abundant so far as regards species in the shales of the Middle Coal Measures, where they are better preserved than those of the Lower series. The stems of *Calamites* and *Lepidodendron* are also less crushed.

Plant remains of any description are scarce in the Upper Coal Measures, *Neuropteris* and *Sphenopteris* being the most common.

The most common plants of the Lancashire Lower Coal Measures are:—

Alethopteris lonchitica
Mariopteris muricata
Sphenopteris Schillingii
Lepidodendron opphiurus

Lepidodendron obovatum
" *aculeatum*
Sigillaria elegans
Trigonocarpus Parkinsoni

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The most common plants of the Middle Measures are :—

<i>Sphenopteris furcata</i>	<i>Sigillaria ovata</i>
" <i>trifoliolata</i>	" <i>reniformis</i>
" <i>Footneri</i>	" <i>Saulii</i>
<i>Mariopteris muricata</i>	<i>Lepidodendron ophiurus</i>
<i>Pecopteris Miltoni</i>	" <i>aculeatum</i>
<i>Alethopteris decurrens</i>	<i>Botrodendron minutifolium</i>
" <i>Serlii</i>	<i>Cordaites</i>
<i>Neuropteris gigantea</i>	<i>Lepidostrobus variabilis</i>
" <i>obliqua</i>	<i>Trigonocarpus Parkinsoni</i>
" <i>beterophylla</i>	" <i>Dawsonii</i>
<i>Calamocladus equisetiformis</i>	" <i>Næggerathi</i>
<i>Calamites (Stylocalamites) Suckowii</i>	<i>Carpolithus inflatus</i>
<i>Sigillaria tessellata</i>	

Some of the Middle Measure sandstones occasionally yield fine specimens of *Halonia* and the large leaves of *Cordaites*.

LOWER COAL MEASURE FAUNA

The fauna of the Lower Measures is quite as sharply marked off from that of the Middle Series as are the plant fossils, and for this reason must be dealt with separately. The lowest forms of life represented are worms, of which two species are known. The one (*Arenicola carbonaria*) is only known by worm burrows, and tracks, whilst the other (*Spirorbis pusillus*) has left a minute coiled shell. Brachiopoda are represented by *Lingula cf. mytiloides*.

The ordinary mollusca or bivalves are most common, especially *Carbonicola (olim Anthracosia)*, the chief species being :—

<i>Carbonicola robusta</i>	<i>Carbonicola subconstricta</i>
" <i>acuta</i>	" <i>aquilina</i>
" <i>rugosa</i>	

Other common forms which link these coal measures with the Millstone Grit are *Pterinopecten (olim Aviculopecten) papyraceus* and *Posidoniella lewisii* and *P. minor*. Gasteropoda are feebly represented by a few undescribed species.

Cephalopoda are chiefly found in the upper part of the measures in the roof and shales associated with the Mountain Four Feet or Bullion Mine; the common forms are :—

<i>Gastrioceras (olim Goniatites) Listeri</i>	
" " <i>carbonarium</i>	
<i>Dimorphoceras Gilbertsoni</i>	
<i>Glyptioceras (olim Goniatites) reticulatum</i>	
" " <i>diadema</i>	
" " <i>paucilobum</i>	

Several species of *Orthoceras* occur, but few are well defined, *Orthoceras obtusum* being the most marked.

Crustacea are represented by several species of ostracods and by a few rare forms of malacostraca, of which *Pygocephalus Cooperi*, *Anthrapalaemon Etheridgei*, and *Prestwichia rotundata* are the chief. Fishes were fairly abundant in numbers and species, the remains, chiefly teeth and scales, but at times whole fishes, being found in the black shales. The commonest forms are *Cælacanthus elegans*, *Rhizodopsis sauroides*, and *Strepsodus sauroides*. A small amphibian, *Hylonomus Wildi*, has been recorded from the 'soapstone' bed over the Mountain Four Feet Mine of Colne and Trawden. For a full list of the fauna the reader is referred to papers by the author.¹

MIDDLE AND UPPER COAL MEASURE FAUNA

Recent researches on the part of the writer have shown that the fauna consists of 75 genera, which include 137 species, and further work by other observers has shown that the numbers will be increased.

Whilst as in the Lower Coal Measures the mollusca remained the dominant forms mainly owing to the great increase in the three genera, *Carbonicola (olim Anthracosia)*, *Naiadites (olim Anthracoptera)*, and *Anthracomya*, the fishes show an even more pronounced development. Cephalopoda and brachiopoda only occur at one horizon, viz. the 'marine band' at Ashton-under-Lyne and Dukinfield.

¹ 'The Palæontology of the Lancashire Coal Measures,' *Trans. Manch. Geol. and Mining Soc.* xxviii.

GEOLOGY

The Middle Measures of the Bolton, Oldham, and Rochdale districts have yielded a number of rare and interesting crustaceans; and work which is now being carried on at Sparth Bottoms near Rochdale in shales over the Arley Mine bids fair to reveal many new forms.

Fossil fishes are represented by large spines, teeth, scales, and not rarely by whole fishes. Seven species of Pleuracanthian spines are known, the commonest being *Pleuracanthus laevisimus*. All these spines consist of a stout bony rod which was imbedded in the body muscles of the fish, either behind the head, or in front of each of the paired fins. The hinder surface of each spine is armed with small acutely pointed denticles arranged in two or even more rows. Larger and stouter spines, often a foot in length, and ornamented by oblique rows, or tubercles, have received the name of *Gyracanthus*, whilst spines ornamented by longitudinal ridges are known as *Sphenacanthus*. Many of the Lower Coal Measure fishes continue to exist, and the black shales forming the roof of several of the thick coal seams are veritable storehouses of fish remains. Amphibia are not satisfactorily represented, although certain large ring vertebræ and small ribs are known and doubtfully referred to *Archegosaurus*.

UPPER COAL MEASURE FAUNA

As already stated, the fossils found here are scanty and small. The period was one in which extinction was going on.

Spirorbis pusillus, and ostracods, the latter of several species, alone seemed to have flourished in anything like numbers, whilst *Anthracozya Phillipsii*, and *A. laevis* var. *Scotica* are the only common forms amongst the mollusca. Arthropods are represented by *Estheria tenella*, and *Levia Leidy* var. *Williamsoniana*. The fishes were mainly *Pleuracanthus*, *Gyracanthus*, *Ctenodus Murchisoni*, and *Megalichthys Hibberti*, a typical Middle Measure form. Small phalanges referred to *Labyrinthodon* were found by Mr. Chas. Roeder at Longsight and are the only remains of amphibia known from these beds.

PERMIAN

Strata belonging to this period formerly occupied a much greater area in the county than now, the formation having been extensively swept away by post-Permian denudation, which was possibly rendered more effective by a considerable amount of earth movement, such as faulting. (See p. 20.) Much of the existing Permian strata is covered by the Trias or Glacial Drift, so that the only portions readily accessible are small and comparatively unimportant. A narrow band of Red Sandstones, Marls, and Limestones borders the South Lancashire Coalfield from Sutton near St. Helens, Edge Green, Leigh, and Astley to Eccles. At the latter place, and again at Salford and Cheetham Hill, the formation has been faulted northwards by the Great Irwell Valley and other faults, which here traverse the coalfield. The fact that the Permian has shared in the movement and faulting of the coal measures indicates that the latter movements took place after the deposition of Permian and not before.

The Red Sandstones, Marls, and Limestones are best seen on the east side of Manchester from Collyhurst to Stockport. They were also cut through in the making of the Fallowfield and Burnage section of railway on the east of Manchester, where their junction with the Coal Measures below could also be seen. Small patches of the Permian sandstones occur west of Preston, on the banks of the Ribble near Clitheroe, on the Ingleton Coalfield, and in the Furness district. At this latter place the beds are much obscured by drift.

The position of the Permian has been determined in a number of cases by means of borings made in search of iron ore. The Red Sandstones are seen at High Cocken, north of Barrow, and quarried at Hawcoat, whilst old quarries opened in the same rock exist in the grounds of Furness Abbey. The Magnesian Limestone which underlies the sandstone is also present in the Furness district, and has been worked at Old Holebeck. The smaller patches which occur near Clitheroe and elsewhere owe their preservation to their position on the downthrow side of faults. They are outliers of the great mass of Permian strata which formerly existed.

Fossils are poorly preserved in the Permian sandstones and marls, the latter yielding at various places examples of *Schizodus* and *Bakevellia*, whilst the thin limestones are at times crowded with species of *Rissoa*, *Turbo*, etc. Polyzoa are not unfrequent in the Magnesian Limestone.

The Permian System as a whole consists of the following divisions:—

- Upper Red Sandstones, Marls, and Clays, with thin limestone.
- Magnesian Limestone.
- Marl Slate.
- Lower Red variegated Sandstones, Marls, and Breccias.

Only the Upper Red Sandstone and Magnesian Limestone are exposed in the county.

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MESOZOIC PERIOD

The formation of the red sandstones and marls which we have considered under the name of Permian brought to a close that period of geological time known as Palæozoic, and was in turn succeeded by the Mesozoic, in which higher orders of animals and plants appeared, and in which the rocks were less mechanical in origin, and owed more to accumulation in quiet waters and the aggregation of the remains of various life forms. The rocks of this period have also suffered much less by earth movement and change than the older rocks. The distinction between Palæozoic and Mesozoic rocks is a purely arbitrary one, retained for convenience, but possessing no actual justification, as in many places no satisfactory line can be drawn between the Permian and the Trias, the one apparently passing gradually into the other.

TRIAS

The various members of the Triassic System which are represented in Lancashire are the following :—

Upper Trias or Keuper	{	Keuper or Red Marls.
		Keuper Sandstone.
Lower Trias or Bunter	{	Upper Red Mottled Sandstone.
		Lower and Upper Pebble Beds.
		Lower Red Mottled Sandstone.

The Triassic rocks occupy a large extent of the flat country forming the Lancashire sea-board from Liverpool to Morecambe Bay, which it encircles as far as Walney Island and the south part of the Furness district. The greatest breadth of this lowland plain is in the neighbourhood of Preston, where it is about 20 miles across. The Triassic beds have been brought against the edges of the older rocks by a great fault system in post-Triassic time, with a western downthrow.

BUNTER

The Bunter Sandstone and Pebble Beds are well developed in the neighbourhood of Liverpool, where they have received considerable attention from local geologists. The Bunter Sandstone usually lies deep, but could formerly be seen at Eastham and Ince before the making of the Manchester Ship Canal. It is also seen at Eccleston Hall, near St. Helens. The beds are famous for the amount of water they contain, and many borings have been put down into them, from which a huge supply is obtained. The Pebble Beds are well exposed near Liverpool, and in quarries at Wavertree, the section at Olive Mount being especially good. By the late G. H. Morton they were divided in the Liverpool area into Lower and Upper Pebble Beds, the latter containing few pebbles.

The Upper Red Sandstone is exposed in nearly all the railway cuttings on the north, east, and south of Liverpool, and it lies in massive beds often of a bright red colour, streaked with grey. At Liverpool it is usually too soft to use as a building stone, but at Frodsham, Runcorn, and Ormskirk it is very hard, although it weathers badly.

KEUPER

The Keuper Sandstones and Marls which form the Upper Trias lie at the surface to the west of the Bunter series, the two running side by side from Liverpool northwards, the Keuper Series forming a goodly portion of the coastline, though occasionally obscured under a heavy load of Glacial drift, or Blown sand. At one time the Keuper Sandstone was extensively quarried at Liverpool, the lower beds forming a good building stone. That obtained from Runcorn is even more durable. Just outside the county boundary at Storeton in the Wirral peninsula, extensive quarries are opened in the Keuper Sandstone, and have yielded sandstone slabs showing a most interesting series of footprints, ripple markings, and rain pittings. The footprints, which are of large size and five-toed, are believed to have been made by an amphibian closely allied to, if not identical with, the Labyrinthodon. To the animal which made them the name of *Cheirotherium* has been given. To smaller footprints of a different type the name of *Rhynchosaurus* has been given. Remains of the latter have also been found in Warwickshire.

The Keuper Red Marls consist of red and grey marls and shales, with bands of sandstone. The thin flaggy sandstones are often ripple-marked, and their surfaces are at times studded by beautiful pseudomorphous crystals of common salt. A large area of the Red Marls stretches from Formby to Southport, having been proved by borings, but it is all deeply covered by drift. At Runcorn the Marls are seen on the banks of the Weaver. Near Fleetwood, at Preesall, a boring put down in the



OROGRAPHICAL MAP.





The Edinborough Co. Printers, London. English Miles 0 1 2 3 4 5 8 Statute Miles 0 1 2 3 4 5 6 7 8

THE VICTORIAN HISTORY OF THE COUNTIES OF ENGLAND
 County Boundary shown in red



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Marls reached a bed of rock-salt at a depth of 258 feet, the rock-salt with a layer of shale being nearly 300 feet thick. Rock-salt is of widespread occurrence in the Keuper Marls, more especially in Cheshire, where, in the Marston Mine, are two beds, one 85 feet thick and the other 106 feet.¹

PLEISTOCENE

GLACIAL PERIOD

After the deposition of the Trias there is no evidence of rocks of later age in Lancashire until we reach the Glacial Drift, a thick layer of boulder-laden clay and sands which occupies the bottoms of the valleys in the Coal Measure country and occasionally spreads up their sides, even to a height of over a thousand feet. On the low Triassic plain the boulder clay masks the solid geology almost everywhere.

It must not be supposed, however, that rocks later than the Trias and older than the Glacial Drift never were laid down in the Lancashire area, because the presence of a small patch of Lias in Cumberland, at Orton, west of Carlisle, and the presence of extensive deposits of Liassic and Cretaceous age in the north of Ireland, indicate that these formations had a much greater development than now, and might very probably have extended over the county, and have been denuded before the Glacial Period commenced.

The Glacial Period occurred when the greater part of the British Isles and Northern Europe became covered in by snowfields and mighty glaciers, the climatic conditions being such that the snows of winter were not wholly dissipated in summer, and the accumulation of snow thus formed increased until the mountains and mountain valleys were filled, and a downward movement commenced which went on until the lower levels were encroached upon and covered, and the ice sheets ultimately reached the sea, and even travelled over parts of its area. The conditions were in all probability like those which now exist in the Alps, but were more widespread and general. Where rocks or mountain-tops projected through the snow and ice, masses were broken off by the expansive force of water in its freezing, melting and re-freezing, the blocks from time to time falling upon the glacier fields and becoming entombed in them by the opening of crevasses. The lower layer of the snowfields became compacted into ice by the superincumbent weight, the passage of water, and partial melting. Every high mountain peak became a centre of dispersion, and from the centres of high altitude, such as the mountainous region of the Lake District, North Wales, and similar areas, there began a steady outward flow of glaciers to lower levels. As the glaciers moved along, their great weight and the stones locked up within caused them to exercise an erosive action upon the ground over which they moved. The surface soil was worn away until the hard rock was reached, and the latter then became deeply scratched and polished by the slowly sliding mass of stones and ice. As far as the glaciers travelled, so far, of course, were stones carried away from their parent source, and strewn along the course of the glacier stream. The grinding-down of the surface rocks and the ice-borne stones gave rise to clays, which were deposited over the whole country traversed. How much rock material was thus carried away from the high ground, and deposited upon far-away and lower levels, we shall never be able to accurately determine, but there is no doubt that it was enormous. By some authorities it is believed that many, if not all, the basins of the lakes in the Lake District were ground out during this period, the old river valleys everywhere widened, and the hill crests much reduced in height. In some cases river valleys were filled up by earthy material and ice, and the general ice movement passed across them and not along their length. By a close study of the boulders of rock now found in the glacial clays, and an equally careful mapping of the ice scratches upon the rocks below, it has been possible to trace the general course of these 'erratics,' as they are called, back to their source, and to construct maps showing the lines of flow and centres of dispersion. In this way, for example, it can be shown that the glacial clays of Lancashire are derived from the Lake District and the south of Scotland, examples of Criffel granite being strewn in the Boulder Clay along the Cumberland coast, and as far south as Liverpool and the Wirral peninsula. Rocks derived from the Lake District are numberless in the clays of Lancashire, most of them being derived from the mountainous district on the west of Westmorland, but others from the Shap Fell area. They consist mainly of flattened and polished specimens of felspathic rocks, rhyolite, Shap granite and slate, intermingled with local rocks which were also caught up and carried forward. In many places the clays contain boulders of large size, weighing tons, and in several Lancashire towns these have been set up in parks and public places. A fine example is to be seen in the quadrangle of Victoria University at Manchester. The Boulder Clay in the Furness district is known as Pinel, and contains fragments from the Coniston Grits and Shales in

¹ For particulars relating to the Triassic rocks see G. H. Morton, *The Geology of the Country around Liverpool*, ed. 2 (1891), with Appendix (1897).

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addition to those mentioned. Sections in the Boulder Clay can be seen almost everywhere, and are especially marked on the coast, where at times they form cliffs, as at Blackpool, from 40 to 70 feet in height.

One interesting feature of the Lancashire drift which still requires working out is the occurrence of broken and comminuted shells, and isolated valves. These are found even in the inland clays. Amongst others, the writer has found valves belonging to species of *Cardium*, *Mactra*, *Mytilus*, and a portion of the test of an Echinoderm. Foraminifera also occur.

In many places the drift can be divided into three parts, a middle division of sand being intercalated between lower and upper Boulder Clays, or Drift. Pockets of sand, sometimes of large size, at times occur interbedded with the clays.¹

Post-Glacial Deposits.—To this category belong the extensive peat deposits of the moorlands and plains, which are often of considerable thickness, especially in the ‘Mosses,’ as Chatmoss, etc., and contain trunks and stumps of trees, sometimes in such profusion as to indicate that many districts and even hills were densely wooded instead of bare and bleak as we now see them.

Here also must be placed the banks and deposits of Alluvium at the mouths and along the sides of many of the rivers, and the extensive dunes and sandhills which are so striking a feature of the coast between the mouths of the Mersey and the Ribble, near Blackpool, and at Walney Island.

In the neighbourhood of Fleetwood, Poulton, and Blackpool, these later deposits have been classified by the officers of the Geological Survey as follows:—

Post-Glacial . . .	}	Recent . . .	{	Blown Sand .
				Upper ‘Cyclas’ clay, sand, etc.
				Upper ‘Scrobicularia’ clay.
				Marsh clay and tidal alluvium Peat.
		Pre-historic . . .	{	Lower ‘Cyclas’ clay.
				Lower ‘Scrobicularia’ clay.
				Presall Shingle.

A somewhat similar division holds good for the district around Southport, the place of the Presall Shingle being taken by the Shirdley Hill Sand and Lower Peat.

BLOWN SAND

Sandhills are forming so extensively along the Lancashire coast that a few words need to be written respecting them. The set of sea currents is such along the coast from north of Liverpool to Fleetwood that almost continuous sandy beaches are formed. Indeed, these have accumulated in some places to such an extent that the sea appears to be retiring from the land. This is well seen at Southport, where marine lakes and promenades take the place of what was once open beach swept by every tide. The exposure of the sandbanks at low tide to the sun results in the upper layer of sand becoming dried, when it is easily moved by the wind and swept inland, where it collects against any obstacle, such as fences or buildings, and accumulates until it at length overtops them, and falls over upon the other side. In this way a low eminence is formed, which is continually being added to on the seaward side and as continually being reduced by the surface being carried further inland. In this way an extensive belt of arable land has been covered over, and the encroachment has become so serious that vigorous attempts are made to stop its further progress by planting ‘starr-grass,’ *Psamma arenaria*, and *Ammophila arundinacea*, whose long-matted roots hold the sand together, whilst the leaves protect the surface. Southport is entirely built upon blown sand, which can also be seen inland behind it.

At Formby the sandhills are three miles in width, although it is stated that none existed so late as 1690, the whole deposit having been formed since by the silting up of the then Formby Harbour, and the formation of a sandbank against the land, from which the loose sand was carried landwards. Between Formby and Birkdale, near Southport, many farms have been entirely covered up within the last hundred years, and houses completely buried.

The sand often contains shells and shell fragments, which have been also wind-borne, and, these decaying, the carbonate of lime of which they consisted becomes dissolved in the acid-laden rain, and, being afterwards reprecipitated, it serves as a cementing material to the sand, which thus becomes solidified, and even impermeable to water. Between Fleetwood and Rossall the sand is extremely large-grained.

¹ There is a considerable literature dealing with the Glacial Drifts, and we are indebted especially to Mr. T. Mellard Reade, Mr. R. H. Tiddeman, and Mr. C. E. De Rance for records of facts and explanations.

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Pre-historic Man.—Examples of flint arrowheads, scrapers, polished stone axes, and the various other implements used by Palæolithic and Neolithic man have been found very generally distributed, more especially on the moorlands bordering on Yorkshire, where they occur under the peat. A fine series of these, collected by Dr. Colley Marsh, Mr. Parker, and others, is to be seen in the Rochdale Museum, and many collections are in private hands.

The abundance and widespread character of these implements point to Lancashire having been well populated by Early Man, whilst the finding of the bones and teeth of the red deer, ancient British ox, and other animals shows that the fauna was of a more varied nature than is now the case.¹

ECONOMIC GEOLOGY

Useful Minerals.—The opening pages of this paper made mention of the many and great industries carried on in Lancashire, and dependent more or less upon the character of the geology.

It now remains for us to consider what the mineral wealth consists of, and to what extent it is utilised.

Coal.—The chief source of mineral wealth is of course coal, which is mined over the whole of the coalfields. The thin seams of the Lower Coal Measures have been to a large degree worked out, the only seam of any importance remaining to be exploited being the Gannister, and that portion of it more especially which is united to the overlying Bullion seam to form the Mountain Four-Foot. This latter seam lies around the fringe and beneath the whole of the Burnley Coalfield, and has been comparatively little worked. The coal is bituminous, and not so good as in the Gannister proper, but as the seam is of greater thickness than the latter, and may improve when followed deeper, it is extremely likely that it will be increasingly used in the future. All the seams of the Lower Coal Measures have been, and are now, where mining in them is still carried on, worked solely for local consumption, the many factories and industries and the homes of the people supplying a constant and near market.

The main source of the coal supply is the Middle Coal Measures, the seams of which are thicker and contain much better coal than is found in the Lower Series.

The potential yield of the Lancashire Coalfield has been estimated by Professor Hull² and others on several occasions, and lastly by a Royal Commission on Coal Supplies.³ The investigations of the latter, based upon the evidence supplied by mine managers, engineers, and geologists, lead to the conclusion that most coal seams of a thickness of twelve inches and upwards can be safely, and in all probability profitably worked down to a depth of 4,000 feet. The finding of the Royal Commission can be best expressed in tabulate form as follows:—

Tons of Coal remaining unworked in Seams of Coal which are:

Inches, 12-15.	Inches, 15-18.	Inches, 18-24.	Inches, 24 and upwards.	Total Estimated Quantity of Coal remaining Unworked.
156,451,034	206,122,247	392,731,612	4,594,249,544	5,349,554,437

Estimated Quantity not capable of being worked due to Barriers required to be left or for support of Surface Buildings, etc.:

Seams of Inches, 12-15.	Seams of Inches, 15-18.	Seams of Inches, 18-24.	Seams of Inches, 24 and upwards.
4,108,961	7,383,851	15,917,265	220,955,775

¹ Morton, *Geology of the Country around Liverpool*, ed. 2 (1891).

² Hull, *Mem. Geol. Survey*, 'Geol. of the Burnley Coalfield, Coal Fields of Great Britain,' ed. 4 (1891).
Our Coal Resources at the Close of the Nineteenth Century (1897).

³ *Final Report of the Royal Commission on Coal Supplies, Part I. General Report, 1905.* Published by His Majesty's Stationery Office.

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Loss in Working due to faults and other natural causes in Seams of:

Inches, 12-15.	Inches, 15-18.	Inches, 18-24.	Inches, 24 and upwards.	Total Estimated Deductions due to all the Foregoing Causes.
33,882,284	48,740,170	61,596,103	718,462,301	1,111,046,710

Estimated net available Tons remaining unworked, 4,238,507,727.

The output of the Lancashire collieries for the year 1903 was 24,517,761 tons. At the same time there was also raised 24,442 tons of clay and shale, 190,406 tons of fire-clay, and 287 tons of iron pyrites; giving a total yield from the mines of 24,732,139 tons, and finding employment for 93,912 people.

The clay, shale, and fireclay are all used in the manufacture of bricks, tiles, coarse earthenware, and pottery. The fireclays are capable of withstanding an intense heat after they have been moulded into bricks without much material change, hence the bricks manufactured from fireclay are much used in furnaces, hearths, and other places where there is great heat.

Iron pyrites is worked for the manufacture of sulphuric acid and sulphate of iron.

Clay.—Lancashire being a most densely populated county, and the solid geology to a large extent obscured by thick deposits of boulder clay, it has naturally followed that the latter has been made good use of in the manufacture of bricks. Temporary brick-kilns are frequently established in the vicinity of large towns where building operations are in progress, the clay being obtained close to the site of the kilns by removing the surface soil. The bricks thus obtained are not so close in texture or so durable as those manufactured from the better class of shales and are chiefly used for internal walls. In many cases, the coal shales are quarried at the surface and moulded into bricks, and it is probably clay obtained not merely from the Glacial drift but also from the clayey shales which goes to make up the 1,418,340 tons of clay which represents the output of Lancashire for 1903.

Sandstone.—The main supply of sandstone in Lancashire is obtained from the Millstone Grit series, many of the beds being massive, and nearly all exceedingly durable. The sandstones of the Lower and Middle Coal Measures are worked to a less extent, those of the former, whilst of fair thickness and fairly durable, at times being even equal to the Millstone Grit, yet, being also more current-bedded and jointed than the former, can only be worked with a greater waste, and are therefore not so economical. In most cases also where Lower Coal Measure sandstones occur those of the Millstone Grit are not far off, and almost invariably at a greater altitude on the flanks or tops of the hills, from which the stone can be conveyed by its own weight down inclined rails to sidings connected with the railways which traverse all the chief valleys. Most of the stone is used for road and street paving in the large towns, or for building stones, whilst the thicker and more massive beds furnish huge blocks for engine beds, foundations, retaining walls, and structures requiring great weight and strength. Many of the beds both of the Millstone Grits and Lower Coal Measures split up into slabs of from two to four inches in thickness, and are cut up for flagstones.

The readiness with which the stone can be worked, and its nearness to the towns, accounts for one feature of Lancashire towns which often puzzles visitors from other counties: in nearly all the towns the great bulk of the buildings and dwelling houses have the outer walls built of the local rocks, houses entirely constructed of brick being not so numerous. One other feature to be seen in the agricultural districts surrounding the large towns is the prevalence of stone walls dividing the meadows, which are mostly laid down in grass. The multiplicity of these walls of dark weathered stone, and the absence of the pleasant hedgerows and earthen banks which are so common a feature in most counties, give the landscape a hard and chilly look, and lead one erroneously to suppose that the industrial districts are barren and devoid of shrubs, trees, and copses.

Sandstone quarries are numerous, especially in the hill ranges north of Manchester, which stretch on to Rochdale, Littleborough, Whitworth, and the spurs running into the Rossendale valleys. The industry is a very important one, no less than 760,534 tons being quarried in 1903.

Limestone.—The quarrying of limestone is not much behind that of sandstone in the weight of output, 612,427 tons being quarried in 1903. Much of this is burnt for lime, used in the towns or on pasturage, and a great quantity is used as building stone. In the limestone districts, the limestone is used in the construction of nearly all buildings, and also for rough walling. It thus takes the place of sandstone in other parts of the country, and being of a light grey colour the towns are much cleaner looking and more cheerful.

The Carboniferous Limestone in Lancashire is not so metalliferous as we find it in Derbyshire

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for example, for, although lead, zinc, barytes, and other minerals are known to occur, the veins are hardly profitable. Lead mining has been carried on at several places, as at Rimmington, near Clitheroe, but very little mining is done now. The Limestone of the Furness district is the great repository of iron ore, which has been deposited in it as the result of chemical replacement.

Iron Ore.—The output of Iron Ore, in the form mainly of hæmatite, in 1903, was 382,271 tons. The hæmatite occurs in masses filling up irregular cavities in the limestone. It is generally believed that the iron owes its position and condition where found to having been carried to the spot by underground waters in solution, and that a gradual displacement took place of the limestone by hæmatite. The original source of the iron was probably the red rocks which overlie the limestone, although it must not be forgotten that iron is a mineral universally diffused and therefore capable of being brought from many sources.

MISCELLANEOUS

Rock salt and brine to the amount of 216,785 tons was obtained in 1903 from the Triassic marls, whilst the older rocks in North Lancashire yielded 20,576 tons of slate and 1,300 tons of igneous rock. Gravel and sand was used to the extent of 50,673 tons.

If we tabulate the minerals and quantities mined in 1903 in Lancashire alone the result is:—

	Tons.		Tons.
Coal	24,517,761	Rock Salt and Brine	216,785
Clay	1,418,340	Gravel and Sand	50,673
Sandstone	760,534	Slate	20,576
Limestone	612,427	Igneous Rocks	1,300
Iron Ore	382,271	Iron Pyrites	287

Giving a total output of 27,980,954 tons, and also finding employment for 102,298 people.

The total value of minerals raised in Lancashire during 1903 much exceeded £10,000,000.

Soil.—Most of the soil of Lancashire is cold, owing to the subsoil being in large part derived from and resting upon the boulder clay. As a result, Lancashire cannot claim a high position for agriculture.

On the limestone, the soil is thin, but usually covered with short, sweet turf, which makes it good for sheep. In the Coal Measures and Millstone Grit districts, the land is mainly cut up into grazing farms, whilst the maritime plain, with its underlying Trias, makes good meadow and pasture land, and here agriculture reaches its highest level.

Dependence of Scenery upon Geology.—In few counties is the relation of scenery to the geology better illustrated than here. North Lancashire, with its hard slates, grits, and interbedded volcanic series, rises into a bare mountainous country, and is geographically part and parcel of the rugged Lake district. Where the Carboniferous Limestone reaches the surface, the country is picturesquely scarred with mural cliffs, supporting an abundant vegetation, whilst the succeeding Millstone Grit and Coal Measure country rises into bleak brown moorlands, intersected by narrow valleys supporting a bare pasturage and grazing ground.

Many of the hills are step-like, owing to the shales weathering away into steep slopes, leaving the sandstone and grit beds standing out in high relief.

The softer Permian and Triassic rocks have been ground down to a low-lying plain, on which by skilful and diligent methods agriculture has made most progress.

ALLUVIAL DEPOSITS¹

Above a horizontal plane, approximately marked by the 25-foot contour above Ordnance datum, the purely alluvial deposits of Lancashire are found in the river valleys, and are well represented in almost all valley bottoms and in the excavations of the Manchester Ship Canal.

The bottom lands are formed by accretion during flood overflows. Sometimes, as in the Lune, alluvial terraces occur at higher levels cut out of the drift. Outside these limited riverine deposits the soil of the country is largely formed by the subærial crumbling of the boulder clays and sands, of which a mantle covers the country up to more than 300 feet above Ordnance datum.² This sheet of drift spreads over and obscures the pre-glacial topography of the county, so that what in former times was a diversified landscape, standing at a higher level relatively to the sea, is now a somewhat monotonous gently undulating plain—the characteristic feature of south-west Lancashire.

The second physical feature of this portion of the county is of more geological interest,

¹ By T. Mellard Reade, F.G.S., F.R.I., B.A.

² A much greater altitude than this is given in *Man and the Glacial Period*, 178.

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inasmuch as it brings us nearer to the historic period. It consists of a second plain formed entirely by the deposition of marine or estuarine sands, muds, and clays. These beds nearly all lie below the 25-foot contour and are the mixed detritus and sediments brought down by the Mersey, Ribble, and Lune, which have been sorted and deposited on the coast between the mouths of these rivers. The lands over which the Liverpool and Southport Railway runs are part of this plain of deposition, which has added many square miles to what is now the county of Lancaster.

The muddy sediment, of which these 'Formby and Leasowe Marine or Estuarine Beds' are composed, is crowded with Foraminifera, as was proved by borings at Altcar, recently made by the Lancashire and Yorkshire Railway.¹ The mollusc *Scrobicularia piperata*, in a vertical position as it lived, also occurs, showing that some of the beds were laid down between tide marks.

Perhaps the most interesting deposit of all is the peat and forest bed, which was known over a century ago. A description and plate of it appeared in the *Gentleman's Magazine* in 1796, p. 549. This bed underlies the moss lands, and upon it the sand-dunes previously described in the chapter on Geology have been built up by the wind. They occupy an area between Liverpool and Southport of 22 square miles.

The outcrop of the peat and forest bed at and south of the Alt mouth is still to be seen, but it has of late been much destroyed by the inroads of the sea.²

Geologically the most interesting fact in connection with the extensive post-glacial deposits is the proof they afford that oscillations of the land with respect to the sea level have taken place in very late—probably miocene time (see Dawkins' *Prehistoric Man*)—geological times. The peat and forest bed with stools of oak, birch, and pine are washed by the tide now at the Alt mouth, and elsewhere they have been proved by dock and other excavations to occur below low-water mark—situations where it would be impossible for trees to grow now.

This belt of alluvial deposits extends northwards with little interruption past the Fylde country to the mouth of the river Lune, and with some intervals extends to the river Duddon. Here knolls of boulder clay rise through the moss lands and are distinguished by their greenness. Excellent sections of the deposits and underlying boulder clay and rocks were disclosed in the excavations of the Midland Railway dock at Heysham, and are described in the *Proceedings of the Liverpool Geological Society*, session 1901-2 (Reade).

All the fringes to the solid land of south-west Lancashire are but parts of an extensive belt of deposition, remains of which occur all round the British Islands. Still more extensive plains form a large part of Belgium, and the excavations for the Bruges Ship Canal presented excellent sections showing a similar series of estuarine and peat beds with the remains of trees.³

Before artificial drainage and pumping was resorted to, much of the land was little better than a series of marshes, and many meres, such as Martin Mere, near Southport, existed, but on a smaller scale. The land is now under cultivation, excepting where built upon, as at Southport and Birkdale, and is peculiarly favourable to the growth of potatoes, which are produced in great quantities. The more sandy portions are in some cases used for growing asparagus, which seems to like the soil and saline surroundings.

The mean rainfall at Park Corner, Blundellsands, for twenty-nine years, 1876-1904, is 29.95 inches.

Enough has been said to show that this desolate-looking coastal plain abounds in lessons of the greatest interest from a geological, historical, and a human aspect, lessons of a kind that are absent in more beautiful landscapes.

¹ *Proc. of the Liverpool Geol. Soc.* 1903-4.

² A full account illustrated with maps and sections of the geological and physical features will be found in the *Proc. of the Liverpool Geol. Soc.*, Session 1871-2, by T. Meillard Reade.

³ *Q.J.G.S.*, 1898, pp. 575-581.

PALÆONTOLOGY

PUBLISHED records of the occurrence of remains of mammals from the superficial deposits of Lancashire appear to be comparatively few, and many which have come under the writer's notice are of interest from a historical rather than from a zoological point of view. Sir Richard Owen,¹ for instance, called attention to the discovery of a large antler of the red deer (*Cervus elaphus*) in 1727, which was drawn out of Ravensbarrow Hole, adjoining Holker Old Park, entangled in a fisherman's net. A sketch of this specimen was transmitted to the Royal Society of London by Hopkins, and is reproduced in the *Philosophical Transactions*.² Although the terminal branches of the crown are broken off, this antler measures 30 inches in length; the basal circumference being 10 inches, and the length of the brow-line $16\frac{3}{4}$ inches. The tide flows constantly over the spot where this specimen was found, and the adjacent land is high.

The antlers attached to the skull of another stag of the same species discovered beneath a peat-moss in another part of the county, and figured by C. Leigh in his *Natural History of Lancashire, Cheshire, and the Peak of Derbyshire* (1700), are equally fine, each measuring 40 inches in length. Red-deer antlers are also recorded from Preston, and they have been likewise found in several other parts of the county.

Other cervine antlers recorded by Leigh as having been obtained from the marl beneath the peat between Martin's Mere and Meols (now North Meols) have been identified with the great extinct Irish deer, or 'Irish Elk' (*Cervus giganteus*),³ such remains being stated by Mr. C. E. de Rance⁴ to be far from uncommon in the county. From shell-marl underlying the peat near Whittingdon Hall the antler of a reindeer (*Rangifer tarandus*) is said to have been obtained;⁵ while remains of the great extinct wild ox, or aurochs (*Bos taurus primigenius*), are recorded from Preston. During the excavation of Preston Docks a number of mammalian remains were discovered. According to Mr. E. Dickson (*Proceedings Liverpool Geol. Assoc.* v. 258, 1887) they included 30 pairs of red deer antlers and 50 odd ones, 25 aurochs' skulls, two skulls of the domesticated Celtic shorthorn, one skull of a pilot-whale (*Globicephalus melas*), and two whale-vertebræ.

The skull of a hippopotamus (*Hippopotamus amphibius major*), said to have been found in the county under a peat-bog, is figured in Lee's work, the figure being reproduced in plate xxii. fig. 5 of Buckland's *Reliquiæ Diluvianæ*.⁶

Mammalian remains of late Pleistocene age have been found in some abundance on the Cheshire side of the mouth of the Mersey⁷ and a few are recorded from the Lancashire bank. Mr. G. H. Morton,⁸ for instance,

¹ *Brit. Faun. Mamm. and Birds*, 473 (1846).

² Vol. xxxvii. No. 422.

³ Owen, op. cit. 467, and De Rance, 'Superficial Geology of Liverpool' (*Mem. Geol. Survey*, 1877), 77.

⁴ *Quarr. Journ. Geol. Soc.* xxvi. 668 (1870).

⁵ Harting, *Extinct British Animals*, 65.

⁶ Owen, op. cit. 401.

⁷ Moore, *Trans. N. H. Soc. Lanc. and Cheshire*, x. 265 (1858).

⁸ *Geology of Country round Liverpool*, ed. 2, 250.

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records the discovery of the skull of a brown bear (*Ursus arctus*) in 1876, at Bootle, during the excavation of the Alexandra Dock; and likewise states that a skull and other bones of the same species have been found in the Bewsey Valley, near Warrington. With regard to the Bootle specimen, it has been suggested from its battered appearance, that it may have remained for some time on the surface of the ground before being embedded in the clay, or may have been washed out of an earlier deposit and re-buried. A few antlers and bones of the red deer, together with bones of the horse and undetermined cetaceans, are likewise recorded by Mr. Morton from Bootle; and the same writer states that a horn-core of the aurochs has been obtained from this neighbourhood. The latter specimen was exhibited to the Zoological Society by Mr. J. G. Millais in April, 1905. Recently Prof. W. B. Dawkins (*Mem. Manchester Lit. Soc.* 1904) has described remains of the straight-tusked elephant (*Elephas antiquus*) from Blackpool.

From Prehistoric and Pleistocene deposits to the Keuper, or upper division of the Trias, is a long leap, but intermediate formations are lacking in the county. As regards the Keuper and the other divisions of the Trias, vertebrate fossils are represented solely by footprints of the primeval salamander known as *Cibrosaurus* (otherwise *Cibrotherium*) and perhaps also of the reptile *Rhynchosaurus* of the Trias of Shropshire. The great majority of these footprints are met with in one particular horizon at Storeton and other localities in the Wirral peninsula on the Cheshire side of the river, but, according to Mr. Morton,¹ specimens of both types were discovered many years ago by Mr. A. Higginson in a quarry, long since buried, where now stands Rathbone Street, at the corner of Washington Street, in the city of Liverpool itself. A report on these tracks has been recently drawn up by Mr. H. C. Beasley,² who has also figured³ the type specimen of *C. herculis* from Cheshire.

The next and only other formation from which vertebrate fossils appear to have been recorded within the limits of the county is the Carboniferous, which has yielded evidence of two kinds of labyrinthodont amphibians, and also a considerable number of fish-remains from all the three divisions of the Coal Measures. Information with regard to these fish-remains from the neighbourhood of Prescot and St. Helens will be found in Mr. Morton's book⁴ and likewise in Dr. A. Smith Woodward's invaluable *Catalogue of Fossil Fishes in the British Museum*. Of the Carboniferous fishes of the Littleborough district Mr. E. D. Wellburn⁵ has drawn up a careful list. All the specimens from the latter district, it may be mentioned, are from the Lower Coal Measures. Finally, Mr. H. Bolton,⁶ in 1875, published a synopsis of all the known fish-remains from the county, which embraced thirty-seven species, arranged in twenty-three genera, to which he added another in the following year. Since the present article was in type Mr. Bolton has published (*Trans. Manchester Geol. Soc.* vol. xxviii. pts. 19 and 20) a new and revised list of the Carboniferous fish-fauna of the county.

The most interesting Lancashire vertebrate fossil is undoubtedly *Hylonomus wildi*, a representative of that group of small labyrinthodont or

¹ Op. cit. 110.

² *Proc. Liverpool Geol. Soc.* xlii. 81 (1901).

³ *Proc. Yorks. Geol. and Polyt. Soc.* xlii. 419-430.

⁴ *Rep. Brit. Assoc.* for 1903 (1904).

⁵ Pp. 48-55.

⁶ *Trans. Manchester Micr. Soc.* 1895, 13 pp. 2 pla.

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stegocephalian amphibians known as Microsauri. It was described by Dr. A. Smith Woodward in the *Geological Magazine* for 1891 (p. 211), and belongs to a genus of which the first known specimens were collected by the late Sir William Dawson from hollow *Lepidodendron* trunks in the Nova Scotian Coal Measures. Of that genus it is the only known British representative.

The second and more typical Lancashire labyrinthodont, which was obtained by Mr. Wild in the Middle Coal Measures of the Bardsley Colliery, is at present undescribed. It is regarded by Mr. Bolton as probably referable to the Carboniferous and Permian genus *Archegosaurus*.

Passing on to the Coal Measure fishes, and commencing with those primitive Palæozoic sharks known as Ichthyotomi, the first specimen to record is a spine from the Lower Foot Mine at Littleborough, identified by Mr. Wellburn with *Pleuracanthus cylindricus*, a species known elsewhere from the Coal Measures of Scotland, Northumberland, Yorkshire, and Staffordshire. Mr. Bolton includes in his lists *P. lævissimus*, *P. undulatus*, *P. erectus*, and *P. denticulatus*; the first of these is a good species, but the second is a synonym of the first, and the other two are founded on spines. The allied genus *Diplodus* is represented in the county by two species, *D. gibbosus* and *D. tenuis*, of which the first alone is recorded from Littleborough; *D. tenuis* has a distribution very similar to that of *Pleuracanthus cylindricus*, but *D. gibbosus* is not known to occur in Scotland. Among the more typical sharks, the Palæozoic family of *Petalodontidae*, characterized among other features by the pavement-like dentition of a peculiar type, is represented by several species in the Carboniferous of the county. Firstly, we have *Ctenoptycbius apicalis*, typically from Staffordshire, recorded by Dr. Smith Woodward as a Lancashire fish; while Mr. Bolton mentions a second species, *C. lobatus*, typically from Scotland. Mr. Wellburn includes in his Littleborough list a member of another genus, *Callopristodus pectinatus*, first described from the Scottish coal-fields. To another family of Palæozoic sharks, the *Cochliodontidæ*, whose nearest relationships are probably with the Port Jackson sharks (*Cestraciontidæ*), belongs *Pleuroplax rankini*, of which remains are recorded from Littleborough, the species having a wide distribution in Britain. The Northumberland species *P. attheyi* appears in Mr. Bolton's list. Next on our list comes a species of the genus *Sphenacanthus* (belonging to the family *Cestraciontidæ*), which Mr. Wellburn considered might be new; it is represented by a spine from the Lower Foot Mine of the Littleborough district, said to be unlike any hitherto described. Mr. Bolton's Lancashire list includes, however, only the widely distributed *S. hybodontoides*. Certain other specimens from the Littleborough district are of the type of those to which the ill-defined name *Stemmatodus* has been applied, such specimens being probably dermal ossifications belonging to *Pleuracanthus* or one of the allied genera. The imperfectly-known genus *Tristycbius* or *Petrodus* is represented in the Yoredale rocks near Todmorden. A single spine from the Littleborough district is assigned to *Acanthodes wardi*, a species typically from Staffordshire belonging to an altogether peculiar group of Palæozoic sharks collectively known as Acanthodii; remains of the same genus are recorded by Mr. Morton from St. Helens, and the species occurs in Mr. Bolton's list. Following this come two representatives of the lung-fishes, or Dipnoi, belonging to the extinct genus *Ctenodus*, which takes its name from the somewhat

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comb-like structure of the palatal teeth. The first species, *C. murchisoni*, is common to the upper Coal Measures of Shropshire and Lancashire and to the middle Coal Measures of Staffordshire; while the second, *C. cristatus*, is widely distributed. *Sagenodus inæqualis*, which has an equally wide range, appears in Mr. Bolton's list, where the fish known as *Hybodopsis wardi* is likewise recorded as a Lancashire species.

The great group of fringe-finned enamel-scaled fishes, of which the African bichirs and reed-fish are the sole survivors, are represented in the county by an undetermined species of *Rhizodopsis* recorded by Mr. Wellburn from the Littleborough district, and also by scales from Pendleton and the Victoria pit which have been identified with *R. sauroides*. The large and well-known *Megalichthys hiberni*, of which the remains occur in all the British coal-fields, is common to the Lancashire area, as are also the species known as *M. intermedius* and *M. pygmaeus*, which appear in Mr. Bolton's list. Teeth and scales of this genus are also recorded from St. Helens. Very widely spread is a species, *Cælacanthus elegans*, of another genus of the same group, which is common to the Coal Measures of North America and Great Britain, and of which remains have been recorded from Lancashire. Bones and teeth of a second representative of the same genus from the St. Helens neighbourhood are identified with *C. lepturus*.

Of fish-spines or 'ichthyodorulites' of uncertain systematic position from the Coal Measures of the county, Mr. Bolton records the types respectively known as *Gyracanthus formosus*, *Oracanthus milleri*, and *Lepracanthus colei*. In the *Geological Magazine* for 1896 the same gentleman describes a fish-spine from the county which, under the name of *L. spinatus*, he identifies with the American generic type *Listracanthus*.

Leaving the fringe-finned group for that section of the enamel-scaled series in which the fins are of a more ordinary type of structure, we find the great Palæozoic family *Palæoniscidae* represented in the Coal Measures of the county by three species of the genus *Elonichthys*, namely *E. aitkeni*, *E. semistriatus*, and *E. egertoni*, all of which occur in the Littleborough district, while the genus is also recorded in Mr. Morton's list from the Victoria pit in the St. Helens neighbourhood. The first named species is typically a Lancashire fish. In addition to these we have from the Littleborough district another member of the family in question, *Rhadinichthys monensis*, a species typically from Anglesea belonging to a genus with numerous representatives. A scale of *Rhadinichthys* is also recorded by Mr. Morton from the Victoria pit; and Mr. Bolton includes in his list the two species known as *R. wardi* and *R. planti*, the latter being typically from the present county,¹ while the former was described on the evidence of Staffordshire specimens.

Lastly, *Acrolepis hopkinsi*, which occurs at Littleborough, belongs to a large genus, and is common to the Carboniferous of Derbyshire, Yorkshire, Lanarkshire, and Belgium.

The remaining fishes recorded from the Coal Measures of the county are mostly referable to the family *Platysomatidae*, the members of which are readily distinguishable from the *Palæoniscidae* by the much deeper and more rhomboidal form of the body. Among these *Cbirodus granulatus*, which is not included in the Littleborough list, is recorded elsewhere from Staffordshire and Lanark-

¹ Traquair, *Geol. Mag.* (3) v. 253 (1888).

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shire. The second species, *Platysomus parvulus*, which is common to the Littleborough and St. Helens districts, and is also widely distributed in the north of England and Scotland, is a member of the type genus. A second representative of the same genus, *P. forsteri*, is included in Mr. Morton's list from the Victoria pit.

At the close of his list of the species from the latter locality Mr. Morton adds the following note :—

'The genera *Cælacanthus*, *Ctenoptycbius*, *Diplopterus*, *Gyrolepis*, *Holoptycbius*, *Megalichthys*, and *Platysomus*, have been recorded from various localities in south-west Lancashire, but since Mr. William Peace, of Wigan, collected fish-remains associated with the cannel coal of that place, fifty years ago, so little has been done that the list requires revision.'

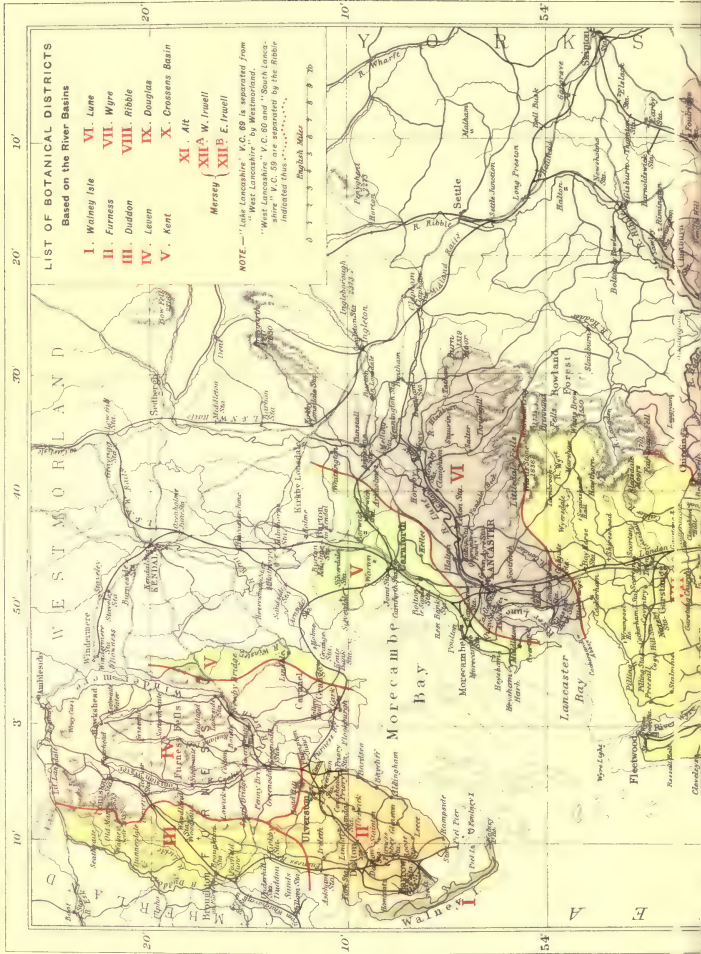
From the Millstone Grit of the county Mr. Wellburn¹ has recorded the following fishes, viz. : *Pristodus falcatus*, *Psephodus*, sp. *Pæcilodus jonesi*, *Orodus elongatus*, *Helodus*, sp. *Acanthodes wardi*, *Climatius*, sp. *Euctenodopsis* (gen. nov.), *Acondylacanthus*, sp. *Cælacanthus*, sp. *Rbadinichthys*, spp. *Elonichthys aitkeni*, and *Acrolepis hopkinsi*.

ADDENDUM

The following species of Carboniferous fishes appear in Mr. Bolton's list of 1905 in addition to those above-mentioned, viz. :—*Pleuracanthus alatus*, *P. cylindricus*, *P. serratus*, *Helodus simplex*, *Psephodus magnus*, *Sphenacanthus hybodontoides*, *Hoplonchus elegans*, *Gyracanthus formosus*, *Euctenius unilateralis*, *Ctenodus cristatus*, *Strepsodus sauroides*, *S. sulcidens*, *Elonichthys striatus*, and *Mesolepis scalaris*.

¹ *Geol. Mag.* (4), viii. 216 (1901).

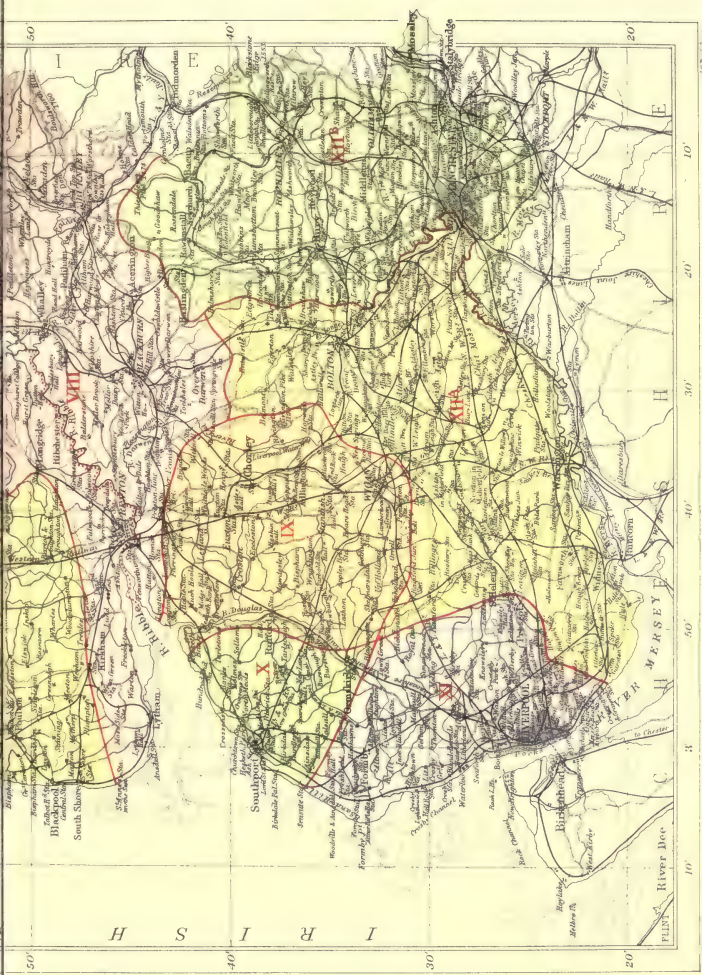




LIST OF BOTANICAL DISTRICTS
Based on the River Basins

- I. Wainey Isle
- II. Furness
- III. Duddon
- IV. Lenon
- V. Kent
- VI. Lune
- VII. Wyre
- VIII. Ribble
- IX. Douglas
- X. Crossens Basin
- XI. Ait
- XII. W. Irwell
- XIII. E. Irwell

NOTE.—"I. Lake Lancashire" V.C. 80 is separated from "West Lancashire" by Westminster.
"West Lancashire" V.C. 80 and "Spurk Lancashire" V.C. 50 are separated by the Ribble indicated thus ".....".



THE VICTORIA HISTORY OF THE COUNTIES OF ENGLAND



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FOR the purposes of Topographical Botany Lancashire was divided by Mr. H. C. Watson into three vice-counties, namely, V.C. 59, South Lancashire; 60, West Lancashire; and 69, Lake Lancashire. This last vice-county, however, was combined with Westmorland, but for this article only that part of Watson's vice-county which lies within the boundaries of the county of Lancaster is treated of.

V.C. 59.—Lancashire South is all the county north of the Mersey and south of the Ribble. Its flora, as regards flowering plants and mosses, is about as well known as any tract of land of similar size in Britain. The density of its population is only exceeded by that of Middlesex, and therefore great changes have taken place in its plant life during the past century. Some of the more interesting plants have disappeared from the mosses through drainage and the rapid spread of the towns. There are one or two cloughs in the east which afford a home for a few uncommon plants, and the sandunes of the coast have lost few of the rare plants which have been known to grow more or less abundantly there for over a century. The highest ground in this vice-county is Pendle Hill, 1831 feet, in the north-eastern corner near Clitheroe, a striking feature in the landscape when seen from the main line of the Midland Railway at Hellifield, as it is also from the other side from various standpoints. The summit of this hill is just above the superagrarian zone of Watson, and is the only land in this vice-county within the inferarctic zone. All the eastern side of the vice-county is hilly, but the rest is very little above sea level in any part. There are no rivers of importance within its boundaries. The geology is uniform and of no special interest to the botanist. The great port of Liverpool accounts for a considerable alien flora, propagated by seeds in ballast and in other ways common to all great seaports. Many of these seeds are very small and are easily blown by the wind from quays and wharves on to the banks of estuary and canal. Some few of these are spreading, but the majority only flower once and then disappear. Some of the larger seeds fall in the water, and are thrown up later amongst the dredgings, and soon produce flowers when the conditions are favourable. Almost all these aliens are annual or biennial. This extensive alien flora makes up in a measure for the loss of the few rare natives. Few districts have been so thoroughly and carefully worked by such a number of able bryologists during the last sixty years, therefore it is not likely that many additions will be made to the moss flora in the future. Little or nothing has been done with the fungi,¹ the algæ have been neglected,¹ and the lichens have only recently had any attention. No attempt has been made to study the mycetozoa of any part of the county as far as is known.¹ The student need not therefore travel far for material of interest and importance. There is no published flora of this vice-county. There are, however, several local floras

¹ Thus comparing very unfavourably with the county of York.

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which taken together furnish a good deal of information. These are the floras of Manchester, Liverpool, and Ashton districts, each and all covering an area beyond the county border, so that unusual care has been necessary in writing this article to avoid errors, because the county is not mentioned in a great number of cases. This vice-county is remarkable amongst other things for the number and excellence of its artisan botanists who lived during the past century.

V.C. 60. Lancashire West.—The Ribble divides this from V.C. 59. It is all on the east side of Morecambe Bay, has Yorkshire on its eastern boundary, and Westmorland on its northern. Excepting the greater height of its fells and moorland it is not different to South Lancashire to any great extent. Its flora is more montane. Greycarth Fell, in the extreme north-east corner, is the highest ground (2050 feet). Just outside this county this same fell rises some 200 feet more. Several uncommon montane plants grow here, but it is not quite so rich in upland forms as some of the neighbouring fells outside the county.

A number of uncommon plants grow in the cloughs and on the moorland fells to the south of Greycarth. This vice-county was one of the least known, botanically, until the last decade, when Messrs. Wheldon and Wilson determined to make it their special study. Thanks to their enthusiasm and zeal it is now quite as well known as any county. It must be remembered, too, that many of the localities lie far away from a railway. The two botanists named above have in progress a flora of West Lancashire. There is a great deal yet to be done as regards the algæ, fungi, and mycetozoa.

The chief river is the Lune. It rises in Ravenstonedale, in Westmorland, running northwards, then westwards it receives numerous becks, full of trout. Turning to the south, past Tebay, it separates Westmorland from Yorkshire; and just below Sedbergh (1 m.) it receives a considerable trout stream, the Rawthey, which rises on West Baugh Fell, and is mainly a Yorkshire river. The Lune runs to Middleton, with Rigmaden on the other bank, where is the well-known trout fishery. Three miles down, Barbon Beck joins the Lune on the right bank. After passing through the beautiful park and grounds of Underley, the Lune passes Kirkby Lonsdale, entering Lancashire a quarter of a mile below the bridge. Two miles down it receives Leck Beck, and between Thurland Castle and Arkholme it is joined by the Greta. The Lune then runs to Melling and Hornby, where the Wenning meets it on the left bank after its junction with the Hindburn river, which is formed of three considerable becks. Passing Caton and Halton, receiving three small becks, the Lune runs to Lancaster. Up to this point the river is remarkable for the purity of its water, but below Lancaster the state of the river is most unsatisfactory.

This vice-county may be divided into three main divisions, as suggested by Messrs. Wheldon and Wilson:—

1. North Division.—Separated from remainder of vice-county by the Lune as far as its junction with the Wenning, beyond which this tributary forms the line of demarcation to the Yorkshire boundary. Carboniferous limestone, Yoredale series, Millstone grit, with small tracts of Upper Silurian, Coal measures, and Permian sandstone are represented here. The coast line consists of alternations of sandy shore, muddy salt-marshes, and rocky cliffs.

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Compared with South Lancashire or any other division of West Lancashire this is the most interesting botanical district. It is more varied geologically than the other parts, and its numerous woods, scars, and crags, its hills and glens, its tarns, limestone pavements, and 'pot holes' are the homes of many uncommon plants. The highest ground is 2,050 feet.

2. East Division.—Consists of elevated, bleak and barren moorlands, intersected by deep wooded glens or cloughs, each with its stream of sparkling water derived from extensive spongy peat-beds, which are fed by frequent rains and cloud fog. The remainder of this division is less interesting, consisting of upland pastures with some low land on the banks of the rivers. The strata are almost entirely composed of the Yoredale series (grits and calcareous shales) and Millstone grit. The highest ground is Wardstone (1,836 feet). There are only small patches of limestone near Chipping and Whitewell.

3. West Division presents a marked contrast to those already dealt with. It consists of a nearly level plain, termed the Fylde (or garden) lying between the estuaries of the Lune and Ribble, and intersected about midway by the Wyre. Its highest ground is not anywhere more than 130 feet, and usually only from 25 to 60 feet.

The shale consists principally of Permian sandstone and Triassic marl, generally overlaid with glacial drift, and in the northern and central portions are the scanty remains of what was formerly an immense peat-moss. This has been extensively reclaimed and the greater part of this division is now highly cultivated. The coast-line exhibits muddy salt marshes and sand-dunes resembling those of South Lancashire (V.C. 59) and Cheshire (V.C. 58). These aboriginal features are rapidly disappearing before the operations of the builder and agriculturist and the extension of foreshore improvements by various watering places. To the north of Blackpool are low cliffs of glacial drift. The more interesting plants are those of the dunes, salt-marshes, and peat-mosses.

V.C. 69. Lake Lancashire (without Westmorland), all the county north of Morecambe Bay.—On the west it is separated from Cumberland by the Duddon, the same river and the Brathay and part of Elter Water are its northern boundary, dividing it from Cumberland and Westmorland, thence the boundary southwards is along the west shore of Windermere, then up the east shore for four miles. It then turns eastwards for a mile and a half, and then southwards, following the river Winster to Lindale, crossing the river twice. The boundary runs south to Morecambe Bay, a mile to the east of Grange, and half a mile to the west of the Winster mouth, having Westmorland all along its eastern border. Walney Isle on the south-west, opposite Barrow, is included in this vice-county. This part of Lancashire is almost an island, the two rivers Duddon and Brathay rising near the three-shire stone.

The highest ground is Coniston Old Man, 2,633 feet. Two of the Seathwaite fells are over 2,500 feet. All the fells about Coniston, from the northern boundary of the vice-county to Broughton and Waterhead, are composed of middle slates; there are no exposures of granite as in Cumberland (Skiddaw, etc.). The south-eastern boundary of these slates is marked by a variable band of limestone (only partially calcareous), dark in colour and intermingled with beds of shale. These rocks belong to the Lower Silurian system. To

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the Upper Silurian belong the Coniston grits (flags and greywacke) and Coniston flags. The Mountain limestone is abundantly exposed near Ulverston, Conishead, and Grange, near which is the precipitous headland known as Humphrey Head, long known to botanists. Rocks of Permian age occur near Dalton-in-Furness, passing north-westwards along the coast of Cumberland, and south-eastwards across Morecambe Bay to near Lancaster in V.C. 6o.

The flora of this vice-county is somewhat different to that of the other two, owing to the great mass of slate which rises some 500 feet above that of the highest ground of the other two vice-counties. It is not however richer in forms. The plants of this slate region are like those of the lake mountains, but a number of the rarer plants of Cumberland are wanting in this vice-county. It is less varied geologically and of much smaller size than Cumberland, which has ground rising to over 500 feet beyond that of the highest point in Lake Lancashire, and also has considerable exposures of granite. The limestone tract is of much interest, as a considerable proportion of the plants which are more or less peculiar to that formation in west and north central England and Wales are to be found. The flowering plants of this portion of the county are well known, but the cryptogams have been neglected. The woods along the shores of Windermere will furnish a very large fungus-flora, and a wide and beautiful field is open to the student.

This vice-county is about 25 m. from N. to S. and 13 from E. to W. Besides the rivers already mentioned as forming boundaries there is the Crake, also lakes Coniston Water, Esthwaite Water, Blelham Tarn, Tarn Hows Tarn, Levers Water, Goats Water, Low Water, and Seathwaite Tarn.

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The herbarium of the British Museum contains many Lancashire plants. Recently it has been enriched by the purchase of Mr. W. H. Pearson's valuable and extensive collection of Hepaticæ. It would be impossible to enumerate all the local herbaria, although some are of much value. The herbaria of Bicheno and Motley at Swansea contain plants found in Lancashire, as stated in the *Naturalist* for November, 1902. There are very few plants of any value in them, and some are more than doubtful. A few important plants are in the museum at York.

The writer has left the most pleasant task for his last remarks. He has received considerable help from several well-known botanists. First and foremost, his most cordial and sincere thanks are due to Mr. J. A. Wheldon of Liverpool for the loan of his papers, books with marginal and foot-notes, for reading and correcting manuscript, and for useful suggestions, which have always been done without the least delay.

To Mr. Albert Wilson for his MS. of Lake Lancashire mosses, and for help in other ways. To Mr. Arthur Bennett for a list of the Naidaceæ and Characeæ of the county, examples of which plants in his collection from Lancashire are marked thus ! in this article ; also for help in other ways. To Mr. E. C. Horrell for his help with Sphagna. To Mr. Symers M. Macvicar for opinion on Hepaticæ. To Mr. J. Cosmo-Melville, M.A. (who kindly searched in vain for further records of Algæ), for much help in various ways. To Professor Carr, M.A., etc., for the loan of books, and the use of his extensive library. To Mr. William West of Bradford. To the Rev. W.

A HISTORY OF LANCASHIRE

W. Mason for a MS. list of flowering plants from all the three vice-counties. To Mr. C. Crossland for much help with fungi, and to Mr. J. A. Martindale for help with lichens.

N.B.—The writer wishes it to be clearly understood that the commonest of British flowering plants and mosses, including hepatics, are not enumerated. This was unavoidable.

EXPLANATION OF SIGNS

† signifies possibly introduced, * probably or certainly introduced in the county, and + more than three stations known, 'r. r.' is an abbreviation for 'very rare.'

A full stop after a locality signifies that the writer has gathered the plant there. Otherwise the name of finder is given.

CLASS I.—PHÆNOGAMIA

SUB-CLASS I.—DICOTYLEDONES

Order I.—Ranunculaceæ

**Clematis Vitalba*, L. [59] 69. Limestone rocks near top of *Yeovarrow-over-Grange*, etc.; J. G. Baker, W. Foggitt, F. Clowes

Thalictrum dunense, Dumort. 69. *Walney*, J. Lawson. Ray, *Fascic.*, 1688. Ch. Bailey, 1872. *Journ. of Bot.* p. 61. 60. *Lytham*, Ashfield

— minus, L. Aggreg. incl. T. majus. 59 and 60. *Top. Bot.* 69. Linton and Miss Hodgson

— collinum, Wallr. 60. *Dalton Crag*, Sydney Wilson with Wheldon and A. Wilson. (6. 1899.) This should be abundant on the limestone of 60 and 69, but Mr. Wheldon says it is not

— majus, Crantz. 69. See Baker's *Flora*, 1885, p. 16, and Petty's *Constituents*

Ranunculus circinatus, Sibth. 59. Canal near *Ford*; Wheldon. +. nr. *Liverpool*, Green's *Fl. Little Crosby*, Rev. W. W. Mason. 60. Canal nr. *Lancaster*, Wheldon. 69. Nr. *Humphrey Head*; H. T. Soppitt

— fluitans, Lam. 59. 'Dugdale,' *Top. Bot.* 60. In *Ribble*; *Fl. Stonyhurst*

— Drouetii, Godr. 59. F. M. Webb, MS. *Top. Bot.* Nr. *Great Crosby*; Green's *Fl. Alcar*; Wheldon. 60. *Top. Bot.* Nr. *Arnside Tower*, but in Lanc.; C. Bailey. Ponds at *Wimmarleigh*; W. and W. (not typical, Groves)

— heterophyllus, Web ex p. 59. Common; Green's *Fl.* 60. Nr. *Morecambe*; Wheldon. 69. *Urswick Tarn*; *Plumpton*; Miss Hodgson

var. submersus (Hiern). 60. Between *Silverdale* and *Arnside*; C. Bailey

— peltatus, Schrank. Aggreg. incl. floribundus, etc. 59. *Top. Bot.* F. M. Webb. Common, Green's *Fl.* Nr. *Oldham*; Whitehead, Wheldon. +. 60. *Top. Bot.* Hiern. +

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order I.—Ranunculaceæ (continued)

Ranunculus diversifolius, H. C. Wats. 59. Ditches at *Lydiate*; Wheldon

— *Baudotii*, Godr. 59. *Top. Bot.* Nr. *Old Formby Church*; J. H. Lewis. 60. Hiern. *Top. Bot.* *St. Anne's*; *Preston to Heysham Peninsula*; W. and W. var. confusus (Godr.). 69. In *Windermere*; Hiern. Baker's *Fl.*

— Lenormandi, F. Schultz. 59. *Top. Bot.* Goodlad, sp. *Oltham*; Whitehead, Wheldon. *Ashton Moss*; Whitelegge. *Liverpool* district; Green's *Fl.* 60. Hiern Hb. *Top. Bot.* O. *Wyresdale*; +. W. and W. 69. *Coniston*; J. Backhouse, Junr. See *Phytol.* ii. 467 (1846)

— *Lingua*, L. 59. *Tudor MS.* *Top. Bot.* *Liverpool* district; Green's *Fl.* *Little Crosby*; *Hightown*; Wheldon. 69. *Hookhead*; *Derham*, 1718. Baker's *Fl.* +

— auricomus, L. 59. Goodlad Hb. *Top. Bot.* *Liverpool* district; Green's *Fl.* *Reddish*; Whitehead. Buxton's *G.* p. 74. 60. Simpson, sp. *Top. Bot.* *Silverdale*; A. Wilson. +. 69. Petty's *Constit.* +

— acer, L. var. tomophyllus (Jord). 60. *Silverdale*; +; W. and W. var. boreanus (Jord.). 59. +. 60. +. Wheldon var. rectus, Bor. 60. *Caton*; +; W. and W.

— sardous, Crantz. 59. *Top. Bot.* *Liverpool* distr. Green's *Fl.* Nr. *Leigh*; Buxton's *G.* 60. Boswell ms. *Top. Bot.* 69. *Barrow*; J. Henry, +; Petty's *Constit.*

— parviflorus, L. 59. *Top. Bot.* *Crosby*; *Bootle*; *Withering*. No modern record

Caltha palustris, L. var. minor, Syme. [59. *Speke*; T. Gibson. Green's *Fl.*] 60. *Gravell's Clough*; *Tarnbrook Fell*; W. and W. 69. *Seathwaite Tarn*; *Walna Scar*; Miss Hodgson

Trollius europæus, L. In most places of Yorkshire and Lancashire. Gerard, *Herball*, 1597, p. 809, and first as British. 59. Goodlad Hb., *Top. Bot.* *Thornham*; *Pilswood*; R. Buxton in *Whitehead's Fl.* About *Bolton*; Buxton's *G.* p. 75. 60. +. A. Wilson. 69. *Plentiful*, frequently reported since 1796

BOTANY

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order I.—Ranunculaceæ (continued)

**Helleborus viridis*, L. 60. *Top. Bot.* 'native.' *Silverdale*, 'native.' A. Wilson. 69. *Nr. Grange*; Miss Hodgson and others

*—*fortidus*, L. 60. *Gatebarrow Wood*, near *Silverdale*; 'where it is perhaps native,' A. Wilson. *Barton nr. Preston*; H. Bessley (Denizen, Ar. Bennett, Wheldon)

Aquilegia vulgaris, L. †59. *Green's Fl.* and *Buxton's G.* 60.* *Hiern MS. Top. Bot. Silverdale*, 1864, abundant, C. J. Ashfield. *Rev. W. W. Mason*, 1902. *Wheldon* and *Wilson*. †. 69. Frequent, and repeatedly recorded since 1843

Actæa spicata, L. 60. *Pot-hole*, *Leck Fell*, 1888; A. Wilson

II.—Berberidæ

Berberis vulgaris, L. 59. *Top. Bot.* **Dickinson's Fl. Knowsley*; †; '† native or denizen,' *Green's Fl.* 60. *Silverdale*; A. Wilson. 69. 'Doubtfully wild,' *Miss Hodgson*. 'Seems planted,' *Petty, Constit.*

[*Epimedium alpinum*, L. 69. *Alien. Miss Burton, Petty in Naturalist*, December 1898]

III.—Nymphaeaceæ

Nymphaea lutea, L. 59. 60. 69.

Castalia speciosa, *Salisb.* 59. *F. M. Webb. cat. Top. Bot.*; *Green's Fl.*; *Buxton's G.* p. 71. *Aintree*; *Wheldon*. 60. *Top. Bot. Linton cat.*; *Hawes Water*; *Jenkinson 1775*. Still there, *Petty*, 1893 (A. Wilson 1904. †). 69. Not unfrequent; *Baker's Fl.*, p. 245. and others

IV.—Papaveraceæ

†*Papaver Argemone*, L. 59. *F. M. Webb. cat. Top. Bot. Buxton's G.* p. 70. *Whitehead's Fl. 'colonist.'* 60. *Cornfield, St. Anne's*; 1898. *Wheldon*. 69. *Furness*, etc. *Evans* and others.; *Petty's Constit.*

—*dubium*, L. a. *Lamottei* (Bor.). 59. *Common, Green's Fl.* †. b. *Lecoqii* (Lamotte). 59. *Green's Fl.* 69. C. C. *Babington ex Neubould*

†—*hybridum*, L. 59. *Top. Bot. Exch. Club, sp.*

Meconopsis cambrica (L.) *Vig.* 69. Repeatedly recorded since *Withering's* time, 1787; 'Nearly every hamlet in *Higb Furness*,' *Miss Hodgson. Baker's Fl.* 1885; shores of *Erboswaite Water* and *Windermere*, 'truly wild,' *Mr. and Mrs. Hill*; *Petty's Constit.*; 'Possibly wild in *Westmorland*,' *H. C. Watson*. By this he would mean *Lake Lancashire* also, as he treated the latter as part of *Westmorland*. See also *Smith's Engl. Fl.* 1825, vol. iii. p. 12

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order IV.—Papaveraceæ (continued)

Glaucium flavum, *Crantz.* 59. *Top. Bot.* Not seen lately; *Green's Fl.* 60. *Top. Bot. Syme sp.* 69. Repeatedly recorded since *Withering's* 1787 record. Abundant in places, *Petty's Constit.*

V.—Fumariaceæ

Capnoides claviculata (DC.) 59. *Top. Bot. Goodlad Hb. Crosby*; †; *Green's Fl. Ashton*; †; *Whitehead's Fl. Chorlton*; †; *Buxton's G.* 60. *Top. Bot. Linton rec.* 69. Not uncommon, *Petty's Constit.*

Fumaria pallidiflora, *Jord.* 59. *Top. Bot. Ormskirk*; *Green's Fl.*; *Chorlton*; †; *Buxton G. Ford*; *Wheldon*. 60. *Carr. rec. Top. Bot.* 69. *Flookborough*; *Rev. W. W. Mason*

—*Boræi*, *Jord.* 59. *R. Brown, Top. Bot.* †; *Aintree*; †; *Wheldon*. 60. *Preestall*; *Wheldon. Silverdale*; *A. Wilson. Nr. Little Eccleston*, 1895; *Rev. E. S. Marshall*. †. 69. *Walney I.*; *Rev. W. W. Mason. Windermere*; †; *Miss Hodgson*

—*confusa*, *Jord.* 59. *Top. Bot. Common, Green's Fl. Walton*; *Wheldon*. 60. *Nr. Little Eccleston*; *Rev. E. S. Marshall*. 69. *Miss Hodgson*, and later

—*muralis*, *Sonder.* 59. *Lewis rec. Top. Bot.*
—*densiflora*, DC. 69. *Hawkshead*; *Rev. F. J. Hort*

VI.—Cruciferae

Nasturtium silvestre, *R.Br.* 59. *Top. Bot. Waterhouses*; *Wm. Jones. Whitehead, Fl.* 60. *Simpson sp. Top. Bot.* 69. *Barrow*; *W. Foggitt*

—*amphibium*, *R.Br.* 59. *Top. Bot. Nr. Ashton*; *Whitehead*. 'Probably extinct in *Liverpool district*,' *Green's Fl. Nr. Manchester*; *Buxton's G.*, p. 84. 60. *Linton cat. Top. Bot.*

Barbarea stricta, *Andrz.* 59. *Native, nr. Stoke*; *F. M. Webb*. Needs recent confirmation, *Green's Fl.*

Cardamine amara, L. 59. *Goodlad, Top. Bot. Medlock Vale*; *Whitehead. Liverpool district*; *Green's Fl. Reddish*; †; *Buxton's G.* 60. C. J. *Ashfield*; *Linton cat. Top. Bot. O. Wyresdale*; †; *A. Wilson*. 69. Not common, *Baker's Fl.*; *Petty's Constit.*

—*fleurosa*, *With.* 59. *Top. Bot. F. M. Webb, cat. Horton*; †; *Green's Fl.*; *Common, Whitehead's Fl.* 60. *Wheldon* and *Wilson*. 69. *Greythwaite, Windermere*; *Miss Hodgson*

—*impatiens*, L. 60. *Melville, Top. Bot. Silverdale*; *Melville*, 1868

Erophila vulgaris, DC., var. *brachycarpa* (*Jord.*) 60. *Silverdale*; *A. Wilson*

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order VI.—Cruciferae (continued)

Draba muralis, L. 60. Between *Kirkby Lonsdale* and *Whittington*; A. Wilson, *Hodder Valley*, 1903; J. A. Wheldon and A. Wilson

Cochlearia officinalis, L. 59. *Top. Bot.* 60. Linton cat. *Top. Bot.* Saltmarsh, *Silverdale*; A. Wilson. 69. Ray, 1670, and frequently recorded since up to 1885, on the shore *Flookborough*; J. G. Baker var. *alpina* (H. C. Wats.). 60. *Leck*; Petty. 69. *Seathwaite Fells*; recorded since 1805, Petty's *Constit.*

— *danica*, L. 59. *Top. Bot.* By Walton Gaol, 1891; Wheldon. 60. *Top Bot.* C. J. Ashfield. †*St. Anne's*; †*Blackpool*; Wheldon. 69. *Walney I.*; Mr. Lawson, Ray, *Fasc.* 1688. Frequently recorded since. Rev. W. W. Mason, 1902, in litt.

— *anglica*, L. 59. *Top. Bot.* Frequent, Green's *Fl.* 60! *Top Bot.*; + W. and W. 69. +; Petty's *Constit.*

**Sisymbrium sophia*, L. 59. *Top. Bot.* Webb cat. Frequent, Green's *Fl. Formby*; Wheldon. 60. †*Nr. Lytham*; Wheldon

[*Erysimum cheviranthoides*, L. 59. Green's *Fl. Barton to Altcar*; Whitehead's *Fl. Ashton*†. *Barton to Irlam*; Buxton's *G. Black Bull Lane, Walton*; Wheldon. A casual]

Brassica monensis, Huds. 59. Shore of *Mersey* nr. *Liverpool*; R. Roscoe, *Sm. E. F.* 1825. *Top. Bot.* Tudor sp. Frequent, Green's *Fl. Formby*; Rev. W. W. Mason. 60. *Lytham*; Prof. Henslow, 1830; 1896, Wheldon. 69. Often recorded since 1690 (Ray *Syn.*) from *Walney to Grange*

— *sinapoides*, Roth. 59. Webb cat. *Top. Bot.* Frequent, Green's *Fl.* *Nr. Kirkby*; +; Wheldon. 60. Syme MS. *Top. Bot.*

[*Diplotaxis tenuifolia*, DC. 60. Linton cat. *Top. Bot.* *St. Anne's*; Bailey, casual]

*— *muralis*, DC. 59. Webb cat. †*Top. Bot. Freshfield*; *Scarisbrick*; Green's *Fl. Blundellsands*; Rev. W. W. Mason, all *Babingtonii*, Wheldon in litt.

var. *Babingtonii*, Syme. 59. *Formby*, 1896; *Blundellsands*, 1900; Rev. W. W. Mason. 60. *St. Anne's*; Wh.

[*Coronopus didymus*, Sm. 59. Dickinson sp. *Top. Bot.*, casual]

— *Ruellii*, All. 59. Webb cat. Frequent in *Liverpool* district, Green's *Fl. Bootle*; *Litherland*; Rev. W. W. Mason. *Netherton*; Wheldon. 60. *Top. Bot.* *Nr. Garstang*; nr. *Blackpool*; A. Wilson

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order VI.—Cruciferae (continued)

**Lepidium latifolium*, L. 60. *Top. Bot.*, casual, extinct?

[— *ruderale*, L. 59. *Formby*; *Aintree*; *Walton*; Green's *Fl.*] 60. *St. Anne's*; Bailey

— *Smithii*, Hook. [L. heterophyllum, Benth.] var. *canescens*, Gren. and Godr. 59. *Top. Bot.* 60. *Silverdale. Top. Bot.* 69. +; Baker's *Fl. Rev. W. W. Mason*, 1902

Thlaspi arvense, L. †59. Tudor sp. *Top. Bot.* +; Green's *Fl.* 60. Syme sp. *Top. Bot.*

Teesdalia nudicaulis, R. Br. 59. Tudor MS. *Top. Bot. Formby*; *Southport*; +; Green's *Fl. Little Crosby*; Rev. W. W. Mason, MS. *Nr. Prestwich*; Buxton's *G.*

Crambe maritima, L. 69. Known since 1680. 'Now almost eradicated,' L. Petty *Constit.* Aiton, B.G. *Top. Bot. Rosebeck*; *Walney Isle*; 29 July, 1902, Rev. W. W. Mason. It is greatly to be feared that this rare plant will be lost in a very few years hence. It is hoped that collectors will spare it as much as possible

Raphanus maritimus, Sm. 60. Syme sp. *Top. Bot.* 69. Shore nr. *Rampside*; L. Petty

VII.—Resedaceæ

[*Reseda lutea*, L. 59. Colonist, Green's *Fl.* 60. Casual only; Wheldon. 69. Miss Ashburner, casual]

VIII.—Cistineæ

Helianthemum marifolium, Mill. 69. On the rocks about *Cartmel Wells* in Lancashire, plentifully, Fitz Roberts in Ray *Syn.* ed. ii. 203, 1696. Frequently recorded since. Plenty there in 1883, J. G. Baker. *Humphrey Head*; H. T. Soppitt, 1894. Rev. W. W. Mason, 1902, MS. These records all refer to the same place

IX.—Violariæ

Viola palustris, L. 59. *Top. Bot.* *Knowsley Woods*; F. M. Webb. *Nr. Ashton*; Whitehead's *Fl. Nr. Lydiate*; R. Brown, 1888. *Bickerstaffe Moss*; Dickinson. 60. C. J. Ashfield. *Top. Bot.*, very common; Wheldon and Wilson. 69. *Nr. Everside Mosses*; Wilson. About *Ulverston*; Aiton. *Plumpton Peat Moss*; Miss Hodgson

— *hirta*, L. 59. *Top. Bot.* 60. *Silverdale*; A. Wilson, 1881. *Ease Gill*; A. Wilson. W. and W.; +; 69

— *silvestris*, Reich. 60. Lees rec. *Top. Bot. Hodder Valley*; Wheldon in litt. 69. *Newfield*; *Seathwaite*; Miss Hodgson. *Cockley Beck*; J. G. Baker

BOTANY

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order IX.—*Violariæ* (continued)

- Viola canina*, L. (*V. ericetorum*, Schrad.) 59. Sansom sp. *Top. Bot. Crosby to Southport*; Green's *Fl.* 60. *Lytham*; Wheldon. 69. Linton and Miss Hodgson
- *carpatica*, Borbas. 'Native, local.' 59. *Simonswood Moss*; +; Wheldon. 60. *Cockerham Moss*; Wheldon and Wilson; E. G. Baker in *Journ. of Bot.* 1901, p. 10; +; W. and W. Have been passed over as *V. tricolor*. 'Undoubtedly native,' Wheldon in litt.
- *Curtisii*, Forster. 59. F. M. Webb, cat. *Top. Bot. Formby*; *Lewis*; *Waterloo*; *Southport*; H. S. Fisher. Green's *Fl.* Purple, all yellow, and variegated varieties occur, J. A. Wheldon. 60. Melvill, *Top. Bot. Blackpool*; George Webster. +. 69. *Walney Isle*; F. A. Lees, Baker's *Fl.*
- *lutea*, Huds. [59. *Top. Bot.* Error, Wheldon in litt.] [60. *Top. Bot.* Error, Wheldon in litt.] 69. Nr. *Colwith*; *Furness Fells*; A. W. Bennett
- But see 'The Yellow Violet,' found by 'Master Thomas Hesketh, . . . growing upon the hills in Lancashire neere unto a village called *Latham*.' Gerard, *Herball*, p. 701, 1597

X.—*Polygalæ*

- Polygala oxypetra*, Reichenb. 59. Fisher sp. *Top. Bot. Formby*; *Hightown*; J. H. Lewis. *Crosby*; Dickinson. *Waterloo*; H. S. Fisher. 60. Sandhills, west of *Lytham*, 1895; Rev. E. S. Marshall

XII.—*Caryophylleæ*

- [*Dianthus Armeria*, L. 59. *Top. Bot.* Cultivated ground, Dickinson, extinct. 69. *Grange*; Rev. W. M. Hind, casual

- *deltoides*, L. 59. F. M. Webb, cat. *Hale Point*; Dickinson, extinct? 69. No record since 1843. In common pasture in *High Furness*; Aiton

- *†*Saponaria officinalis*, L. 59. *Formby*; *Hightown*; *Crosby*; *Southport*; Dickinson, Webb, H. S. Fisher. Seven miles to the north of *Liverpool*; Dr. Bostock. Sm. Eng. *Fl.* vol. ii. 285. 60. Banks of *Ribble* and *Lune*; Wh. and Wilson*

- var. *puberula*, Wierzb. 60. **Lune Bank*, *Halton to Caton*; Wheldon

- Silene maritima*, With. 59. *Southport*; Ch. Bailey, 1892; +; Wheldon. 60. Syme sp. *Top. Bot.* Frequent on shore, *Silverdale*; A. Wilson. +. W. and W. 69. Abundant on shores; Miss Hodgson, Wm. Foggitt, Ch. Bailey, etc. Inland near summit of *Coniston Old Man*, Miss Beaver.

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XII.—*Caryophylleæ* (continued)

- †*Silene anglica*, L. 59. Webb cat. *Top. Bot.* Spec. in Herb. Oxon. Rare, Green's *Fl.*

- Lychnis alpina*, L. 69. *Coniston Old Man*, 1879, in *Bot. Exch. Club Rep.* Baker's *Fl.* R. Potter rec. *Top. Bot.*

- * — *Githago*, Scop. 59. *Hightown*; +; Wheldon. *Ashton Moss*; Whitehead. 60. Greenfield; *Fl. Stonyhurst*. Cornfield, *St. Anne's*, 1896; Wheldon. 69. Miss Hodgson, no loc. Colonist

- Cerastium quarternellum*, Fenzl. 59. Webb cat. Nr. *Park Side station*, M. and L. Railway, Buxton's *G.* 24. *Hightown*; R. Brown, 1873

- *tetrandrum*, Curtis. 59. Wood sp. *Top. Bot.* Common on the sandhills; Wheldon. 60. Linton Cat. *Top. Bot.* Abundant on sand-dunes; Wheldon. 69. *Ulverston*; *Walney*; Miss Hodgson

- *semicandrum*, L. 59. Webb cat. *Top. Bot.* *Southport*; Wheldon. 'Common,' Green's *Fl.* 60. *Lytham*; *St. Anne's*; Wheldon. +. *Silverdale*; Rev. W. W. Mason

- *arvense*, L. 59. *Southport*; J. Garside, Green's *Fl.* *Hightown*; Wheldon. 60. Syme sp. *Top. Bot.*

- Stellaria aquatica*, Scop. 59. *Top. Bot.* Nr. *Scarbrook*; Dickinson, Nr. *Cborlton*; *Rusholme to Moss Side*, very rare. Buxton's *G.*

- *memorum*, L. 59. Goodlad Hb. *Top. Bot.* Wood at *Halsnead*; *Wigglesworth*; Green's *Fl.* (fig. in this Flora does not represent the plant in question.) Nr. *Pendleton*; *Prestwich to Clifton*; Melvill in litt. 60. *Over Wyresdale*; +; Wheldon and Wilson

- *umbrosa*, Opitz. 59. *Upbolland*; R. Brown. Green's *Fl.*

- *palustris*, Retz. 59. F. M. Webb cat. *Top. Bot.* *Scarbrook* and *Martin's Mere*, 1831, 1841, 1866. Green's *Fl.*

- Arenaria serpyllifolia*, L. var. *b. glutinosa* Koch. 59. *Crosby*; Wheldon. *c. leptoclados* (Guss). 59. Green's *Fl.* 60. *Bare*; Wheldon. 69. *Humphrey Hd.*; Miss Hodgson. d. Lloydii (Jord.). 60. *Bare*; Wheldon

- *verna*, L. 60. *Top. Bot.* *Silverdale*, 1864; C. J. Ashfield. Frequent in *Silverdale*, 1902. A. Wilson. 69. *Hampsfell*; Miss Hodgson. Between *Grange* and *Lindale*; Baker's *Fl.*

- Sagina maritima*, Don. 59! Fisher sp. *Top. Bot.*

- var. *debilis*, Jord. 59. Nr. *Bromborough*; *Caldy Shore*; Green's *Fl.*

- *apetala*, L. 59. *Top. Bot.* *Southport*; *Aintree*; Wheldon. 69. *Coniston*; Miss S. Beaver. *Grange*; J. G. Baker

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XII.—Caryophyllææ (continued)

Sagina ciliata, Fr. 59. *Top. Bot.* Sandhills, *Freshfield*; +; Green's *Fl.* 69. Crévices of walls, *Kent's Bank*; J. G. Baker

Buda marina, Dumort. 59. (Aggreg.) Webb cat. *Top. Bot.* 60. (Aggreg.) Linton cat. *Top. Bot.* *Silverdale* shore; Petty. 69. (Aggreg.) Rev. W. W. Mason

var. *media* (Fr.) 59. Wheldon. 69. Petty

var. *neglecta* (Kindb.). 59. Webb cat. *Top. Bot.* *Walton*; (casual) Wheldon. 60. (?) *Top. Bot.* Salt marshes, *Pilling*, 1895; A. Wilson. 69. *Cark*; *Flookborough*; J. G. Baker. *Walney*; John Henry.

— *media*, Dum. 60. Salt marshes, *Pilling*, 1895; A. Wilson. +. 59. *North Sands, Southport*; Wheldon

— *rupestris* (Lebel), F. J. Hanb. 59. Lewis sp. *Top. Bot.* *Dingle Rocks*; H. S. Fisher, in Hb. Wheldon.

XV.—Elatineæ

Elatine hexandra, DC. 59. *Knowsley*, 1886; R. Brown. 1893. Green's *Fl.*

XVI.—Hypericineæ

Hypericum Androsæmum, L. 59. Webb cat. *Top. Bot.* *Bamford Wood*; *Scout*, near *Mosley*; *Whitehead's Fl.* 60. *Top. Bot.* 69. Known since 1690. Ray, *Syn. ed. i.* 143. *Windermere*; *Ulverston*; *Coniston*; Miss Hodgson, and others. *Lower Allithwaite*, 1902; Rev. W. W. Mason. Woods, *Newby Bridge to Backbarrow*; J. Henry

— *dubium*, Leers. 59. *Top. Bot.* *Charlton*; +; Buxton's G. 96. *Aigburth*; Rev. W. W. Mason in litt. 60. Bank of *Lune*, near *Arkolme*, 8/1900; A. Wilson. *Elston Wood*; Wheldon *Silverdale*; Rev. W. W. Mason. 69. *Walney I.*; *Penny Bridge*; Miss Hodgson. Nr. *Coniston Lake*; Miss Beever. *Humphrey Hd.*; F. A. Lees

var. *maculatum*, Bab. 59. R. Brown; Wheldon

— *hirsutum*, L. 60. Simpson sp. *Top. Bot.* *Silverdale*; Petty. 69. Baker's *Fl.*; etc.

— *montanum*, L. 60. Simpson sp. *Top. Bot.* 69. Withering, 1796. Nr. *Cartmel Wells*. Confid. by Ch. Bailey in Baker's *Fl.* 1885. See Petty's *Constit.* for other loc. and collrs. *Grange*. 1900; Rev. W. W. Mason.

— *elodes*, L. 59. Tudor ms. *Top. Bot.* Nr. *Halhall*; R. Brown. 60. *Ribbleson Moor*; Wm. Dobson, 'extinct.' Wheldon and Wilson. (Lost through drainage.) 69. *Reake Mosses, Cartmel*; Wilson. *Walney I.*; Miss Hodgson. Nr. *Rampside*; Miss Beever

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

XVII.—Malvææ

Althæa officinalis, L. 59. Nr. *Crossens*; Melvill

Malva moschata, L. 59. Webb. cat. *Top. Bot.* *Reddish*; *Taunton*; *Whitehead's Fl.* Nr. *Witlington*; Buxton's G. 60. *Silverdale*; *Leck*; Petty. +. W. and W. 69. Miss Hodgson, Baker's *Fl.*, Petty's *Constit.* *Humphrey Head*, 1902; Rev. W. W. Mason

XVIII.—Tiliacæ

Tilia cordata, Mill. [59. *Top. Bot.*] 60. Wood near *Warton*, 1888; A. Wilson. *Silverdale*; W. Kirkby, 1902. 69. *Humphrey Hd.*, Ch. Bailey in Baker's *Fl.* 1885. Rev. W. W. Mason, 1900

XIX.—Lineæ

Radiola Linoides, Roth. 59. Tudor ms. *Top. Bot.* *Seaforth*; Hall. *Simons-wood Mass*; Dickinson. Near *Formby*; R. Brown. 60. Linton cat. *Top. Bot.* *Arkolme Moor*, 8/1900. A. Wilson. 69. Near *Coniston*; Miss S. Beever

Linum angustifolium, Huds. 59. In a field by *Allerton Hall*, near *Liverpool*; Mr. J. Shepherd in *Sm. Eng. Fl.* vol. ii. 119. *Lanc. S. I. Top. Bot.*

XX.—Geraniacæ

Geranium sanguineum, L. 59. 'Extinct?' *Top. Bot.* 60. Simpson, sp. *Top. Bot.* *Fleetwood*, 1842; *Hailstone. Silverdale*; C. J. Ashfield; A. Wilson. 69. Withering, ed. ii. 734, 1787. *Walney I.*; Baker's *Fl.* Rev. W. W. Mason. *Humphrey Head*; Baker's *Fl.* 1885; Rev. W. W. Mason, 1902, in litt.

var. *lancastrænsis* (With.). 69. 'In insula *Walney* copiosissime.' Ray. *Fasc.* 9, 1688. Still there.

[— *phæum*, L. 60. *Wheldon and Wilson in *Journ. of Bot. Feb.* 1900. p. 42. In Lancashire, *Eng. Bot. Sm. Eng. Fl.* vol. iii. 233. 69.]

— *silvaticum*, L. 59. *Dugdale*, sp. *Top. Bot.* 60. *Halton*; 1885; A. Wilson. Near *Kirkby Lonsdale*; Wheldon and Wilson. 69. Known since 1775, and frequently recorded since for *Coniston*, etc.

— *pratense*, L. 59. Goodlad Hb. *Top. Bot.* Very rare in *Liverpool* district. Green's *Fl.* Nr. *Warrington*; J. Price. Nr. *Ince Blundell Hall*; R. Brown. *Reddish*; *Whitehead's Fl.* Buxton's G. p. 87. *Whalley*; *Penleton*; 7/1900. Rev. W. W. Mason. 60. Linton cat. *Top. Bot.* *Silverdale*; Petty, Rev. W. W. Mason. *Leck*; Petty. +; W. and W. 69. Miss Hodgson. Baker's *Fl.* *Cartmel*, 1902. Rev. W. W. Mason. Common as this plant is in England, it is becoming quite scarce near great towns.

BOTANY

CLASS I.—PHENOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XX.—Geraniaceæ (continued)

- Geranium pusillum*, L. 59. Dugdale ms. *Top. Bot. Hightown*; casual; Green's *Fl.* 60. Roadside between *Caton* and *Halton*, 'perhaps . . . casual . . .' Wheldon. 69. *Lake Lenc.* Ar. Bennett from *Newbould.* (? Casual only in Lancashire)
- *columbinum*, L. 59. *Top. Bot. Simonswood Moss*; Dickinson. *Cborlton to Srexford*; Buxton's *G.* 87. 60. Simpson, sp. *Top. Bot. Silverdale*, 1898; A. Wilson. 69. Wordsworth's *Guide*, 23, 1842. Petty's *Constit. Lower Allithwaite*; Grange; Rev. W. W. Mason
- *lucidum*, L. 59. Dugdale, sp. *Top. Bot. Silverdale*; C. J. Ashfield, 1864; Rev. W. W. Mason, 1900. Common in Districts 1, 2, 3, and 8, W. and W. 69. *Grange*; Rev. W. W. Mason, 1900. Locally plentiful. J. G. Baker, 1885
- [*Erodium moschatum*, L'Herit. 59. Dickinson. Never confirmed. Guidebridge, 'Alien.' Whitehead's *Fl.* Swinton, Buxton's *G.* p. 87. 69. *Biggar Bank, Walney I.* 1897; 'Denizen' John Henry]
- **Impatiens Noli-tangere*, L. 60. Nr. *Whittington Hall*, S.W. of *K. Lonsdale*; F. A. Lees. *Naturalist*, Sept. 1900, p. 279. *Journ of Bot.* Jan. 1901, W. and W. 69. Ray. *Syn.* ed. i. 209. *Sm. Eng. Fl.* vol. i. p. 299, and often recorded since. Near *Broughton*; near *Dutton Bridge*; *Lowick*, 1903; Petty

XXII.—Celastrineæ

- Euonymus europæus*, L. 59. 'Denizen, very rare and always planted.' Green's *Fl.* 60. C. J. Ashfield, 1864, approx. *Top. Bot.* Bailey rec. *Silverdale*; Ch. Bailey, 1874. Petty, 1902. 69. Rather frequent. J. G. Baker, 1885. Miss Hodgson. Rev. W. W. Mason, 1902

XXIII.—Rhamneæ

- R. catharticus*, L. 59. Very rare. Robinson in Green's *Fl.* 60. *Silverdale*; C. J. Ashfield, 1864. A. Wilson, 1902 (approx.)
- *Frangula*, L. 59! Webb cat. *Top. Bot.* Dickinson's *Fl.* Green's *Fl. Ashton*; Whitehead's *Fl. Tyldesley Moss*; +; Buxton's *G.* 32. 60. *Silverdale*; A. Wilson. 69. Baker's *Fl.* 1885

XXIV.—Sapindaceæ

- Acer campestre*, L. 59. Webb cat. +. *Top. Bot.* Green's *Fl.* (often planted). 60. *Top. Bot.* Linton cat. *Lindale*; Rev. W. W. Mason. 69. Petty

CLASS I.—PHENOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

XXV.—Leguminosæ

- Genista anglica*, L. 59. *Top. Bot.* Slackcote; Whitehead, *Fl.* Between *Dungeo* and *Hale Wood*; Dickinson. *Greystone Heath*; J. Peers in Green's *Fl.* 60. Formerly on *Ribblesden Moor*, now extinct; Wm. Dobson (W. and W. in *J. of B.* Feb. 1900.) Abundant in bog near *Docker*; A. Wilson, 1901. 69. Below *Newby Bridge*; J. Sidebotham, in Baker's *Fl.* Petty's *Constit.*
- Ulex Gallii*, Planch. 59. Dugdale, sp. *Top. Bot.* Green's *Fl.* 60. +. A. Wilson. 69. *Coniston*; F. J. A. Hort, 1850. Frequent; Miss Hodgson. *Ulverston*; +; Baker's *Fl.* 1885
- Ononis repens*, L. var. *horrida*, Lange. 69. *Roosbeck*; *Flookborough*; Baker's *Fl.*
- *spinosa*, L. 59. *Top. Bot.* F. M. Webb cat. *Hale*; Green's *Fl.* 60. *Carnforth*; *Pilling*; A. Wilson
- [*Melilotus alba*, Desr. [59. *Top. Bot.*] Increasing in *Liverpool* dist. Green's *Fl.*] [69. *Barrow*; John Henry, 'casual.'] A frequent plant now in England, introduced with foreign seeds. Such casuals require a flora or a catalogue to themselves. Many ballast heaps and bare waste spots are rendered more interesting by their presence, but the *London Catalogue* is already overburdened with them, many of them being of quite trivial significance
- Trifolium striatum*, L. 59. Webb cat. *Top. Bot.* *Rainhill*; Dickinson. Between *Hightown* and *Formby*; R. Brown. *Heswall*; Wheldon. *Woolton*, nr. *Warrington*; Wm. Wilson. 69. Bailey rec. *Top. Bot.* nr. *Grange*; Bailey. *Ken's Bank*, Mason
- *scabrum*, L. 59. Nr. *Oldham*; Hailstone
- *filiforme*, L. 59. Webb cat. *Top. Bot.* Nr. *Formby*; R. Brown
- Lotus tenuis*, Waldst and Kit. 59. Webb cat. *Top. Bot.* Nr. *Huyton Quarry*; F. M. Webb. Not recorded for many years, Green's *Fl.* Buxton's *G.* 94. 66. Meadow west of *Humphrey Hd.* *Bot. Exc. Club Rep.* 1873
- Astragalus glycyphyllos*, L. 69. Recorded by John Wilson in 1744. *Humphrey Hd.* 1842; T. Gough. Recent confin. wanted, J. G. Baker
- Ornithopus perpusillus*, L. 59. Webb cat. *Top. Bot.* Buxton's *G.* p. 92. 60. Moss Side, nr. *St. Michael's on Wyre*; Rev. P. J. Hornby. 69. Not common. Baker's *Fl.* 1885. Petty
- Hippocrepis comosa*, L. 60. *Warton Crag*; *Over Kellet*, 1899; A. Wilson; *Silverdale*; Rev. W. W. Mason. 69. Petty's *Constit.* W. Foggitt, Ch. Bailey. *Lower Allithwaite*; +; Rev. W. W. Mason, 1902

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXV.—Leguminosæ (continued)

Vicia gemella, Crantz. 59. Webb cat. *Top. Bot.*
Frequent, Whitehead's *Fl. Chorlton*;
+; Buxton's *G.* 91. 69. Seen only
once nr. *Windermere*; Baker

— *angustifolia*, L. var. *Bobartii*, Koch. 59.
Top. Bot. Green's *Fl.* Whitehead's
Fl. (*V. angustifolia*). Buxton's *G.*
92. (*V. angustifolia*, Sibth.). 60.
Near *Pilling*, 1899, A. Wilson. Mr.
Wheldon says he thinks this was *Segetalis*

— *lathyroides*, L. 59. Bean, sp. *Top. Bot.*
Formby; Wheldon, 1899. 60. *Lytham*;
St. Anne's; Wheldon, 1899

— *silvatica*, L. 69. Withering, ed. iii.
635, 1796. Extinct?

[*Lathyrus palustris*, L. In some parts of Lancashire; Huds. *Sm. Eng. Fl.* vol. iii. 278. Never confirmed, but perhaps truly recorded. It may even have been plentiful in Hudson's time, i.e. 1762]

XXVI.—Rosacæ

Prunus Padus, L. 59. Goodlad *Hb. Top. Bot.* *Reddish*; Buxton's *G.*; Whitehead's *Fl.* 'Native.' *Halsall*; Wheldon. Green's *Fl.* 60. C. J. Ashfield. *Top. Bot.* Common in dales of E. and N. (W. and W.). 69. Common in woods, Baker's *Fl.* 1885. (In Lancashire almost in every hedge. Gerard, *Herbal*, p. 1322, 1597, and first as British)

**Spiræa salicifolia*, L. 69. Near *Hawkshead*; Mr. Dalton, Withering, 1796. *Sm. Eng. Fl.* vol. ii. 1824. W. Borrer, *Phytologist*, 427. 1846. *Windermere* shores. *Coniston*; Baker's *Fl.* 1885

— *Filipendula*, L. 60. Simpson, sp. *Top. Bot.* *Silverdale*, 1883; A. Wilson. 69. *Humphrey Hd.*; Dr. Windsor; A. Wilson.

Rubus, Linn. A. Frutescentes. Rogers' *Hbk.* p. 1.

Sub-section 1. *Idæi*. (Bab.)

— *idæus*, L. 59, 60, 69. Rogers' *Hbk.* p. 99.

Sub-section 2. *Fruticosi*. (Bab.)

Group I. *Suberecti*

— *fissus*, Lindl. 59. *Mere Clough, Prestwich*, 1895, J. C. Melville teste E. S. Marshall and W. Moyle Rogers. *Exch. Cl. Rep.* (1895), p. 473. Rogers' *Hbk.* p. 99. 60. Rogers' *Hbk.* p. 99. *Abbeystead, Wyresdale*; north side of *Beacon Fell*; A. Wilson. *J. of B. Jan.* 1901. Near *Emmetts, Over Wyresdale*; Wheldon and Wilson, 1901

— *suberectus*, Anders. [59]. 60. *Botton Mill, Hindburn, 7/1901*; A. Wilson. 69. *Coniston*; *Grange*; *Dudon Valley*; Baker's *Fl.*

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXVI.—Rosacæ (continued)

Rubus plicatus, W. and N. 59. Withering *Hb. Rogers' Hbk.* p. 99. *Top. Bot. Simonswood Moss, 1900*, J. A. Wheldon. 60. *Cockerham Moss*; 1900, W. and W.

Group III. *Rhamnifolii*

— *incurvatus*, Bab. 59. Rogers' *Hbk.* p. 100. 60. Rogers' *Hbk.* p. 100. Near *Inskip*, 1895, Rev. E. S. Marshall. *J. of B. Feb.* 1900

— *Lindleanus*, Lees. 59. Rogers' *Hbk.* p. 100. Near *Altcar*; +; Wheldon. 60. Rogers' *Hbk.* p. 100; common, W. and W. 69. Baker's *Fl.*

— *argenteus*, W. and N. (*erythrinus*). 60. Rogers' *Hbk.* p. 100. Bank of *Wyre*, near *Pretesall*; Wheldon. Near *Garstang*; W. and W.

— *rhamnifolius*, W. and N. 60. *Garstang*; A. Wilson
subsp. *Bakeri*, F. A. Lees. 59. *Heaton*; W. Moss, 1901. *J. of B. April*, 1902

— *nemoralis*, P. J. Muell
var. *Silurum*, A. Ley. 60. Rogers' *Hbk.* p. 100. *Lancaster Moor*, 1900; Wheldon

— *Scheutzii*, Lindeb. 60. Rogers' *Hbk.* p. 100. *Emmetts, O. Wyresdale*; W. and W.

— *pulcherrimus*, Neum. 59. *Lydiat*; *Clitheroe*; +; Wheldon. 60. Rogers' *Hbk.* p. 100. *Silverdale*; Wheldon. *Hindburn*; A. Wilson

— *Lindebergii*, P. J. Muell. 60. Rogers' *Hbk.* p. 101. Near *Inskip*, E. S. Marshall.

Group IV. *Villicaulæ*

— *mercicus*, Bagnall
var. *bracteatus*, Bagn. 59. Rogers' *Hbk.* p. 101; *Walton*; Near *Ince Blundell*; Wheldon. 60. *Longridge*; Wheldon. *Barnacre*; W. and W.

— *villicaulis*, Koehl
subsp. *Selmeri* (Lindeb.) 59. Rogers' *Hbk.* p. 101. *Simonswood Moss*; near *Altcar*; Wheldon. 60. Generally distributed; W. and W.

subsp. *calvatus*, Blox. 59. Rogers' *Hbk.* p. 101. Near *Altcar*; +; Wheldon.

— *gratus*, Focke. 59. Near *Altcar*; +; Wheldon. 60. Rogers' *Hbk.* p. 101. *Preston Wives*; Wheldon

Group V. *Discolores*

— *rusticanus*, Merc. 59. *Aintree*; +; Wheldon. 60. Rogers' *Hbk.* p. 101. *Garstang*; A. Wilson. *Bare*; F. A. Lees. *Silverdale*; +; Wheldon. 69. J. G. Baker

BOTANY

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXVI.—Rosaceæ (continued)

Group VI. Silvatici

- Rubus lentiginosus*, Lees. 59. Rogers' *Hbk.* p. 101
 — *macrophyllus*, W. and N. 59. Rogers' *Hbk.* p. 101. 60. *Alston*; Wheldon.

Group VII. Vestiti

- *Sprengelii*, Weihe. 59. Rogers' *Hbk.* p. 102. *Walton*; *Simonswood*; Wheldon. 60. Rogers' *Hbk.* p. 102. *Silverdale*; Wheldon
 — *pyramidalis*, Kalt. 59. *Park Clough Wood, Bolton*; Moss, 1901. Rogers in *J. of B.* April 1902! 60. Between *Morcambe* and *Snatchems*, 1899; Wheldon
 — *leucostachys*, Schleich. 59. Rogers' *Hbk.* p. 102. *Hightown*; +; Wheldon. 60. Rogers' *Hbk.* p. 102. *Silverdale*; Wheldon. 69. Locally common; Baker!

Group VIII. Egregii

- *cinerosus*, Rogers. 60. Near *Preesall*; *Knot End*; 1900, Wheldon. *Barnacre*; W. and W.
 — *mucronatus*, Blox. 59. *Ince Blundell Wood*; 1900, Wheldon. Rogers in *J. of B.* April 1902! 60. *Knot End*; 1901, +; Wheldon. 69. Ch. Bailey, 29 Sept. 1893. 'Too late, but probably correctly named,' Rogers
 — *infestus*, Weihe. 59. Rogers' *Hbk.* p. 103. *Walton*; Wheldon. 60. Rogers' *Hbk.* p. 103. *Dolphinholme*; Wheldon. *Caton Moor*; 1900, Wheldon and Wilson
 — *Drejeri*, G. Jensen. 60. Longridge, July, 1900; Wheldon

Group IX. Radulæ

- *radula*, Weihe. 60. *Bare (Naturalist, Oct. 1899)*; F. A. Lees. 69. Between *Grange* and *Carmel*; *Hampfield*; Ch. Bailey (named thus by Rev. W. M. Rogers)
 — *oigocladus*, Muell and Lefv. ? syn. R. *fusco-ater*, Bab. (in part)
 var. *Newbouldii* (Bab.) ? 59. *Walton*; *Thornton*; *Netherton*; Wheldon
 — *podophyllus*, P. J. Muell. 59. Rogers' *Hbk.* p. 104. *Daisy Nook, Ashton* district; Wheldon. 60. Rogers' *Hbk.* p. 104

Group XI. Sub-Bellardiani

- *fuscus*, W. and N.
 var. *macrostachys*, P. J. Muell. 59. *Walton*; Wheldon, 1900. *J. of B.* April, 1902, Rogers! *Hightown*, Wheldon

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXVI.—Rosaceæ (continued)

Group XII. Koehleriani

- Rubus rosaceus*, W. and N. 59. Nr. *Altcar*; Wheldon '(Agg)'. 60. *Silverdale*; Wheldon. '(Sp. Coll.)'. 69. Baker's *Fl.* 1885. (Aggr. ?)
 var. *hystrix*, W. and N. incl. v. *Silvestris*, Murray. 59. Rogers' *Hbk.* p. 105. *Simonswood Moss*, 1896; *Ince Blundell*; Wheldon. 60. *Quernmore Park*; Wheldon
 var. *infecundus*, Rogers. 60. W. and W. in litt.
 — *Koehleri*, W. and N. 59. Rogers' *Hbk.* p. 105
 subsp. *dasyphyllus*, Rogers. syn. R. *pallidus*, Bab. (now W. and N.). 59. *Heaton Moss*, 1901, Rogers in *J. of Bot.*, April, 1902; *Livington*; *Clitheroe*; *Burnley*; Wheldon. 60. Rogers' *Hbk.* p. 105. *Silverdale*; Wheldon, 1898. *O. Wyersdale*; W. and W. 1901. 69. Baker!

Group XIV. Cæsi

- *dumetorum*, W. and N. 69. *Grange*; Baker
 var. *ferox*, Weihe. 59. Rogers' *Hbk.* p. 106. *Crasby*; +; Wheldon
 var. *concinus*, Warren. 59. *Walton*; Wheldon. 60. Rogers' *Hbk.*
 In one or other of its many forms this may be found generally distributed in the low ground of the county. It is, however, most abundant on clay, and cannot therefore be expected in the same profusion on the light soils and sands of Lancashire as it is on the Permian and lias clay of central England.
 — *corylifolius*, Sm. 59. Rogers' *Hbk.* p. 106. Nr. *Altcar*; Wheldon. 60. Rogers' *Hbk.* p. 106. 69. Baker's *Fl.*
 var. *subulstris* (Lees). 59. *Walton*; *Aintree*; *Netherton*; Wheldon. 60. Rogers' *Hbk.* p. 106. *Silverdale*; Wheldon; +. 69. C. H. Bailey, named by Revs. E. F. Linton and W. Moyle Rogers. *Exch. Cl. Rep.* 1893, 412
 var. *cyclophyllus* (Lindeb). 60. Nr. *Knott End*; nr. *Yealand*; W. and W.
 — *cæsius*, L. 59 and 60. Rogers' *Hbk.* 69. Baker's *Fl.*
 var. *aquaticus*, W. and N. 59 and 60. Wheldon
 var. *intermedius*, Bab. 59. *Fazakerley*, Wheldon

Section B. Herbacei

- *saxatilis*, L. 59. Rogers' *Hbk.* p. 107. 60. Rogers' *Hbk.* p. 107. *Silverdale*; A. Wilson. 69. Baker's *Fl.*

A HISTORY OF LANCASHIRE

CLASS I.—PHENOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXVI.—Rosaceæ (continued)

Rubus Chamæmorus, L. 59. Rogers' *Hbk.* 60. *Hawthornthwaite Fells; Roeburndale Fells*; 1901, Wheldon and Wilson. *Leck Fell*, 1893, L. Petty¹

Geum rivale, L. × urbanum, L. (G. intermedium, Ehrh.). 59. *Top. Bot.* Dickinson's *Fl.* 1851. 60. *Stonyhurst*; F.S. Nr. K. *Lonsdale Statn.*; L. Petty

Potentilla verna, L. 60. *Silverdale*; Miss S. Beever. Nr. *Longridge*; H. Beesley. 69. Nr. *Crange*; Rev. H. Higgins in Baker's *Fl.* Has been reported since for *Humphrey Hd.* *Nat.* Feb., 1894.

— *procumbens*, Sibth. 59. Webb cat. *Top. Bot.* 60. *Fl. Stonyhurst*; Wheldon. 69. Miss Hodgson. Baker's *Fl.*

•— *argentea*, L. 59. Nr. *Ford*; Wheldon (alien)

Alchemilla vulgaris, L.

var. *alpestris* (Schmidt). 60. *Ease Gill*; nr. *Ireby*; Wheldon and Wilson. 69. *Crange*; *Tower*; Rev. W. W. Mason

Agrimonia odorata, Mill. 60. Nr. *Melling*; 1900. A. Wilson. 69. *Shore of Windermere*, nr. *Ferry Inn*; J. G. Baker

Poterium Sanguisorba, L. 59? *Top. Bot.* Very rare below *Haltall*; Dickinson. 60. *Silverdale*, Herb. Oxon. and 1864. C. J. Ashfield. 'Common,' Petty, *Leck*; Petty, 1893. 69. Known since 1796. See Petty's *Constit.* Abundant between *Backbarrow* and *Newby Bridge*; John Henry, 1897

— *officinale*, (L.), Hook. fil. 59. *Top. Bot.* Buxton's G. Very rare in *Liverpool* area, Green's *Fl.* 60. 'Common,' Wheldon and Wilson. 69. No record since 1874

Rosa spinosissima, L. 59. Webb cat. *Top. Bot.* Sandhills and occasionally inland, Green's *Fl.* 60. Hiern. *Top. Bot.* *Silverdale*; Hiern. *Over Kellet*; A. Wilson. 69. Withering, ed. iii., 465, 1796. Miss Hodgson, 1874. Baker's *Fl.* 1885

— *involuta*, Sm.

var. *Sabini* (Woods). 69. Abundant in several places about *Cartmel*; J. Sidebotham in Baker's *Fl.* 1885

— *mollis*, Sm. 59. H. S. Fisher. Buxton's G. 60. O. *Wyresdale*; Wheldon and Wilson. +. 'Common' in N. and E. 69. Miss Hodgson. The records for 59 and 69 require confirmation

¹ There are other records of *Rubi fruticosi* in the various floras of *Liverpool, Manchester, Ashton*, etc., but they are not sufficiently trustworthy to admit them here, not through any fault, perhaps, of the recorder, but because of the unsatisfactory state of the literature on *Rubi* in this country previous to the publication of the *Handbook* of the Rev. W. Meyle Rogers. Of the 100 species of fructifere brambles described in the *Handbook*, only thirty-three are here recorded, and this list comprises all the known species. There should be fifty, and may be considerably more. See paper on 'Distribution of *Rubi* in Great Britain,' by the Rev. W. M. Rogers in the *Journal of Botany* for April, 1902 and August, 1905.

CLASS I.—PHENOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXVI.—Rosaceæ (continued)

Rosa tomentosa, Sm. 59. 60. 69
— *canina*, L.

Most, if not all, the common varieties of this species are recorded for Lancashire. There are no uncommon ones to enter here. The roses have only been partially studied in any part of the county. It may be that the need of a recent monograph is an excuse for their neglect.

— *obtusifolia*, Desv.

var. *frondosa* (Baker). 69. Miss Hodgson, J. G. Baker

— *glauca*, Vill. 60. Wheldon and Wilson, 1901. 69. Miss Hodgson

var. *subcristata* (Baker). 69. Miss Hodgson

var. *coriifolia* (Fries.). 69. *Ulverston* Woods, 1818, in Sm. *Eng. Fl.* vol. ii. 391. Baker's *Monog.* p. 236. Syn. R. *bractescens*, Woods in *Tr. Linn. Soc.*, vol. xii. 216. This var. should be found frequently in both V. C. 60 and 69

There should be at least 16 forms of R. *canina*, *obtusifolia*, and *glauca*, in the county. Messrs. Wheldon and Wilson have found ten

— *arvensis*, Huds. 59. 60. 69

Pyrus torminalis, Ehrh. 59. *Top. Bot.* Webb cat. [Green's *Fl.*, 'planted.'] 69. *Plumpton Woods*; Aiton. Baker's *Fl.*

— *Aria*, L. [59.] 69. *Humphrey Hd.*; Baker's *Fl. Plumpton; Ulverston*; Miss Hodgson. There are records since 1805

var. *rupicola*, Syme. 60. *Silverdale*; 1872, Ch. Bailey. 1902, A. Wilson. 69. *Humphrey Head*; H. T. Soppitt

XXVII.—Saxifragæ

Saxifraga stellaris, L. 69. *Old Man*, 1830; S. Hailstone. *Walna Scar*; South of the 3-shire stone; Miss Hodgson

— *aizoides*, L. 69. *Coniston*. Withering, ed. iii. 405. *Cockley Beck*; *Dobby Shaw*; Miss Hodgson, 1874. *Coniston*; Petty, 1892

— *tridactylites*, L. 59. *Top. Bot.* F. M. Webb. Buxton's G., 57. Sandhills, Hall; no modern record. 60. *Silverdale*, 1883; A. Wilson. *Leck*; Petty. 69. Baker's *Fl.*

— *granulata*, L. 59. Scholes sp., *Top. Bot.* Buxton's G., 57. Whitehead's *Fl.* 'Planted in *Liverpool* district,' Green's *Fl.* 60. *Fl. Stonyhurst*. 69. Miss Hodgson, and others earlier

— *hypnoides*, L. 60. *Ease Gill*; A. Wilson. 69. *Coniston Old Man*; Mr. Jackson in With. ed. iii., 403. 1796. Baker's *Fl.* 'On the mountains of Lancashire with us as Mr. Hosket [Hesketh] told us,' Parkinson's *Theatrum*, p. 739, 1640, and first as British

BOTANY

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXVII.—Saxifragæ (continued)

- Chrysosplenium alternifolium*, L. 59. *Top. Bot.* Goodlad Hb. ! Whitehead's *Fl. Buxton's G.* 57. 60. Hodder Valley ; Wheldon in litt. 1903. *Ease Gill* ; A. Wilson. 69. Miss Hodgson, 1874
- Ribes alpinum*, L. 59. *Top. Bot.* Webb cat.* [Green's *Fl.* 'planted.']. 60. *Fl. Stonyhurst.* 69. J. T. Foggitt in Baker's *Fl.*, 1885
- *petraeum*, Sm. 60. Native, W. and W.

XXVIII.—Crasulaceæ

- Cotyledon Umbilicus*, L. 59. *Top. Bot.* ! *Aughton* ; Dickinson. *Speke* ; J. H. Lewis. Green's *Fl.* 69. H. Gaythorpe in *Naturalist*, March, 1901. Rocks, *Haverthwaite* ; Petty in *Naturalist*, 1903, p. 84
- Sedum Telephium*, L. 59. *Top. Bot.* Dickinson's *Fl.* Green's *Fl.* Buxton's *G.*, p. 59. 60. Nr. *Garstang*, 1881 ; A. Wilson, B. R. C. Rep. *Silverdale* ; nr. *Leck* ; Petty, 1903
- var. *Fabaria*, H. C. Wats. 60. Rocks, *Silverdale* ; *Journ. of Bot.*, Feb. 1900. A. Wilson
- *anglicum*, Huds. 59. *Top. Bot.* (Sm. *Eng. Fl.*, vol. ii., 317, quotes Ray, *Syn. ed. iii.*, 270, t. 12, f. 2 ; rocks Lancashire). 60. Nr. *Sunderland* ; Ashfield, still at *Far Naze*, 1902 ; A. Wilson

XXIX.—Droseraceæ

- Drosera anglica*, Huds. 59. Leyland, sp. *Top. Bot.*, extinct ? *Ashton Moss* ; formerly abundant, now extinct (J. Tinker), Whitehead's *Fl.* 9. *Clifton Moss* ; Buxton's *G.* 44. *Chat Moss*, 1868 ; J. C. Melvill in litt. 1905. 60. *Cockerham Moss* ; A. Wilson. (In Lancashire, Dr. Hull. Sm. *Eng. Fl.* vol. ii. 123)
- *intermedia*, Hayne. 59. *Top. Bot.* ? *Liverpool* district ; Wheldon. *Clifton Moss* ; Buxton's *G.* (? Wheldon in litt.) *Chat Moss* ; J. C. Melvill in litt. 1905
- Probably both the last are extinct in 59

XXX.—Haloragæ

- Myriophyllum verticillatum*, L. 59. Bloxam ms. *Top. Bot.* Sp. in Herb. Oxon. Green's *Fl.* 'rare.' *Hightown* ; Rev. W. W. Mason, 1898, in litt. (where it was discovered by R. Brown). 69. *Coniston Lake* ; Miss S. Beever in Baker's *Fl.*
- *spicatum*, L. 59 and 60. *Top. Bot.* + ; Buxton's *G.* 118 ; + ; Whitehead's *Fl.*, etc., 69. *Urrwick Tarn* ; Miss Hodgson
- *alterniflorum*, DC. 59. *Top. Bot.* Dickinson, H. S. Fisher. Buxton's *G.*, 118. 60. A. Wilson. 69. *Urrwick Tarn* ; Miss Hodgson

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXX.—Haloragæ (continued)

- Callitriche autumnalis*, L. [59] 60. *Ashton-Ribble* ; F. C. King. Ar. Bennett in *Naturalist*, 21 Oct., 1901, 362. *Borwick* ; *Garstang* ; *Lancaster* ; A. Wilson

XXXI.—Lythraricæ

- Pepelis Portula*, L. 59. *Top. Bot.* Buxton's *G.* 45. Whitehead's *Fl.* 60. *Top. Bot.* *Overton, Heysham* ; [Ribbleton Moor 'extinct'] ; Wilson. 69. *Lake Lane* ; W. F. Miller. *Coniston Moor* ; 1888, Petty

XXXII.—Onagraricæ

- Epilobium angustifolium*, L. 59. *Top. Bot.* Dickinson's *Fl.* Green's *Fl.* 60. *Leck Fell*, 1,280 feet, July 1888 ; A. Wilson. 69. Recorded by J. Wilson in 1744. Perhaps not native here (almost certainly not in 59). This plant is increasing rapidly, in both its forms, in lowlands, but is probably only native in montane districts
- *roseum*, Schreb. 59. *Windsor sp. Top. Bot.* 60. *Top. Bot.* !
- *obscurum*, Schreb. 59. *Top. Bot.* *Simonswood* ; Wheldon. 60. *Cockerham Moss* ; W. and W. 69. Near *Ulverston* ; Miss Hodgson.

- Circæa alpina*, L. Lancashire, Sm. *Eng. Fl.* i. 16. [59. [*Top. Bot.*] Dickinson's *Fl.*] Withering, 1787, ed. ii. 24. 69. Withering and frequently reported since up to 1885. Baker's *Fl. Coniston* ; Miss S. Beever and J. G. Baker
- *lutetiana*, L. var. *intermedia*. Lon. cat. 59 ? *Top. Bot.* 60. Wood below *White Moss, Hindburn*, 1901 ; A. Wilson. 69. *Windermere Lake* ; *Bot. Exc. Cl. Rep.* 1886

XXXIII.—Cucurbiticæ

- Bryonia dioica*, Jacq. 59. *Top. Bot.* Green's *Fl.* 'extinct' ? Buxton's *G.* 117. 'Probably planted'

XXXIV.—Umbelliferæ

- Eryngium maritimum*, L. 59. Tudor sp. ! *Top. Bot.* Green's *Fl. Crosby* ; Wheldon. 60. Hailstone, 1801-42. *Top. Bot.* Linton cat. 69. Wilson syn. 1744. *Roosebeck* ; *Walney* ; Miss Hodgson. *Walney* ; W. W. Mason [Echinophora spinosa, L. 69. Mr. Lawson, in Ray, *Fasc.* 5, 1688. 'Roosebeck in *Low Furness*, Lancashire,' an extinct casual only interesting as an old record. Sm. *Eng. Fl.* ii. 38, 1824, 'not found by any recent botanist' (recorded previously for six stations in Eng. See Petty's *Constituents*)
- Bupleurum tenuissimum*, L. 60. Syme sp. *Top. Bot.*

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXXIV.—Umbelliferae (continued)

Apium inundatum, Reichenb. fil. 59. *Top. Bot.* Dickinson's *Fl. Crosby*; F. M. Webb. Buxton's G. Whitehead's *Fl. Green's Fl.* 60. Marsh between *Yealand Stotts* and *Borwick*; A. Wilson, 1900. Formerly on *Ribbleton Moor*; Ashfield. *J. of B. Feb.* 1900. 69. Withering, ed. iii. 301 (Jackson)

Cicuta virosa, L. 59. *Windsor sp. Top. Bot.* Sium erectum, Huds. 59. *Top. Bot. Freshfield*; Barton; Wheldon. 60. *Top. Bot. Garstang*; Halton; A. Wilson

Pimpinella major, Huds. 59. *Burnley*, 1810; Hailstone. *Top. Bot.* Buxton's G. 59 and 60. Both banks of *Ribble*; Nordigate. *J. of B. Oct.* 1885

Myrrhis odorata, Scop. Lancashire, 'frequent,' Hudson. 59. Webb cat.† *Top. Bot.* 'Native,' *Waterhouses*; Whitehead's *Fl.* Abundant, +; Buxton's G. *Kirkby*, near *Liverpool*; Mason. 60. 'Frequent,' W. and W. In distr. 1-8. About *Leck*; Petty, 1893. 69. Miss Hodgson, ('Near old halls and farmhouses?') native?

Anthriscus vulgaris, Bernh. 59. Webb. cat. *Top. Bot. Formby*; *Blundellands*; Rev. W. W. Mason in litt. 60. *Knot End*, 1894; A. Wilson

[*Fœniculum vulgare*, Mill. 59. *Top. Bot.* 'Casual,' Green's *Fl.* 60.]

Crithmum maritimum, L. 60. *Silverdale cliffs*; sp. in Herb. Oxon. C. J. Ashfield, 1864. 'Extinct,' Petty. 69. Wilson syn. 71. 1744. (Lawson). *Humphrey Head*; Dr. Windsor, 1805. Soppiit, 1894. Rev. W. W. Mason, 1902

Cenanthe fistulosa, L. 59 and 60. *Top. Bot.* etc.

— *Lachenalii*, C. Gorel. 59. *Top. Bot.* Buxton's G. etc. 60. *Top. Bot.*

— *crocata*, L. 59. *Top. Bot.* Buxton's G. 60. *Top. Bot.* 69.

— *Phellandrium*, Lam. 59. *Top. Bot.* Dickinson's *Fl. Green's Fl.* 60. *Top. Bot. Stockenbridge*; Rev. P. J. Hornby

Silaus flavescens, Bernh. 59. Whitehead's *Fl.* 60. A. Wilson, 1900

Meum Athamanticum, Jacq. In Lancashire, Sm. *Eng. Fl.* ii. 85. 59. *Top. Bot. Windhill Farm*; *Littleborough*; Mr. W. Parkinson, in Whitehead's *Fl.* p. 21. 69. *Coniston Fells*; Jackson, in With. ed. ii. 305 (1796). *Coniston Moor*. Hb. Bicheno at Swansea (needs confirmation)

Peucedanum palustre, Moench. Lancashire, Sm. *Eng. Fl.* ii. 97. [59] *Top. Bot.* 59. *Southport*, 1870; F. A. Lees. 69. Nr. *Carmel*, 1779 or 1780. Hall. Hb. Winch at Linn. Soc. from With. Hb. from the station given in the *Bot. Guide* (1805), p. 301. (Nr. *Carmel*)

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XXXIV.—Umbelliferae (continued)

[*Caucalis arvensis*, Huds. 59. *Top. Bot. Tudor MS.*]

— *nodosa*, Scop. 59. Webb cat. *Top. Bot. Orrell*; 1892, Wheldon. 60. Nr. *Borwick*; *Carnforth*; 1900, A. Wilson

XXXVII.—Caprifoliaceæ

**Sambucus ebulus*, L. 59. *Top. Bot.* Buxton's G.* 69. W. Atkinson, 1796

XXXVIII.—Rubiaceæ

Galium silvestre, Poll. 60. *Warton Crag*, 1900; A. Wilson. *Silverdale*; Petty, 1902. 69. *Humphrey Head*; Dr. Windsor. *Hampfell*; Miss Hodgson, 1874

— *Mollugo*, L. 60. +. Wheldon and Wilson. In distr. 1-8

— *uliginosum*, L. 59. *Top. Bot.* Webb cat. *Simonswood*; Rev. W. W. Mason. 60. Swamp near *Borwick*, 1887. A. Wilson, *J. of B. Feb.* 1900

— *boreale*, L. 60. Banks of *Lune*, nr. *Caton*; A. Wilson (probably brought down with flood from Westmorland)

Asperula cynanchica, L. 60. *Silverdale*; C. J. Ashfield, 1864; A. Wilson, 1902. *Lindale*; Rev. W. W. Mason, 1902, in litt. 69. Wilson W. 1843; Dr. Windsor, 1805

XL.—Dipsacæ

Dipsacus silvestris, Huds. 59. Not common. 69. Known since 1843, but rare

— *pilosus*, L. 59. *Top. Bot.* 69. *Ulverston* 1830; Hustler in York Mus. (extinct?)

XLI.—Compositæ

Solidago Virgaurea, L. 59. *Top. Bot.* Buxton's G. 104. *Fazakerley*; Wheldon. 60. Petty. 69. Miss Hodgson. Baker's *Fl.*

var. *cambrica* (Huds.) 60. On *Yoredale grit rocks*, *Upper Ease Gill*, Aug. 1899. A. Wilson, in *J. of B. Feb.* 1900

Aster Lynosyris, Bernh. 69. *Hampfell*; W. Nixon, in Baker's *Fl. Humphrey Head*; W. C. Wordsell. Hb. Brit. Mus. *J. of B.* 1892, 309

Erigeron acre, L. 59. *Boole*, 1801; Hailstone. *Top. Bot. Freshfield*; Wheldon. 60. *Top. Bot.* Ashfield, 1864. *Silverdale*; *St. Anne's*; A. Wilson

Filago germanica, L. 59. 60. 69.

— *minima*, Fr. 59. 60. 69.

Inula Conyza, DC. 59. *Top. Bot.* 60. Simpson sp. *Top. Bot.* Known since 1775. *Silverdale*; Petty. 69. Lawson, in Ray's *Fasc.* 1688. Mason, 1900

*— *Helenium*, L. 69. W. Atkinson, 1796. Petty, 1892, in *Naturalist*. Sm. *Eng. Fl.* iii. 440. 60. Near *Dalton*, Lanc. Mr. Atkinson; near *Yealand*; A. Wilson.

BOTANY

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XLI.—Compositæ (continued)

- Inula dysenterica*, Gaertn. 59. *Top. Bot.*
Green's *Fl.* 60. *Top. Bot.* Linton
cat. Very common; W. and W.
69. Lawson, 1680 (circ.)? Fre-
quently reported since. Petty, 1901,
in *Naturalist*
- † *Anthemis arvensis*, L. 59. *Top. Bot.* Bux-
ton's G. 106. Casual near *Walton*;
Wheldon. 69. Miss Hodgson,
1874
- *Cotula*, L. 59. *Top. Bot.* 60. Syme sp.
Top. Bot.! Frequent in the low
country; W. and W.
- *nobilis*, L. 59. 'Wilson,' *Top. Bot.*
Sankey Gr. Warrington, 1830; J.
Dalton. Dickinson's *Fl.* (extinct?)
[69]
- Matricaria inodora*, L. var. *salina*, Bab. 59.
Coast of *Mersey*, above *Liverpool*;
Sir J. E. Smith, in *Eng. Fl.* iii. (1825),
453 (sub *Pyrethrum maritimum*).
Green's *Fl.* 60. F. A. Lees, 1899;
A. Wilson, 1893; Wheldon, 1896.
69. Baker's *Fl.*
- *Chamomilla*, L. 59. *Top. Bot.* Buxton's
G. 106. 60. *Top. Bot.*
- † *Artemisia Absinthium*, L. 59. 69. Miss
Hodgson.
- *maritima*, L. 59. *Top. Bot.* 60. Syme
sp. *Top. Bot.* Ashfield, 1858. 69.
Walney I. Atkinson, 1796
- Senecio viscosus*, L. 69. *Lake Lanc. Top. Bot.*
Walney I. F. A. Lees. Between
Barrow and *Rampside*; L. Petty
- *erucifolius*, L. 59. *Top. Bot.* Buxton's
G. 104. Whitehead's *Fl.* 60. Syme
sp. *Top. Bot.* Ashfield, 1858
- [— *palustris*, DC. 59. In ditches about
Pilling Moss, Lancashire; Ray. *Syn.*
1696. Repeated in Smith's *Eng.*
Fl. iii. 444, 1825. [59] *Top. Bot.*
error?]
- Arctium majus*, Bernh. 59. *Top. Bot.* 69.
John Henry; *Naturalist*, Nov.
1897
- *intermedium*, Lange. 60. Wheldon and
Wilson. 69. Miss Hodgson, 1874
- Carduus pycnocephalus*, Jacq. 59. *Top.*
Bot.! *Ince Blurdell*; Mason. 60.
Top. Bot. *Bare*; F. A. Lees.
Silverdale; A. Wilson; +. 69.
Miss Hodgson, 1874. W. Foggit,
Mason
- *nutans*, L. [60] [69.]
- Cnicus eriophorus*, Roth. 60. *Top. Bot.*?
error? 69. John Henry; *Naturalist*,
Nov. 1897
- *heterophyllus*, Willd. 59. Goodlad Hb.
Top. Bot. Buxton's G. 101. 60. *Fl.*
Stonyhurst. Banks of *Roeburndale*
River about *Salter*, 1887; A. Wil-
son, in *J. of B.* 1900. 69. Miss
Hodgson
- * *Onopordon acanthium*, L. 59. Tudor ms.*
Top. Bot.!

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XLI.—Compositæ (continued)

- Serratula tinctoria*, L. 59. *Top. Bot.*! *Otters-*
pool; Hall, extinct? (Green's *Fl.*)
The Dingle; R. Brown, 1890. Bux-
ton's G. 100; +. 60. *Silverdale*,
1864; C. J. Ashfield. A. Wilson,
1899. It has disappeared from Ash-
field's station (Mr. W. Kirkby). Still
grows at *Silverdale*; A. Wilson, 1904.
69. Miss Hodgson. Baker's *Fl.*
A. W. Bennett
- Cichorium Intybus*, L. [59] [69]
- Picris echinoides*, L. 59. *Top. Bot.* Dickin-
son's *Fl.* 60. Claybanks, nr. *Lytham*,
1888. A. Wilson. 69?
- Crepis paludosa*, Moench. 59. Goodlad Hb.
Top. Bot.! Buxton's G. 98. +.
Whitehead's Fl. 60. *Top. Bot.* Lin-
ton cat. *Dolphinholme*; Rev. W. W.
Mason. Very common amongst the
hills; W. and W. 69. W. F. Mil-
ler. *J. of B.* 1882, 347
- Hieracium vulgatum*. 60. +. E. F. Linton,
Wheldon and Wilson, etc. 69.
Baker's *Fl.*
- var. *ravusculum*, Dahlst. 60. E. S.
Marshall, 1895
- *murorum*, L. 60. *Ease Gill*; +; Whel-
don and Wilson. [59] [69]
- *duriceps*, F. J. Hanb.
var. *cravoniense*, F. J. H. 60. *Ease*
Gill, Leck; 1883. Banks of *Lune*,
Halton; 1896. A. Wilson
- *diaphanoides*, Lindeb. 60. By the *Lune*,
nr. *Halton*; 1905; W. and W. in litt.
- *sciaphilum*, Uecht. 60. +; Wheldon
and Wilson
- *rigidum*, Hartm.
var. *tridentatum* (Fr.). 60. *Upper Ease*
Gill, Leck, 1899; left bank of *Greta*,
nr. *Wragton*; A. Wilson in *J. of B.*
Feb. 1900
- *crocatum*, Fr. 69. *Duddon Valley*; Rev.
A. Ley
- Hypochaeris glabra*, L. 59. *Top. Bot.* Lewis
rec. Sandhills, rare. North of *Crosby*,
1866. Lord de Tabley. *Freshfield*;
1869. Green's *Fl.* (G. G. H.).
Sandhills, *Birkdale*. 1880. C. T.
Green
- *maculata*, L. 69. *Humphrey Hd.*; J. Hall
in With. ed. iii. 1796, p. 691.
Smith's *Eng. Fl.* vol. iii. 374, rep.
Repeatedly confirmed. 1902. A.
Wilson
- Leontodon hirtus*, L. 59. *Top. Bot.* Buxton's
G. 97. Whitehead's *Fl.* Green's *Fl.*
60. *Garstang*; +; A. Wilson, 1887
- Taraxacum officinale*, Web.
var. *erythrospermum* (Andrz.). 59.
Top. Bot. 60. Wheldon and Wilson.
var. *palustre* (DC.). 59. *Top. Bot.*
60. W. and W.
- var. *levigatum* (DC.). 60. W. and
W. 69. Miss Hodgson
- var. *corniculatum*, DC. 60. W. and W.

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XLI.—Compositæ (continued)

- Lactuca virosa*, L. [59] 60. † Wheldon and Wilson. 69. *Furness Abbey*; Hailstone, 1804; Baker's *Fl.* 1885. W. W. Mason, 1902
- Tragopogon pratensis*, L. 59. 60. 69

XLII.—Campanulaceæ

- Lobelia Dortmanna*, L. 69. *Windermere*; Lawson in *Ray. Syn.* 1690. *Coniston Water*; *Windermere*; Woodward, *Withering*, ed. ii. 895, 1787. Head of *Coniston Lake*; Miss Hodgson, 1874. Baker's *Fl.* 142. 1885. Petty's *Constit.*

- Jasione montana*, L. 59. *Top. Bot.* Buxton's G. Whitehead's *Fl.* 60. *Top. Bot. Heysham*; Rev. W. W. Mason in litt. 1902. 69. Miss Hodgson. +. 1874. Baker's *Fl.* 1885. *Walney I.* Rev. W. W. Mason in litt. 1902

- Wahlenbergia hederaceæ*, Reichenb. 59. *Top. Bot.* Dickinson's *Fl. Whiteley Dean*; R. Buxton in Whitehead's *Fl.* 60. In two localities. A. Wilson

- Campanula Trachelium*, L. 60. Linton cat. *Top. Bot.*

- *latifolia*, L. 59. *Top. Bot.* Rev. W. W. Mason in litt. 1900. Dickinson's *Fl.* Buxton's G. Green's *Fl.* Apparently rather common in Buxton's time. 60. *Top. Bot.* Linton cat. *Carnforth*; O. Wyresdale; Rev. W. W. Mason in litt. 1902. Common, Wheldon and Wilson. 69. *Phytol.* 1861. Miss Hodgson. +. 1874. *Humphrey Hd.*; Rev. W. W. Mason, 1902

XLIII.—Vacciniaceæ

- Vaccinium Vitis-Idæa*, L. 59. Goodlad Hb. *Top. Bot.*! Buxton's G. 52. +. *Pendle Hill*; Wheldon. 60. *Top. Bot.* Wheldon and Wilson, 1901, in *J. of B.* 'Locally known correctly as Cowberry.' It is singular that no one has reported it for 69

- Schollera Oxycoccus*, Roth. 59. Ch. Babington, sp. *Top. Bot.* Buxton's G. 52. Dickinson's *Fl.* 60. O. Wyresdale; Wheldon and Wilson, 1901, in *J. of B.*; 'fruit gathered in quantities by the dales people.' 69. Miss Hodgson; Miss S. Beaver. Baker's *Fl.* Petty's *Constit.*

XLIV.—Ericaceæ

- [*Arctostaphylos Uva-ursi*, Spreng. 59. Four miles from *Hepstonstall*, nr. *Widdop*, on a great stone by the river *Gorpole*, Lancashire, Merrett, p. 123, 1666.¹ Shown to Ray on the same spot by T. Willisel, Ray, *Syn.* (1724). This is repeated in *Sm. Eng. Fl.* vol. ii. 254. 1824. Extinct?]

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XLIV.—Ericaceæ (continued)

- Andromeda Polifolia*, L. 59. *Top. Bot.* F. M. Webb. *Simonswood Mass*; Dickinson, 1851; confd. by Wheldon (in litt.). Green's *Fl.* Whitehead's (*Fl.* Buxton's G. 56. 60. *Top. Bot.* Linton. *Tarnbrook Fell*; O. Wyresdale, abundant, ascg. to 1,730 feet; Wheldon and Wilson, 1901. 69. *Withering*, ed. iii. 398-9. Miss Hodgson, +, 1874, in *J. of B.*

- Pyrola rotundifolia*, L. In Lancashire, Parkinson's *Theatrum*, p. 510, 1640, and first as British. 59. Hardy sp. *Top. Bot.* 60. *Top. Bot.* Simpson sp. var. *maritima* (Kenyon). 59. Sandhills (in wet hollows) *Crosby to Southport*. Green's *Fl.* 60. C. J. Ashfield. Now nearly gone; Wheldon in litt. 1904. Doubtless *Top. Bot.* records mean the variety
- *media*, Sw. 59. Leyland sp. *Top. Bot.*
- *minor*, L. 59. Whalley sp. *Top. Bot.*

XLV.—Monotropeæ

- Hypopitys Monotropa*, Crantz. 59. King sp. *Top. Bot.* *Formby*, 1897. Rev. W. W. Mason in litt. Also forma *glabra* (Bernh.) Wheldon. Common between *Hightown* and *Freshfield*; Wheldon in litt. +. 60. A. Wilson, B.R.C. Rep. 1883. *St. Anne's*; Wheldon and Wilson. 'r. r.'

XLVI.—Plumbaginæ

- Statice Limonium*, L. 59. Formerly at *Garston*; Hall. 60. Syme sp. *Top. Bot.* +. W. and W. 69. *Withering*, ed. iii. 1796. Baker's *Fl.* 1885
- var. *pyramidalis*, Syme. 60. *Preesall*, 1899. Wheldon
- *rariflora*, Drej. 60. Syme sp. *Top. Bot.* (bahusiensis) *Lune Estuary*; A. Wilson. *Saltmarsh* at *Preesall*. 1899. Wheldon (also a hybrid between this and the last). 69. Greenodd, 1874. Miss Hodgson. *Walney I.*; F. A. Lees. *Nr. Barrow*; L. Petty
- *auriculæfolia*, Vahl. 60. Syme sp. *Top. Bot.* a. *occidentalis* (Lloyd). *Preesall*, 1899; Wheldon. *Knott End*, 1884; Wilson. 69. Miss Hodgson, 1874. L. Petty (later)

XLVII.—Primulaceæ

- Hottonia palustris*, L. 59. *Top. Bot.*! Whitehead's, *Fl.*? † Green's *Fl.* +. Rev. W. W. Mason, 1895, in litt. 60. *Top. Bot.* *Pilling*; Wilson. 69. *Bardease*; Aiton, 1849
- Primula farinosa*, L. 'In Harwood neere to Blackburn,' Gerard, *Herball*, p. 639, 1597, and first as British. 60. Simpson sp. *Top. Bot.* *Silverdale*; 1775, Jenkinson. 1864, C. J. Ashfield. 1904, A. Wilson. +. 69. Wilson W. 1843, *Carlisle*

- [*Lysimachia thyriflora*, Ait. 59. Alcock,* *Top. Bot.*]

¹ *Pinax rerum Naturalium Britannicarum*, by Christopher Merrett, M.D. (F.R.S. later).

BOTANY

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order XLVII.—Primulaceæ (continued)

Lysimachia vulgaris, L. 59. *Top. Bot. Crosby*; Withering. Dickinson's *Fl. Green's Fl.* 69. *Phytol.* 1861. Miss Hodgson, 1874. Baker's *Fl.* 1885. 60. In districts 1-8; W. and W.

Trientalis europæa, L. 60. In great abundance on both sides of *Black Clough, Marshaw Fell, Wyresdale*; June, 1900, A. Wilson. Extending abundantly on the adjacent fells from nr. *Marshaw Moss*, Wheldon and Wilson in *J. of B.* Oct. 1902. 'This plant is singularly rare in the North of Eng. on the west side of the Pennine range,' A. Wilson. 69. North-west *Furness Hills*; Aiton, 1843

Centunculus minimus, L. 59. *Top. Bot. Nr. Formby*; Dickinson. *Southport*; R. Brown. *Green's Fl.* 60. *Arkolme Moor*, alt. 300-860 ft. Aug. 1900. A. Wilson. 69. Withering, ed. iii. 198-9. Confirmation required

XLIX.—Apocynaceæ

† *Vinca minor*, L. 59. *Top. Bot.* 'Denizen,' *Green's Fl.* and *Whitehead's Fl.* [69] Note. Recorded for 59 by Withering

L.—Gentianaceæ

Blackstonia perfoliata, Huds. 59. Ch. Bab. sp. *Top. Bot. Southport; Hightown*; Wheldon. *Formby*; +; Rev. W. W. Mason in litt. 69. Nr. *Cark*; W. Duckworth in *Naturalist*, 1892

Erythraea Centaurium, Pers. b. *capitata*, Koch. 59. *Hightown*; Wheldon

— *latifolia*, Sm. 59. In sandy ground near the sea, to the north of *Liverpool*; Dr. Bostock and Mr. Shepherd, 1803, *Sm. Flora Britannica*, iii. 1393 (1804), and new to science. Formerly found about *Seaforth Common*; *Formby*; *Ainsdale*; *Birkdale*; F. M. Webb, H. S. Fisher. Nr. *Freshfield Railway Station*, 1871-2. R. Brown. *Top. Bot.* Tudor sp. 'Probably extinct,' *Green's Fl.* All the specimens in the British Museum came from the neighbourhood of *Formby*. See Britten in *J. of B.* 1872, pp. 166-7. The plant has never been found in any other locality than the above

— *littoralis*, Fr. Lancashire, *Sm. Eng. Fl.* vol. i. 320. 59. *Sm. Eng. Fl.* vol. i. 321. *β. Top. Bot. Rylands* sp. *Green's Fl. Southport*; +; Wheldon. 60. *Top. Bot. Nr. Middleton*; A. Wilson. 69. *Low Marsh*, nr. *Raven Winder*; Petty

— *pulchella*, Fr. 59. Tudor sp. *Top. Bot. Formby; Southport*; Dickinson. Frequent on the sand-hills; Wheldon in litt. 60. Fielding sp. *Top. Bot. St. Anne's*; A. Wilson. 69. *Plumpton*; Miss Hodgson

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order L.—Gentianaceæ (continued)

Gentiana Pneumonanthe, L. 59. *Phillips* sp. *Top. Bot. Rancorn Heath*; E. Davis in *Green's Fl. Southport*, Aug. 1892. J. B. Foggitt. 60. *Simpson* sp. *Top. Bot. A. Wilson*, 1903. 69. Withering, 1796, and later records. Probably extinct. Baker's *Fl.* 1885

— *campestris*, L. — *baltica*, Murb. 60. Between *Lytham* and *St. Anne's*; Rev. E. S. Marshall. *B. Exch. Cl. Rep.* 1895, 490

Menyanthes trifoliata, L. 59. *Top. Bot.* 60. *Top. Bot.* Frequent; W. and W. 69. *Urswick Tarn*; +; Miss Hodgson

LI.—Polemoniaceæ

Polemonium œruleum, L. 69. *Willisell* to Ray. See *Naturalist*, 1897, p. 230

LII.—Boraginæ

Symphytium tuberosum, L. 69*

Pneumaria maritima, (L.), Hill. 69. *Ile of Walney* Lawson in Ray, *Fasc.* 1688. 22. Previously recorded by Parkinson in the *Theatrum* in 1640, and first as a British plant. It was found by Thos. Hesketh in 1640. Frequently reported up to 1902. The same remarks apply here as those under *Crambe maritima*. Surely this beautiful plant will be collected very sparingly. It is one of the interesting gems of the county flora

Myosotis repens, G. Don. 59. *Goodlad* sp. *Top. Bot. Greenbank*; J. H. Lewis. 60. Wheldon and Wilson, 1899 and 1901. 69. Miss Hodgson, 1874

— *silvatica*, Hoffm. 59. *Reddish*; Buxton's G. 27. *Whitehead's Fl.* Wheldon. *Top. Bot.* 60. *Top. Bot.* Linton cat.

Lithospermum officinale, L. 59. Buxton's G. 25. Dickinson's *Fl. Green's Fl.* 60. *Wennington*; between *Caryforth* and *Silverdale*; Wheldon and Wilson. 69. Miss Hodgson, 1874. W. Foggitt, J. G. Baker

† — *arvense*, L. 59. Buxton's G. 25. *Top. Bot.* *Green's Fl.*

† *Echium vulgare*, L. 59. *Top. Bot.* Buxton's G. 25. *Green's Fl.* 60. Nr. *Fleetwood*; Wheldon. 69. L. Petty, 1888-1890. *Barrois; J. Henry

LIII.—Convolvulaceæ

Volulus Soldanella, Junger. 59. *Top. Bot. Southport; Birkdale*; *Green's Fl.* 60. *South Shore*; A. Wilson. *Fleetwood*; Wheldon. 69. *Walney I.*; Lawson to Ray, 1718. John Dalton in With. ed. iii. 1796. 240. Miss Hodgson, 1874; no locality

Cuscuta Epithimum, Murr. 59. *Formby*, 1901; *Laverock* in *Green's Fl.* 60. *Ausdell*; Chas. Bailey

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order LIV.—Solanaceæ

Atropa Belladonna, L. 60. *Top. Bot. Carn-forth*; Rev. W. W. Mason. *Silverdale*, 1902. L. Petty. 69. *Humphrey Hd.* 1861, E. Green. 1885, J. G. Baker. In the Park at *Holker*; A. Ley in Baker's *Fl. Shore at Canon Winder*; 1892; L. Petty

LV.—Scrophulariaceæ

[*Verbascum nigrum*, L. 59. *Aintree*; +; Wheldon.] [V. *virgatum* 69.] [V. *Blattaria*, L. 60, 69.] Casuals

[*Linaria repens*, Mill. 60, 69, garden escapes] — *viscida*, Moench. 59. *Casual, Aintree*; Wheldon. 60. +. 69

Scrophularia umbrosa, Dum. 60. *Knowle Green*; 1899. Wheldon

Limosella aquatica, L. 59. *Top. Bot. Nr. Ormskirk*; Dickinson. 60. *Overton Marsh*, Aug. 1900. A. Wilson in *J. of B.* Jan. 1901, p. 25

**Veronica polita*, Fr. 59. *Linacre*; Wheldon. Buxton's G.* 60.* 69. Baker's *Fl.*

— *hybrida*, L. 60. *Silverdale*; Miss S. Beever. Baker's *Fl.* 1885. 69. *Jenkinson*. Desc. Brit. Pl. 14. About *Carmel Well.* 1775. Repeatedly confirmed in the chief works up to the present time. *Humphrey Hd.*, 1902. Rev. W. W. Mason in litt. A. Wilson, 1904, sp.

— *montana*, L. 59. *Goodlad Hb. Top. Bot. Dickinson's Fl. Green's Fl. Whitehead's Fl. Buxton's G.* 60. +. W. and W. 69. Baker's *Fl.* 1885.

— *scutellata*, L. 59. *Top. Bot. Buxton's G. Whitehead's Fl. Green's Fl.* 60. +. W. and W. 69. near *Ulverston*; L. Petty, 1898

Euphrasia officinalis, L. var. *nemorosa* H. Mart. 59. Wheldon. 60. Wheldon. 69. Petty; named by Ar. Bennett var. *gracilis*, Fr. 69. Baker's *Fl.* 1885. Petty, 1903

var. *curta*, Fr. 60. Wheldon — *borealis* (Townsend), Wetts. f. 60. Wheldon and Wilson

Bartsia viscosa, L. 59. *Plentiful near Ormskirk*; Hudson, (Hall). At *Allerton* near *Liverpool*, Mr. Robt. Roscoe in *Sm. Eng. Fl.* vol. iii. 118. *Bean sp. Top. Bot. Sandhills, Formby; Ainsdale; Southport*; Green's *Fl.* Wheldon in litt. 1903. Nr. *Sefton*; Dickinson. 60. *Fielding ms. Top. Bot.*

Pedicularis palustris, L. 59. *Top. Bot. Buxton's G.* 80. *Green's Fl.* 60. *Bleasdale*; +; 1899. A. Wilson. 69. *Jopling, Linton, and Miss Hodgson*

Melampyrum silvaticum, L. 69. In woods on E. side of *Humphrey Hd.* Dr. Windsor in *Phytol.* 1862, p. 259. *Blawith; J. of B.* 1874. Rev. W. M. Hind. *Woods, Yewdale Beck, Coniston*; Miss S. Beever

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order LVI.—Orobanchaceæ

Orobanche major, L. 59. *Allerton*; *Withering. Billingbeacon*; Dickinson, 1850. Formerly found on roots of broom near *Eccles*. Mr. J. Martin in *Buxton's G.* p. 81. *Top. Bot.*

— *minor*, Sm. 59. *Hale*; 1850; +; but rare and local; *Green's Fl. Crosby*, 1902. Wheldon in litt.

Lathræa squamaria, L. 59. *Buxton's G. 80. Top. Bot. 60. Fl. Stonyhurst. Hodder Valley. March, 1903.* Wheldon and Wilson in litt. 69. *Plumpton*; Jackson in *With. ed. iii.* 1796. Nr. *Hawkshead*; W. Satterthwaite. 1885. Nr. *Coniston*; Miss S. Beever; +

LVII.—Lentibulariaceæ

Utricularia vulgaris, L. 59. *Top. Bot. Nr. Southport*; Dickinson. *Buxton's G. Green's Fl. Little Crosby*; Rev. W. W. Mason, ms. 1900. 69. *Hawkshead*; Ray cat. 210. 1670. *Flookborough*; Jackson in *With. ed. iii.* 20, *Urswick Tarn*; 1874. Miss Hodgson. *Park Fell*; 1885. Alf. W. Bennett

— *intermedia*, L. 69. Between *Brathay and Hawkshead*; F. J. Hort. *Bot. Gaz.* 1850. Nr. *Coniston*. . . Miss S. Beever, in Baker's *Fl.* 1885 (with the following sp.)

— *minor*, L. 59. *Dickinson's Fl. Top. Bot.* 69. *Jenkinson, 1775.* Jackson in *With.* 1796. Miss S. Beever

Pinguicula vulgaris, L. 59. *Top. Bot. sp. in Herb. Oxon. Buxton's G. Dickinson's Fl. Green's Fl. Rare.* 60. *Fl. Stonyhurst*; +; W. and W. 69. +; Miss Hodgson and others. First recorded as British 'near to Blackburne,' see Gerard's *Herbal*, 1597, p. 645

LVIII.—Verbenaceæ

Verbena officinalis, L. 59. *Top. Bot. Dickinson's Fl. (Southport).* 60. *Silverdale*; A. Wilson. 69. Miss Hodgson, 1874; +; Baker's *Fl.* 1885

LIX.—Labiatae

Mentha rotundifolia, Huds. 69. *Lawson to Ray, 1688. Ulverston to Greenodd*; L. Petty, 1901

— *pipperita*, L. 59. *Heys sp. Top. Bot. Dickinson's Fl.*; 'native,' near *Reddish*; *Whitehead, Wheldon. Medlock Vale*; *Whitehead. Batwood*; *Ormskirk. T. Williams. Green's Fl. Buxton's G.* 75

— *sativa*, L. 59. *Top. Bot. Nr. Liverpool, etc. Wheldon and others.* 60. 'Common' W. and W. 69. Nr. *Little Langdale Tarn*; Miss Hodgson, 1874

BOTANY

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order LIX.—*Labiatae* (continued)

- **Mentha viridis*, L. 60. *Lune banks, Halton* ; A. Wilson*
- *rubra*, Sm. 59. Canal bank *Mayball to Lydiate* ; R. Brown. *Green's Fl.* 60. *Higher Bridge Island* ; *Flora of Stoneyhurst* (prob. correct J.A.W.). 69. *Baker's Fl.* 1885. (Miss Hodgson form near *rubra*)
- *gentilis*, L. 60. By the *Hodder*, nr. *Mytton*, Aug. 1899 ; Wheldon
- *Pulegium*, L. 59. *Newton Common*, 1851 ; Dickinson. 69. On *Goose Green, Dalton* ; Atkinson, see *Baker's Fl.* 1885 ; also *Petty's 'Constit.'* in *Naturalist*, Oct. 1897
- Thymus serpyllum*, Fries. 59. *Top. Bot. Green's Fl.* 60. *Silverdale* ; A. Wilson, 1887. *Leck Beck and Fell* ; *Petty*. 69. Dr. Windsor, 1857, Miss Hodgson, 1874
- Calamintha arvensis*, Lam. 59. *Top. Bot. !* 60. *Carnforth* ; A. Wilson. 69. C. J. Ashfield in *Phytol.* 1861, p. 237. J. G. Baker, 1885. Rev. A. Ley, *Baker's Fl.* 1885
- *officinalis*, Moench. 59. *Top. Bot. Nr. Garston* ; Hall. Nr. *Diston* ; Miss *Gowthwaite*. 69. J. G. Baker, 1885
- Salvia Verbenaca*, L. 60. *Silverdale*, 1901 ; *Petty*
- Nepeta Cataria*, L. 459. Canal banks, *Aintree* ; Wheldon. 60. +. A. Wilson. 69. Beach at *Rampside* ; Atkinson in *With. ed. iii.* 1796, 327. *Baker's Fl.* 1885. *Petty's Constit.*
- Scutellaria minor*, Huds. 59. *Top. Bot. Formby* ; T. Glover. *Knowsley* ; *Marrat*. 60. *Whittington Moor* ; *Arkolme Moor* ; A. Wilson, 1900. 69. Nr. *Dalton*, Atkinson in *With. ed. iii.* 1796. 540. *Hawkshead Hill* ; *Coniston* tarns, and by stream below *Tarn House*, Miss S. Beever in *Baker's Fl.* 1885
- * *Marrubium vulgare*, L. 59. *Top. Bot.** F. M. Webb.* *Dickinson's Fl.* [69]
- Stachys arvensis*, L. 59. *Top. Bot.* *Green's Fl.* 60. A. Wilson, 1888. 69. Miss Hodgson, 1874 (no loc.)
- Galeopsis Ladanum*, L. 59. *Top. Bot.* *Dickinson's Fl.* **Garston* ; R. Brown. 69. *Baker's Fl.*
- [— *ochroleuca*, Lam. Frequent in *Lancashire* ; *Hudson*. Sm. *Eng. Fl. rep.* 1825]
- *vesicolor*, Curt. 59. *Top. Bot.* Wheldon, etc. 60. *Top. Bot.* also W. and W. 69. *Baker's Fl.*
- Lamium alexicaule*, L. 60. Wheldon, 1900. 59. *Top. Bot.* *Green's Fl.* 'very common,' nr. *Liverpool* ; Wheldon
- *intermedium*, Fries. *59. *Casual* ; Wheldon. 60. *Top. Bot.* = *Silverdale* ; Melvill

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order LIX.—*Labiatae* (continued)

- Lamium hybridum*, Vill. 59. *Top. Bot. Speke* ; Wheldon. 60. *Top. Bot.* Melvill
- *Galeobdolon*, Crantz. 59. *Top. Bot.* Goodlad Hb. ! *Whitehead's Fl.* *Buxton's G.* 60. P. J. Hornby. 69. *Coniston* ; 1864. *Linton* ; see *Baker's Fl.*
- Ballota nigra*, L. 59. *Top. Bot.* 'Very rare.' Wheldon in litt. *Pilkington* ; *Buxton's G.* 69. C. C. Babington from *Newbould*. See *Petty's Constit.*

LX.—*Plantagineæ*

- Littorella juncea*, Berg. 59. *Top. Bot.* *Crosby Marsh* ; *Withering. Formby to Southport* ; Dickinson. *Green's Fl.* *Whitehead's Fl.* 60. Canal, nr. *Garstang* ; 1891. A. Wilson. ? 69. (*Linton's Lake C.* only)

LXI.—*Illecebraceæ*

- Scleranthus annuus*, L. 59. *Top. Bot.* *Buxton's G.* 56. *Green's Fl.* 60. Nr. *Garstang* ; 1891. A. Wilson. 69. Miss Hodgson ; *Baker's Fl.*

LXII.—*Chenopodiaceæ*

- **Chenopodium ficifolium*, Sm. 59. Wheldon, 'casual,' 1896-1904 ! 60. Wheldon, 'casual,' 1901
- *— *murale*, L. 59. Wheldon and others. *Green's Fl. Top. Bot.* 60. *Top. Bot.* *Syme sp.* Wheldon, 1900*
- *— *hybridum*, L. 59. *Top. Bot.* ? *Green's Fl.*
- *— *uribicum*, L. 59. Wheldon ; 1901.* 60. A. Wilson, 1899.*
- *rubrum*, L.¹ 59. *Top. Bot.* *Green's Fl.* 60. Wheldon,* 1899. A. Wilson, 1901*
- Beta maritima*, L. 60. Nr. *Lytham* ; A. Dullman. 69. *Walney I.* ; Rev. W. W. Mason in litt. 1902

¹ The first four of these *Chenopodia* are introduced with chicken corn and in ballast ; they are all likely to spread, but have little claim to a place in the British Flora. They are to be found more or less plentifully on rail and river banks, and waste places at all the great seaports, and inland in similar places by malt kilns and flower mills, along with a host of other aliens, and occasionally turn up in the neighbourhood of pheasant and poultry runs, the seeds of many species which are separated from foreign barley by the Boby machine along with the fruit of *Polygonum Fagopyrum* (*F. esculentum*) being much used as pheasant food. A flora of aliens found in Britain, with the date of the first appearance or record of each plant, will require an annual supplement, but it will be useful to future botanists. The aliens found in Lancashire will fill many pages of such a flora, hence these remarks. A vast number of these aliens are tender annuals which fail to produce ripe seed in our best summers, a considerable number are hardy annuals, and a few are biennial and perennial. Besides these aliens, plants occasionally spring up (often in profusion) of species which have been considered for a century, more or less, as true natives of a district, in company with obvious introductions ; these are usually on dredging or newly made ground. These are especially interesting problems for the botanist. Our oldest records do not give us the approximate year of the introduction of such plants as *Veronica Tournefortii* ; if they did, we should have to treat a great many of our cornfield weeds as 'foreigners' ; abundant as they now are they would have to take their places in the alien flora.

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order LXII.—Chenopodiaceæ (continued)

- Atriplex deltoidea*, Bab. 59. *Top. Bot.*
Lewis Rec. *Aintree*; Wh.
var. *prostrata*, Bab. 59. Wheldon,
1897. 60. Wheldon, 1899
— *Babingtonii* Woods. 50. *Top. Bot.*
F. M. Webb, cat. 60. Wheldon,
1900. 69. Baker
var. *virescens*, Lange. 60. Wheldon,
1901
— *laciniata*, L. 59. *Top. Bot.* Bloxam ms.
Dickinson. 60. *Top. Bot.* Syme sp.
69. Woodward in *Withering*, ed. iii
1796. L. Petty, 1892
— *portulacoides*, L. 59. *Top. Bot.* 60.
Syme sp. *Top. Bot.* 69. *Walney*
I.; Ch. Bailey. *Barrow*; Prof.
Oliver. *Kent's Bank*; nr. *Cark*
Stam.; J. G. Baker. E. of *Holme I*;
Petty. +
— *littoralis*, L. 59. *Top. Bot.* *Hightown*;
Wheldon. Dickinson's *Fl.* 60. *Top.*
Bot. Linton, cat. *Pilling*; A. Wil-
son. *Fleetwood*; Wheldon
Salsola Kali, L. 59. *Top. Bot.*! Wheldon; +;
60. *Top. Bot.* 69. Miss Ashburner
(only). Petty's *Const.*

LXIV.—Polygonaceæ

- † *Polygonum convolvulus*, L. 59. *Top. Bot.*
etc. 60. Ch. Bailey, 1901. *Bot.*
Rec. Club Rep., 1884-6. 69. Con-
firm. required
— *Raii*, Bab. 59. Syme sp. *Top. Bot.*
Crosby; Dickinson. *Southport*; Lewis.
Hightown; Wheldon. 60. *Top. Bot.*
Linton. *Fleetwood*; Wheldon
— *minus*, Huds. 59. F. M. Webb. *Top.*
Bot. *Walton Mere*; H. S. Fisher.
Buxton's *G.* 54. *Simonwood Moss*
to Kirkby; F. M. Webb.
— *Bistorta*, L. 59. 60. 69
Oxyria digyna, Hill. 69. *Tilberthwaite*;
W. Duckworth in *J. of B.* 1893,
374
Rumex sanguineus, L. Dickinson and others,
but not seen by Wheldon. (? 59)
var. *viridis* (Sibth.). *Top. Bot.* 59 and
60. 60. 'common,' Wheldon. (59.
Nr. *Ormskirk*; T. Williams. Bux-
ton's *G.*)
— *maritimus*, L. 59. *Top. Bot.* Dickinson's
Fl. Green's *Fl.* 60. C. J. Ashfield.
1860. v. Wheldon and Wilson's
paper in *J. of Bot.* Oct. 1902, p. 350,
who refer to Mr. C. E. Salmon's
record. 69. John Henry
— *limosus*, Thuill. 59. *Top. Bot.* (Lewis)
* — *crispus*, L. var. *triangulatus*, Syme. 59.
Wheldon in litt. 1902. 60. *Fleet-*
wood salt-marshes, 1901. Wheldon.*
69. J. G. Baker
— *crispus* × *obtusifolius*. Syn. *R. pratensis*,
M. and K. (*acutus*), L. 59. *Top.*
Bot. Green's *Fl.* 60. Near *Knowle*
Green, 1899, Wheldon

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

Order LXIV.—Polygonaceæ (continued)

- Rumex domesticus*, Hartm. 60. *Fl. Stonyhurst.*
By the *Lune*, near *Kirkby Lonsdale*,
1901. Wheldon and Wilson in
J. of B.
— *Hydrophilanthum*, Huds. 59. *Top. Bot.*
Buxton's *G.* Whitehead's *Fl.*
Dickinson's *Fl.* Green's *Fl.* 60. W.
and W. 69. Lawson only, 1680

LXV.—Aristolochiaceæ

- Asarum europæum*, L. 59. Dugdale, sp.
Top. Bot. In several woods in Lan-
cashire; Leigh, Ray. *Sm. Eng. Fl.*
vol. ii. 317

LXVI.—Thymelæaceæ

- Daphne laureola*, L. * 59. Denizen. Green's
Fl. 60. *Silverdale* area. Petty (Local).
69. Dr. Clowes, 1861. Baker's *Fl.*
Petty's *Const. Grange*; 1903. A.
Beardsley

LXX.—Euphorbiaceæ

- Euphorbia amygdaloides*, L. [69. *Cartmel*;
1840. Hb. Motley at Swansea]
— *Paralias*, L. 59. Scholes, sp. *Top. Bot.*!
Between *Formby* and *Southport*;
Withering. Rev. W. W. Mason.
Blundellsands; R. Brown, Wheldon.
Hightown; Wheldon. 60. C. J.
Ashfield, 1864 (approx.). C. E.
Salmon. 69. *Walney I.*; Atkinson in
With. ed. iii. 1796. Near *Holker*;
1843. Wilson, W.
— *portlandica*, L. 59. Scholes sp. *Top.*
Bot.! *Crosby to Southport*; Dickin-
son. 'Still there,' Wheldon in litt.
1903. 69. *Walney I.*; John Henry,
teste J. C. Melvill, 1897
* *Mercurialis annua*, L. 59. Dugdale sp. *Top. Bot.*
Ballast casual, Green

LXXII.—Myricaceæ

- Myrica gale*, L. 59. *Top. Bot.* Buxton's
G. 125. Hall, Dickinson, H. S.
Fisher, R. Brown. Wheldon in
litt. 1903. 60. C. J. Ashfield, 1864.
Top. Bot. Linton. Wheldon and
Wilson, 1902. 69. Abundant. Wil-
son, Wm., Miss Hodgson, J. G.
Baker

LXXIII.—Cupuliferæ

- Betula verrucosa*, Ehrh. 59. 60. *Middle-*
barrow Wood; 1899, A. Wilson. 69.
— *pubescens*, Ehrh. 60. A. Wilson in
B.R.C. Report, 1887. 'In all dis-
tricts.' W. and W. in litt. 1904.
69. *Stribers*; *Haverthwaite*; Miss
Hodgson, 1874
Quercus Robur, L. a. *pedunculata*, L. 59.
Top. Bot.! c. *sessiliflora*. 59. *Top.*
Bot. 60. Wheldon and Wilson,
1899. 69.
† *Fagus silvatica*, L. 59. *Top. Bot.* 'Planted'
Buxton and Whitehead. 60. *Top.*
Bot. 'Denizen.' Wheldon in litt.

BOTANY

CLASS I.—PHENOGAMIA (continued)

SUB-CLASS I.—DICOTYLEDONES (continued)

LXXIV.—Salicinea

- Salix pentandra*, L. 59. *Top. Bot.* † Dickinson's *Fl.* 'Native,' Whitehead. *Chorlton*; *Gorton*; Buxton's G. 121. *Barton*; Wheldon. +. 60. +. W. and W. 69. Miss Hodgson, 1874.
- *— *triandra*, L. 59. *Top. Bot.* Dickinson's *Fl.* 69. L. Petty
- *— *fragilis*, L. 59. 60. A. Wilson, 1887, *B.R.C. Rep.* +. 69. Miss Hodgson, 1874
- *— *alba*, L. 59. *Top. Bot.* Buxton's G. 122. Whitehead's *Fl.* 69. 60. A. Wilson, 1887. *B.R.C. Rep.* +.
- *aurita*, L. 59. *Top. Bot.* Rare in *Liverpool* district; Wheldon. Whitehead's *Fl.* Buxton's G. 123. 60. A. Wilson, 1888. 69.
- *aurita* × *cinerea*. *Wysesdale*; W. and W.
- *Caprea*, L. 59. *Top. Bot.* Whitehead's *Fl.* Green's *Fl.* Buxton's G. 123. 60. Near *Garstang*; A. Wilson, 1888. *Silverdale*; near *Leck*; Petty. 69.
- *repens*, L. 59. *Top. Bot.* Green's *Fl.* 69. *Walney I.*; Miss Hodgson, 1874. Baker's *Fl.* 1885. 60. A. Wilson, *B.R.C. Rep.* 1884
- *phylicifolia*, L. 59. *Top. Bot.* 'Dugdale'! 60. *Fl. Stenbury*; Wheldon and W., 1901
- *nigricans*, Sm. [59] 60. *Fl. Stenbury*; Bank of *Lune*, near *Kirkby Lonsdale*; A. Wilson
- *viminalis*, L. × *Caprea*, L. (Smithiana Willd. p. part.) 59. *Top. Bot.* under Smithiana. Dickinson's *Fl.* and Buxton's G. 123, both under Smithiana. 60. A. Wilson in *B.R.C. Rep.* 1887. *Fl. Stenbury*. +. *Leck Beck*; Petty. 69. J. G. Baker, Miss Hodgson
- All these records are under Smithiana.
- *— *purpurea*, L. × *viminalis*, L. (*rubra*, Huds.) 59. *Top. Bot.* 60. *Top. Bot.*
- *— *purpurea*, L. 59. Wheldon. +. *Top. Bot.* 60. *Top. Bot.* +. W. and W. 69. Miss Hodgson. *Hawkshead to Ambleside*; J. G. Baker
- Populus tremula*, L. 59. *Top. Bot.* Green's *Fl.* Buxton's G. 121. 60. *Silverdale*; Petty, Wheldon and Wilson. +. 69. Miss Hodgson. Only one very old tree on *Plumpton Peat Moss*.

LXXVI.—Ceratophylleæ

- Ceratophyllum demersum*, L. 59. *Top. Bot.* Dickinson's *Fl.* Green's *Fl.* Buxton's G. 117. 60. *Fl. Stenbury*, 1887.
- *submersum*, L. 59. *Altcar Marsh*; Dickinson. *Southport*; T. Gibson, senr. Green's *Fl.*

CLASS I.—PHENOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES

LXXVIII.—Hydrocharideæ

- Hydrocharis morsus-ranæ*, L. 59. *Top. Bot.* Tudor ms. Buxton's G. +. Dickinson's *Fl. Southport*; Wheldon. Green's *Fl.* 60. *Top. Bot.* Linton. *Cockerham*; A. Wilson
- Stratiotes Aloides*, L. 59. *Top. Bot.* *Boote*; *Walton*; Hall. 'Not there now.' Wheldon in litt. Whitehead's *Fl.* † Buxton's G. 72. +. 60. *Silverdale*; J. C. Melvill, 1868. A. Wilson, 1883, † and 1903

LXXIX.—Orchideæ

- Malaxis paludosa*, Sw. 59. Percival. *Top. Bot.* Near *Milnrow*; Buxton's G. 109. 69. Withering, ed. iii. 30-40, 1796. Between *Estwaite* and *Grizedale* valleys, Aug. 1892, Mr. Webb! Miss S. Armit in *Naturalist*, Aug. 1902, p. 272, and in litt.
- [*Corallorhiza innata*, R. Br. 69. Petty in *Naturalist*, Dec. 1898, from a drawing by Miss Barton]
- Neottia Nidus-avis*, Rich. 59. *Top. Bot.* Dickinson's *Fl.* Green's G. 60. *Middleton Wood*, *Goosnargh*, 1870; not seen since, R. Standen in litt. ad J. C. Melvill, 1905. *Fl. Stenbury*. 69. Withering, ed. iii. 1796. Wilson, Wm. 1843
- Listera cordata*, R. Br. 59. First described as British 'from near the beacon on Pendle Hill, in Lancashire,' Merrett's *Pinax*, p. 15, 1666; Dickinson's *Fl.* Buxton's G. 109. *Pendle Hill*; Wheldon, 1901. 60. Wheldon and Wilson, 1901. +. 69. Baker's *Fl.*
- Spiranthes autumnalis*, Rich. 59. *Top. Bot.*! *Allerton* and *Ince Woods*; Withering. *Hale*; *Southport*; +; Dickinson's *Fl.* 60. *Silverdale*, 1864; C. J. Ashfield. Known since 1775. 69. Withering, ed. iii. 33-4, 1796. Baker's *Fl.* 1885. *Kent's Bank*
- Cephalanthera ensifolia*, Rich. 69. Wilson, Wm. 1843. Baker's *Fl.* 1845
- Epipactis atro-rubens*, Schultz. 60. Near *Silverdale*; *Warton Crag*; *Gatebarrow Wood*; 1892. A. Wilson
- *palustris*, Crantz. 59. *Top. Bot.* F. M. Webb. Buxton's G. 109. 60. Simpson sp. *Top. Bot.* Yealand; Jenkinson, 1775; A. Wilson, 1902. *Lytham*, 1903; Wheldon in litt. 69. Baker's *Fl.* 1885
- Orchis pyramidalis*, L. 59. *Top. Bot.* T. Gibson. F. M. Webb. 69. Near *Cark*; W. Duckworth, in *Naturalist*, 1892, p. 81
- *ustulata*, L. 60. *Top. Bot.* Simpson sp. 'Still there,' 1904. A. Wilson.
- *Morio*, L. 59. *Top. Bot.* F. M. Webb. Buxton's G. 60. Simpson sp. *Top. Bot.* 69. *Walney I.*; John Henry

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES (continued)

Order LXXIX.—*Orchidæ* (continued)

Orchis incarnata, L. 59. *Top. Bot.* F. A. Lees. *Crosby to Southport*; H. S. Fisher, F. M. Webb. 'Still common on the sandhills of both S. and W. Lanc.' Wheldon in litt. 1903. *Hightown*; *Birkdale*; +. Wh. 60. *St. Anne's*; between *Scarton* and *Dolphinholme*; A. Wilson. Near *Docker*; W. and W.

— *latifolia*, L. 59. Near *Crosby*; Hall. 'Still there.' Wheldon in litt. 1903. *Hale*; *Southport*; +; Dickinson's *Fl. Top. Bot.* R. Brown. *Formby*; by the *Ath*, below *Lydiate*; R. Brown. Buxton's G. 60. 'In Districts 1, 2, 3, 4,' 'Wilson and Wheldon' in litt. 69. C. Bailey; Baker's *Fl.* etc. Some of the older records must be accepted in the aggregate sense

Ophrys apifera, Huds. 59. *Top. Bot.* Sandhills near *Crosby* Station; Dickinson

— *muscifera*, Huds. 60. *Silverdale*; C. J. Ashfield, 1864. 'Still in several places,' 1904; A. Wilson. 69. Withering, 1796

Habenaria albida, R. Br. 59. Goodlad Hb. *Top. Bot.* Buxton's G. 108. 9. *Cockley Beck*; Banks of *Dudon*; +; Miss Hodgson, 1874. *Coniston*; Miss Beaver

— *viridis*, R. Br. 59. *Top. Bot.* Dickinson's *Fl.* Buxton's G. 108. 60. C. J. Ashfield, 1864. *Silverdale*; A. Wilson. +. 69. Miss Hodgson

— *bifolia*, R. Br. 59. Dickinson's *Fl.* (Agg.?) 60. Bailey sp. *Top. Bot.* C. J. Ashfield, 1864. *Silverdale*, 'frequent,' A. Wilson. +; W. and W. 69. Baker's *Fl.*

— *chloroleuca*, Ridley. 59. Buxton's G. + 108. Extinct? and must be accepted in the aggregate sense. 60. +. W. and W. 69. Miss Hodgson, 1874. J. G. Baker, 1885

[*Cypripedium calceolus*, L. 'Lancaster.' Brit. Mus. Herb. 'Borough Hall Park'; Martin. *Bot. Guide*, p. 272, 1805. 'In a wood called the Helkes, in Lancashire' (Yorkshire! H.F.). Parkinson, *Theatrum*, p. 218, 1640. Extinct]

LXXX.—*Iridæ*

Crocus nudiflorus, Sm. 59. *Top. Bot.* *Liverpool*, towards *Allington*; Withering. Green's *Fl.* (no recent records). Whitehead's *Fl.* Buxton's G. Locally abundant about *Manchester*, 1875-1903. J. C. Melvill in litt. 60. Nr. *Goosnargh*; R. Standen in litt. ad J. C. Melvill, 1905

LXXXI.—*Amaryllidæ*

Narcissus Pseudo-narcissus, L. 59. 60. 69.

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES (continued)

LXXXIII.—*Liliacæ*

Polygonatum officinale, All. 60. Gissing ms. *Top. Bot.* *Dalton Crag*, 1884; A. Wilson. [*Silverdale*; C. J. Ashfield, 1864. The station is in Westmorland, and the plant is still there, Wheldon in litt., 1904]

Convallaria majalis, L. 60. *Silverdale*; *B.R.C. Rep.* 1883. +. W. and W.

Allium Scorodoprasum, L. 59. Bab. sp. *Top. Bot.* Bank of *Mersey*; Dickinson. Wheldon conf. 69. +. Miss Hodgson, 1874. Soppitt, 1894. L. Petty in his *Constit.* Rev. W. W. Mason

— *vineale*, L. 59. Webb sp. *Top. Bot.* Near *Speke*; Dickinson. 60. A. Wilson, 1896

— *oleraceum*, L. var. *complanatum*, Fr. 60. Bank of *Greta*, near *Wrayton*, 1901; A. Wilson

— *Schœnoprasum*, L. 69. J. Seward. *Top. Bot.* *Chivey Syke*, in *Carmel Fell*. Wilson, *Syn.* 255, 1744. Miss Hodgson, 1874

[*Maianthemum Convallaria* [Weber], ap. Wigg. 'In Lancashire, in *Dingley Wood*, six miles from *Preston* in *Aunderness*; and in *Harwood*, near to *Blackburne*.' Gerard, *Herball*, p. 330, 1597. Extinct]

Tulipa silvestris, L. 60. Found nr. *Whittingham*, 1870 (approx) by R. Standen; now lost as a wild plant. In litt. per J. C. Melvill, 1905

Gagea fascicularis, Salisb. 60. *Fl. Stonyhurst*. 69. Higgins in Baker's *Fl.*

Colchicum autumnale, L. 59. Nr. *Middleton*; Buxton's G. 50

Narthecium ossifragum, Huds. Formerly called *Lancashire Bog Asphodel*. 59. 'All mosses . . . around *Manchester* abundant;' Buxton's G. 47. *Formby* to *Barton*. Green's *Fl.* 1892. *Top. Bot.* 60. Ascends from *Cockerham Moss* to 1,730 feet; Wheldon and Wilson. 'Neere unto the towne of *Lancaster*.' See Gerard's *Herball*, p. 88, 1597. 69. Baxter (nr. *Coniston*), 1837. Miss Hodgson, 1874

Paris quadrifolia, L. 59. *Top. Bot.* Dickinson's *Fl.* Buxton's G. 55. Nr. *Clietheroe*; Wheldon in litt. 60. Simpson sp. *Top. Bot.* Plentiful, ascending to 1,000 feet, and found in eight districts; Wheldon and Wilson

LXXXIV.—*Juncacæ*

Juncus compressus, Jacq. 59. *Burton Marishes*; C. T. Green in *Fl. L'pool*. 60. *Longridge Fell*; *Fl. Stonyhurst*

* — *tennis*, Willd. 59. *Sr. Mary's Churchyard, Bootle*, Oct. 1903. 'Native' (?) Rev. W. W. Mason in litt. Alien

BOTANY

CLASS I.—PHÆNOGAMIA (*continued*)

SUB-CLASS II.—MONOCOTYLEDONES (*continued*)

Order LXXXIV.—*Juncaceæ* (*continued*)

- Juncus effusus* × *glauca*. 60. Between *Grim-sargh* and *Alton*, Wheldon. Disputed in *Bot. Exch. Club Rep.* 1900. 646. Mr. Wheldon does not now consider it is *J. diffusus*, Hoppe, but still considers it must be placed here. Nr. *Bare*; F. A. Lees in *Naturalist*, 1899 (*diffusus*, Hoppe). *Fl. Stonyhurst* (*diffusus*). 69. *Humphrey Hd.* . . . east side . . . J. G. Baker, 1885 (*diffusus*)
- *filiformis*, L. 69. At *Windermere* in *Cartmel*; . . . Mr. Jackson. Withering, ed. iii. 346, 1796. See D. Newton in Ray's *Historia*, ii. 1305, 1688. *Hd. of Coniston Water*; J. G. Baker, 1885
- *maritimus*, Lam. Lancashire; Rev. W. Wood in *Sm. Eng. Fl.* vol. ii. 160, 1824. 59. *Top. Bot.* F. M. Webb. *Mersey Banks*; Wheldon. Green's *Fl.* 60. *Top. Bot.* H. C. Watson! +. W. and W. 69. Miss Hodgson, 1874. Rev. A. Ley, Baker's *Fl.*
- [— *acutus*, L. 69. *Holker*, Lancashire, Mr. Woodward in *Eng. Fl.* vol. ii. 1824. Extinct?] See note in *Top. Bot.*
- *obtusiflorus*, Ehrh. 59. *Top. Bot.* 60. F. A. Lees, *Naturalist*, 1899. *Hawes Water*; F. Pickard. *Carnforth*; A. Wilson. 69. *Greenodd* shore; Miss Hodgson (! J. G. Baker)
- Juncoides pilosum*, Morong. *Luzula* (DC.). 59. *Top. Bot.* Buxton's G. 48. Whitehead's *Fl.* Hale; Green's *Fl.* 60. +. W. and W. Petty; Rev. W. W. Mason, 1902. 69
- *multiflorum*, Druce. 59. *Top. Bot.* Green's *Fl. Simonswood*; *Altcar*; Rev. W. Mason in litt. 1902. 69. John Henry. 60. +. W. and W.

LXXXV.—*Typhaceæ*

- Typha latifolia*, L. 59. *Top. Bot.* F. M. Webb. Buxton's G. III. Whitehead's *Fl.* Wheldon. 60. +. W. and W. 69
- *angustifolia*, L. 59. *Top. Bot.* Buxton's G. III. *Kirkby*; Wheldon in litt. 1903. 60. +. W. and W. 69. *Urrwick Tarn*; Miss Hodgson, 1874. *Blelham T.*; W. H. Hills in Baker's *Fl.* 1885
- [*Sparganium affine*, Schnizl. 59. Nr. *Manchester*; Dr. Hull, 1808 (approx.). Buxton's G. III. [*Top. Bot.*] almost certainly a floating-leaved simplex. Buxton and Hull record their plant as *natans*, L.]
- *minimum*, Fr. 60. *Little Hawes Water, Silverdale*; A. Wilson, 1884. 69. *Coniston Lake*; Miss S. Beever. *Warton Tarn*; W. Southall, 1885
- *neglectum*, Beeby. 60. Nr. *Lytbam*; Salmon and Thompson. Wheldon, 1905

CLASS I.—PHÆNOGAMIA (*continued*)

SUB-CLASS II.—MONOCOTYLEDONES (*continued*)

LXXXVI.—*Aroidææ*

- Acorus Calamus*, L. 59. *Top. Bot.* Green's *Fl.* Rev. W. W. Mason in litt. 1902. Buxton's G. 47. 60. +. W. and W.

LXXXVII.—*Lemnaceæ*

- Lemna gibba*, L. 59. *Top. Bot.* F. M. Webb. Buxton's G. 60. C. J. Ashfield (not seen recently, W. and W.)
- *polyrhiza*, L. 59. *Top. Bot.* F. M. Webb. Buxton's G. Dickinson's *Fl.* Whitehead's *Fl.* Wheldon. +. 60. Wheldon, 1900

LXXXVIII.—*Alismaceæ*

- Elisma natans*, Buchen. 69. *Coniston*; Miss S. Beever. Baker's *Fl.* 1885
- [*Sagittaria sagittifolia*, L. 59. 60. *Top. Bot.* Linton cat. Confirmation desirable. 60. Canal nr. *Preston*; H. Beesley (*W. and W.)]
- Butomus umbellatus*, L. 59. Nr. *Ince*; Withering. *Top. Bot.* F. M. Webb. *Formby*; Hall. *Little Crosby*; *Southport*; Dickinson. *Sefton Park*; H. S. Fisher. *Halewood*, 1886. Day in *Liverpool Fl.* 1902. Nr. *Warrington*; Wm. Wilson, Buxton's G. 55. *Rufford*; Rev. W. W. Mason in litt. 1903. Wheldon and Wilson. +. 60. +. W. and W.

LXXXIX.—*Naiadaceæ*

- Potamogeton natans*, L. ! 59. *Top. Bot.* F. M. Webb. Whitehead's *Fl.* Green's *Fl.* +. Wheldon. 60. Very common, W. and W.
- *polygonifolius*, Pour. ! 59. *Top. Bot.* F. M. Webb. *Litherland*; Hall. *Aintree*; F. M. Webb. *Little Crosby*; Green's *Fl.* 60. Ar. Bennett in *J. of B.* May 1886. *Silverdale*; C. Bailey, 1883. +. W. and W.
- *alpinus*, Balb. ! 59. Merrick sp. *Top. Bot.* Dickinson's *Fl. Reddish*; Whitehead's *Fl.* Wheldon conf. *Formby*; F. M. Webb. Nr. *Warrington*; T. Gibson. *Altcar*; Wheldon. Buxton's G. 60. *Top. Bot.* +. W. and W.
- *heterophyllus*, Schreb. ! North of *Crosby*; Dickinson. *Formby* to *Freshfield*; E. Davies. Nr. *Birkdale*; F. M. Webb and H. S. Fisher. 60. (Bailey) *Top. Bot.*
- [— *nitens*, Weber. 59. '*Hale Moss*' Hb. Ch. Bailey. Ar. Bennett in litt.]
- *lucens*, L. ! 59. *Top. Bot.* *Formby Marsh*; Dickinson (not recently, Wh.). 69. *Coniston Lake*; Miss S. Beever in Baker's *Fl.* 1885
- *angustifolius*, B. and Presl. 69. ! Arthur Bennett in litt. 1903. *Coniston Lake*; Ch. Bailey in *J. of B.* 1884, p. 370.
- *prælongus*, Wulf. 69. ! A. Bennett in litt. 1903. *Windermere*; Borrer in *Phytol.* 1846. p. 426. N. end of *Coniston L.*; J. G. Baker, 1885

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES (continued)

Order LXXXIX.—Naiadaceæ (continued)

- Potamogeton perfoliatus, L. ! 59. Canal between *Bootle* and *Litherland*; Hall. R. Brown, 'common all along the canal,' Wheldon, 1902. 60. + W. and W. 69. *Coniston*; *Windermere*; Baker's *Fl.* 1885
- crispus, L. ! 59. +. *Top. Bot.* 60. +. W. and W. 69
- densus, L. ! 59. *Top. Bot.* F. M. Webb, sp. Nr. *Liverpool*, F. M. W. See Green's *Fl.*
- obtusifolius, Mert. and Koch. 59. Goodlad, Hb. *Top. Bot.* Dickinson's *Fl. Little Crosby*; J. H. Lewis. *Altcar*; Wheldon. Whitehead's *Fl.* 60. *Top. Bot.*
- var. fluvialis, Lange and M. 60. Wheldon 1900, teste Ar. Bennett. Mill-dam nr. *Quernmore*; W. and W.
- Friesii, Rupr. ! 59. Ar. Bennett in litt. 1903. *J. of B. May*, 1886
- pusillus, L. ! 59. *Top. Bot.* *Ashton Moss*; *Reddish*; Whitehead's *Fl. Reddish*; *Southport*; Wheldon. Buxton's *G.* 24. Green's *Fl.* 1902. 60. *Top. Bot.*; +. W. and W.
- pectinatus, L. ! 59. *Top. Bot.* Walley sp. *Liverpool* canal; Hall. *Reddish*; Whitehead. Nr. *Eccles*; Buxton's *G.* 60. *Lancaster*; A. Wilson. *Top. Bot.* var. 59. Green's *Fl.* next sp.
- interruptus, Kit. 59. Whalley, *Top. Bot.* Lancashire. Ar. Bennett in litt.
- Ruppia maritima*, L. f. *rostellata* (Koch). 59. Wheldon, 1899. 60. Wilson, 1893. 69. Rev. W. W. Mason, 1902, in litt. f. *spiralis* (Hartm.) 59. *Crosby*; Hall
- Zannichellia palustris*, L. ! 59. *Top. Bot.* F. M. Webb. Buxton's *G.* 110. *Reddish*; Newton in Whitehead's *Fl.* Wheldon conf. *Southport*; Wheldon. Green's *Fl.* 60. A. Wilson, 1894. +. W. and W. L. Petty, 1902
- Zostera marina*, L. 59. *Top. Bot.* Nr. mouth of *Alt*; Hall
- [*Najas graminea*
var. *Delilei* Magnus. Alien, Canal. *Reddish*; Lee and Berkenshaw in Whitehead's *Fl.* Ashton, p. 39, 1888. *J. of B.* Oct. 1884. Ch. Bailey, 'introduced with cotton from Egypt probably.' J. C. Melvill in litt.]

XCI.—Cyperaceæ

- Eleocharis acicularis*, R. Br. 59. *Top. Bot.* *Crosby*; Dickinson. Buxton's *G.* 7. +. *Hightown*; Wheldon
- multicaulis, Sm. 59. *Top. Bot.* F. M. Webb. Dickinson's *Fl. Knowsley*; R. Brown, 1885. 60. *Top. Bot.*? Nr. *Chipping*; 1900, A. Wilson. 69. W. Foggitt, 1885

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES (continued)

Order XCI.—Cyperaceæ (continued)

- Eleocharis nigulmis*, Link. 59. F. M. Webb sp. *Top. Bot. Altcar*; + F. M. W. Whitehead's *Fl.* Brown, in Green's *Fl.* 60? Chadwick sp. *Top. Bot. St. Anne's*; Searle in Hb. Wheldon
- Scirpus pauciflorus*, Lightf. 59. *Top. Bot.* F. M. Webb. *Crosby*; Hall. *Birkdale*; Lewis. *Warbreck Moor*; H. S. Fisher. +. 60. A. Wilson, 1892, *Bolton-le-S.* 69. *Plampton* . . . ; Miss Hodgson, 1874. *Flookborough*; J. G. Baker, 1885
- cespitosus, L. 59. *Top. Bot.* Buxton's *G.* Dickinson's *Fl.* 60. +. W. and W. 69. *Dunnerdale Fells*; Miss Hodgson, 1874
- cernuus, Vahl. 59. F. M. Webb sp. *Top. Bot.* Nr. *Altcar*; F. M. Webb, 1873. *Birkdale*; Wheldon, 1897
- fluitans, L. 59. *Top. Bot.* Dickinson's *Fl.* Buxton's *G.* *Little Crosby*; F. M. Webb. Nr. *Formby*; R. Brown. 60. Nr. *Morecambe*; Wheldon, 1899. Nr. *Bare*; A. Wilson. 69. I. Hall in Withering, 1796. Rev. W. M. Hind in *J. of B.* 1874, p. 370
- lacustris, L. 59. *Top. Bot.* 60. F. A. Lees. *Silverdale*; A. Wilson. 69. *Urswick Tarn*; Miss Hodgson, 1874
- *Tabernaemontani*, Gmel. 59. *Top. Bot.* F. M. Webb. Dickinson's *Fl. Crosby Marsb.* 60. *Bolton-le-Sands*; +; A. Wilson, 1893
- silvaticus, L. 59. *Top. Bot.* F. M. Webb. Dickinson's *Fl.*; +. Whitehead's *Fl.* Buxton's *G.* 7. +. 60. +. W. and W.
- *Caricis*, Retz. 59. Ryland's sp. *Top. Bot.* Mouth of *Alt*; R. Brown, 1874, Wheldon, 1901. 60. *St. Anne's*; J. C. Melvill, 1891. Bank of *Greta*. nr. *Wrayton*; Aug. 1901. A. Wilson
- rufus, Schrad. 59. *Top. Bot.* Tudor sp.; . . . between *Bootle* and *Crosby* ; Mr. John Shepherd in Sm. *Eng. Fl.* vol. i. 59. *Birkdale*, 1904, Wheldon. 60. *Bolton-le-Sands*, 1892; A. Wilson
- Eriophorum vaginatum*, L. 59. *Top. Bot.* Dickinson's *Fl.* Buxton's *G.* *Simonswood*; Hall. (W. W. Mason, 1900, in litt.) 60. Wheldon and Wilson. +. L. Petty. 69. +. Miss Hodgson, 1874. L. Petty ('common')
- angustifolium, Roth. 59. *Top. Bot.* Buxton's *G.* Green's *Fl.* 60. *Hawes Water Mass*; Petty. W. and W. +. 69. +. Miss Hodgson, 1874. *Plampton*; Baker
- latifolium, Hoppe. 59. *Top. Bot.* ? Hall, Dickinson, Green's *Fl.*

BOTANY

CLASS I.—PHLENOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES (continued)

Order XCI.—Cyperaceæ (continued)

- Rhynchospora alba*, Vahl. 59. *Top. Bot. F. M. Webb. Buxton's G. 6. Gill Moss*; Hall. *Simonswood Moss*; Dickinson. *Whitehead's Fl.* (extinct nr. *Moston*). 60. Very rare. *Wyresdale*; *Cockerham Moss*, 1877-1903. (The moss is being rapidly cut up and made away with by a moss litter company. A. Wilson, see *J. of B.* 1901.) 69. Miss Hodgson, 1874. *Baker's Fl.* 1885. '... all mosses in Lancashire,' Ray, 1670
- Schoenus nigricans*, L. 60. Bailey rec. *Top. Bot. C. J. Ashfield*, 1864. C. Bailey, 1875. A. Wilson, 1883. L. Petty, 1902. 69. L. Petty in *J. of B.*, 1892
- Cladium jamaicense*, Crantz. 60. *Silverdale*; Ashfield, 1864. A. Wilson, 1883-1904. Rev. W. W. Mason, 1902, in litt.
- Carex dioica*, L. 59. *Top. Bot. 60. Little-dale Fell, Udale*; +; Wheldon and Wilson, 1899. 69. *Leven and Duddon basins*; *Westm. Notebook*, 1888
- *disticha*, Huds. 59. *Top. Bot. Dickinson's Fl. Whitehead's Fl. Green's Fl.* 60. +. W. and W. 69. *Grange*; Miss Hodgson, 1874. *Kent Basin*; *Westm. Notebook*, 1888
- *tetrituscula*, Good. 59. Hunt sp. *Top. Bot.* [Dickinson's *Fl.*] Buxton in *Whitehead's Fl.* and in his own guide, 112. Confin. desirable. 60. Bog near *Docker*, 1901. Wheldon and Wilson, confd. by Ar. Bennett. 69. *Urswick Tarn*; Miss Hodgson in *J. of B.* 1874 and in *Top. Bot.*
- *paniculata*, L. 59. *Top. Bot. F. M. Webb. Dickinson's Fl. +. Buxton's G. 112. +. Eccleston*; Higgins, in *Green's Fl.* 60. A. Wilson in *B.R.C. Rep.*, 1883. +. W. and W.
- *muricata*, L. 59. *Top. Bot. Buxton's G. 112. Whitehead's Fl. Nr. West Derby*; Lewis. 60. +. W. and W. A. Wilson in *B.R.C. Rep.*, 1883
- *remota*, L. 59. *Top. Bot. Buxton's G. Whitehead's Fl. Green's Fl.* 60. 'very common.' W. and W. 69. Miss Hodgson, 1874. +
- *axillaris*, Good. 59. *Whitehead sp. Top. Bot. Sp. in Herb. Oxon. R. Brown in Green's Fl. Buxton's G.*
- *elongata*, L. 59. Wood sp. *Top. Bot. About Warrington*; Dickinson. *Dungeon Marsh*; Higgins. Buxton's G.
- *curta*, Good. 59. *Top. Bot.*; Wood sp. Dickinson's *Fl. +. Buxton's G. 113. Whitehead's Fl. Nr. Aintree*; Wheldon. 1891. 60. +. W. and W. 69. *Westm. Notebook*, 1888

CLASS I.—PHLENOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES (continued)

Order XCI.—Cyperaceæ (continued)

- Carex Hudsonii*, A. Benn. 59. Hall's *Fl.* 1839. *Top. Bot. Dickinson's Fl.* 60. Nr. *Silverdale*; A. Wilson. 69. W. Borrer in *Phytologist*, 430, 1846
- var. *turfosa*, Fr. 60. Nr. *Kellet*; A. Wilson. Nr. *Highfield*; Wilson and Wheldon
- *acuta*, L. 59. *Top. Bot. Buxton's G. 113. Dickinson's Fl.* 60. A. Wilson, 1891. 69. Miss Hodgson, 1874
- *rigida*, Good. 60. *Greygarb Fell*, 2000 ft. A. Wilson, 1902. 2050 ft. 1903
- *aquatilis*, Wahlenb. 69. *Bleblam Tarn*; Lloyd Praeger to Ar. Bennett, 1895. *Naturalist*, March, 1897
- *limosa*, L. Lancashire; Hudson's *Flora Anglica*, ed. 2, p. 409, 1778 and first as British. 59. *Top. Bot.* (aggr.) 60. *Cockerham Moss*; 'probably extinct.' A. Wilson in *J. of B.* 1900
- *digitata*, L. 60. Nr. *Silverdale*; A. Wilson, 1888, and often seen since
- *pilulifera*, L. 59. *Top. Bot. Dickinson's Fl. Whitehead's Fl. Wheldon*, etc. 60. +. W. and W. 69. *Westm. Notebook*, 27
- *pallescens*, L. 59. *Top. Bot. F. M. Webb. Sp. in Herb. Oxon. Buxton's G. 114. Dickinson's Fl. +. etc.* 60. +. W. and W. 69. Miss Hodgson, 1874. *Westm. Notebook*, 27
- *pendula*, Huds. 59. *Top. Bot. Dickinson's Fl. Buxton's G. 114. 60. Top. Bot. Linton cat. +. W. and W.*
- *strigosa*, Huds. 59. *Top. Bot. Reddib Wood*; Buxton's G. 114. Extinct, Whitehead. *Mill Wood*; Hale; J. Shillito. Green's *Fl.*
- *lævigata*, Sm. 59. Goodlad, sp. *Top. Bot. Buxton's G. 114. Whitehead's Fl.* 60. Near *Garstang*, 1888. A. Wilson. 69. *Westm. Notebook*, 27
- *binervis*, Sm. 59. *Top. Bot. Park Bridge*; Whitehead. *Pilkington*; Buxton, 114. 60. *Fl. Stonyhurst. +. W. and W.* 69. Miss Hodgson, 1874. *Westm. Notebook*, 1888
- *distans*, L. 59. *Top. Bot. R. Brown. Wheldon. 60. A. Wilson, B.R.C. Rep.* 1883. 69. *Baker's Fl.* 1885. +. H. T. Soppit, 1894
- *fulva*, Good. 59. Wood sp. *Top. Bot.* 60. Wheldon and Wilson, 1891-1901. +. 69. Miss Hodgson, 1874. Confirmation desirable (? *distans*.)
- *extensa*, Good. 59. *Top. Bot. F. M. Webb. Dickinson's Fl. Wheldon and others. +. 60. W. and W.* 69. Miss Hodgson. Rev. A. Ley, J. G. Baker, 1885. See *Westm. Notebook*

A HISTORY OF LANCASHIRE

CLASS I.—PHÆNOGAMIA (*continued*)

SUB-CLASS II.—MONOCOTYLEDONES (*continued*)

Order XCI.—Cyperaceæ (*continued*)

Carex flava, L. 60. +. W. and W. In the fell district. 59. *Warbreck Moor*, 1899; Wheldon. *Rainford Moss*; +; Wheldon

var. minor, Towns. The forms of this very difficult species have not been studied in the county. Botanists cannot agree in assigning names to the different forms. Mr. Wheldon believes minor to be the lowland form, and the type a plant of the fells as far as Lancashire is concerned

— *Æderi*, Ehrh. 59. *Top. Bot.* Whalley sp. R. Brown, 1876. *Walton*, 1892; *Birkdale*; *Southport*, 1893; *Freshfield*; Wheldon. 60. *St. Anne's*, 1897; Wheldon

— *filiformis*, L. [*Stalybinsley*, Lancashire (? Cheshire H.F.); G. E. Hunt, June, 1865.] 69. *Low End, Coniston Water*, near *Lake Bank*; W. Matthews. Ar. Bennett in *Naturalist*, 1901

— *Pseudo-cyperus*, L. 59. *Top. Bot.* F. M. Webb. Buxton's G. 215. *Whitehead's Fl.* Wheldon, etc. 60. *Silverdale*; 1883. A. Wilson. +

— *acutiformis*, Ehrh. 59. *Goodlad Hb. Top. Bot.* ! *Whitehead's Fl.* Green's *Fl.* Buxton's G. 115. 60. +. W. and W. 69. Miss Hodgson, 1874.

— *riparia*, Curtis. 59. *Top. Bot.* F. M. Webb. Near *Astley*; Buxton's G. 116. 60. Near *Borwick*; near *Lancaster*; A. Wilson ("rare")

— *rostrata*, Stokes. 59. *Top. Bot.* Buxton's G. 115. +. etc. 60. A. Wilson in *Bot. Rec. Club Rep.* 1881-2. +. 69. *Westm. Notebook*

— *vesicaria*, L. 59. *Top. Bot.* Sp. in Herb. Oxon. Between *Runcorn* and *Warrington*; Dickinson. *Chorlton*; nr. *Chat Moss*; Buxton's G. 115. 60. *Silverdale*. A. Wilson, 1884. 69. *Newfield*; *Seathwaite*; Miss Hodgson, 1874. *Westm. Notebook*, 27

XCII.—Gramineæ

Alopecurus pratensis, L. 59. *Top. Bot.* etc. 60. +. W. and W. 69. Miss Hodgson, no loc.

Phleum arenarium, L. 59. *Top. Bot.* ! F. M. Webb. 60. *Top. Bot.* Linton cat.

Agrostis canina, L. 59. *Top. Bot.* Buxton's G. etc. 60. H. Beesley. 69. *Ulverston*; Miss Hodgson, 1874. Baker's *Fl.* 1885

— *alba*, L. var. *maritima*, Mey. 59. Wheldon

var. *coarctata*, Hoffm. 59. C. H. Bailey, 1892. Wheldon. 60. Wheldon

var. *subjungens*, Hackel. 59. F. C. King. Ar. Bennett in *J. of B.*, 1887

var. *pro-repens*, Aschers. 60. Wheldon, 1900

CLASS I.—PHÆNOGAMIA (*continued*)

SUB-CLASS II.—MONOCOTYLEDONES (*continued*)

Order XCII.—Gramineæ (*continued*)

Calamagrostis epigeios, Roth. 59. *Top. Bot.* *Otterpool*; *Aigburth*; Hall. *Kirkby*; J. H. Lewis. *Ormskirk*; T. Williams. 60. *Top. Bot.* *Heysham Peninsula*; A. Wilson. Syme MS. 69. Near *Dalton*; F. A. Lees in Baker's *Fl.*

— *lanceolata*, Roth. 59. *Top. Bot.* F. M. Webb. Buxton's G. Green's *Fl.* Melvill, 1903. 69. Lloyd Praeger to Ar. Bennett, 1895. *Naturalist*, 1897. 77

[*Apera spica-venti*, Beauv. 59. Near *Warrington*, Lancashire, Sir J. E. Smith in *Eng. Fl.* vol. i. 89. 59 and 60. casual? Wheldon. *Top. Bot.* [59]]

Holcus mollis, L. 59. *Top. Bot.* etc. 60. L. Petty, 1902. 69. Baker's *Fl.* 1885

† *Avena fatua*, L. 59. *Top. Bot.* Wheldon †. 60. Wheldon †.

— *pratensis*, L. 60. Near *Silverdale*; L. Petty, 1902

— *pubescens*, Huds. 59. *Top. Bot.* F. M. Webb. Green's *Fl.* 60. *Silverdale*; Petty, 1902. 69. Miss Hodgson

Sieglingia decumbens, Bernh. 59. *Top. Bot.* Buxton's G. 13. *Whitehead's Fl.* +. 60. +. W. and W. 69. Near *Ulverston*; Miss Hodgson

Sesleria caerulea, Ard. 60. *Silverdale*; C. J. Ashfield, 1864. C. Bailey, 1875, and in several other loc. A. Wilson, 1902. +. 69. *Humphrey Head*. Dr. Windsor in *Phytol.* 1857. About *Grange*; J. G. Baker, 1885

Koeleria cristata, Pers. 59. *Aintree*; H. S. Fisher. 60. *Top. Bot.* Pinder MS. About *Silverdale*; A. Wilson, 1902

Catabrosa aquatica, Beauv. 59. *Top. Bot.* Buxton's G. Dickinson's *Fl.* R. Brown, H. S. Fisher, Rev. W. W. Mason, 1903, in litt. 60. Near *Borwick*, 1888; *Garstang*; A. Wilson. +

Melica nutans, L. 60. Near *Silverdale*, 1888. A. Wilson

Poa nemoralis, L. 59. *Top. Bot.* Near *Warrington*; Wm. Wilson. Buxton's G. 60. *Top. Bot.* Linton. *Arkolme*; +; A. Wilson. *Aiston*; H. Beesley. +. Wheldon and Wilson. 69. J. G. Baker, 1885

— *compressa*, L. 59. *Parkfield*, 1864. H. S. Fisher. *Walton*, 1892-1902. Wheldon in litt. 60. Wheldon, 1899. 69. J. G. Baker, 1885

Glyceria plicata, Fr. 59. *Top. Bot.* ! *Clayton Bridge*; J. Whitehead, 1887. 60. Between *Grimstargh* and *Aiston*; Wheldon in *J. of B.*, 1901. 69. *Dalton*; Miss Hodgson, 1874. *Skelwith*; *Dalton*; Baker, 1885

var. *pedicellata*, Town. 59. F. M. Webb

BOTANY

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES (continued)

Order XCII.—Gramineæ (continued)

- Glyceria maritima*, Mert. and Koch. 59. *Top. Bot.*! F. M. Webb. *Green's Fl.* 60. L. Petty, 1902, teste J. C. Melvill. 'Common on coast,' Wheldon and Wilson. 69. Below *Humphrey Head*; Dr. Windsor. Near *Holme Isle*; H. T. Soppitt, 1894
- *— *distans*, Wahlb. 59. *Top. Bot.*! F. M. Webb. *Kirkdale*; H. S. Fisher. Canal by *Boote*; casual, Wheldon.
- **Festuca procumbens*, Kunth. 59. *Top. Bot.* Tudor sp. *Dickinson's Fl.* (? native, Wheldon)
- *rigida*, Kunth. 59. *Top. Bot. Formby*; *Southport*; Dickinson. 60. Wheldon in *Bot. Exch. Cl. Rep.*, 1900. 69. *Grange*; T. J. Foggitt, 1885
- *uniglumis*, Soland. 59. *Top. Bot.* Tudor sp. *Dickinson's Fl. Formby*; *Birkdale*; Wheldon, 1900-4. Rev. W. W. Mason, 1902, in litt. 60. *St. Anne's*; Wheldon, 1897
- *rottbelloides*, Kunth. First as British, found by Mr. Newton and shown to Ray, at *Bare* about a mile from *Lancaster*. See Ray's *Fasc.* p. 11, 1688. 59. *Top. Bot.* 60. *Top. Bot. Heysham*, 1902. Rev. W. W. Mason, in litt. 69. *Walney I.*, 1902. Rev. W. W. Mason, in litt.
- *sciuroides*, Roth. 59. *Top. Bot. Kirkby*, 1904, Wheldon. 60. *Moss Side, St. Michael's*; Rev. P. J. Hornby. 69. Near *Lake Side Station*; Wm. West in *Rec. Club Rep.*, 1883. Near *Ferry Inn*; W. Foggitt; Wall . . . J. H. Lewis; in Baker's *Fl.*
- *ovina*, L. 59. *Top. Bot.* etc. 60. common, W. and W. 69. *Walney I.* Miss Hodgson
- *elator*, L. 59. *Top. Bot.* etc. 60. *Melling*; +; 1888. A. Wilson. 69. Miss Hodgson, 1874
- *silvatica*, Vill. 60. *Ease Gill, Leck*; A. Wilson in *J. of B.*, 1900, 46. Wood by the *Wyre* above *Dolphinholme*; A. Wilson. *Whitevell*; W. and W.
- Bromus giganteus*, L. 59. *Top. Bot. Reddish*; Buxton's G. etc. 60. Common. W. and W. 69. Miss Hodgson, 1874
- *— *racemosus*, L. 59. Canal bank, *Aintree*, 1901; Wheldon.
- Agropyron caninum*, Beauv. 59. *Top. Bot.* Robinson MS. *Southport*; Dickinson. Buxton's G. *Whitehead's Fl. Green's Fl.* 60. Between *Wray* and *Looser Salter*, 1887; A. Wilson. 69. Miss Hodgson, 1874.
- *pungens*, R. and S. 59. *Southport*; Wheldon in litt. 1903. 60. F. A. Lees in *Naturalist*, 1899 (f. littorale), *Fleetwood*; *Glasson*; *Preesall*; +; Wheldon and Wilson. *J. of B.* 1900. +. 69. *Walney I.*; Rev. A. Ley. *Cark*; below *Humphrey Head*. J. G. Baker, 1885

CLASS I.—PHÆNOGAMIA (continued)

SUB-CLASS II.—MONOCOTYLEDONES (continued)

Order XCII.—Gramineæ (continued)

- Agropyron acutum*, Auct. brit. 59. *Top. Bot.* F. M. Webb. J. H. Lewis. 69. (Probably a hybrid of *A. repens* × *junceum*)
- *junceum*, Beauv. 59. *Top. Bot.* F. M. Webb, 'common' . . . *Green's Fl.* 60. Common, W. and W. 69. Miss Hodgson
- Lepturus filiformis*, Trin. 59. Tudor sp. *Top. Bot.* Dickinson's *Fl. Ditton Marsh*; *Fidler's Ferry*; H. S. Fisher. *Crossens*, 1893; Wheldon. 60. +. W. and W. *Top. Bot.* Syme sp. 69. *Grange*; W. Foggitt in Baker's *Fl.* 1885. H. T. Soppitt, 1894, in *Naturalist*
- Hordeum silvaticum*, Huds. 69. *Grange*; J. G. Baker, 1885
- *secalinum*, Schreb. 59. *Top. Bot.* F. M. Webb. *Ditton Marsh*; H. S. Fisher. *Hale*; by the *Alt*; R. Brown
- *marinum*, Huds. (H. maritimum, With). 60. nr. *Lytham*, 1883; A. Wilson in *J. of B.* 1900
- Elymus arenarius*, L. 59. *Top. Bot. Southport*; Dickinson. N. of *Blundell's Islands*; R. Brown. *Crasby*. 60. +. A. Wilson, P. J. Hornby, etc.

CLASS III.—GYMNOSPERMÆ

XCIII.—Coniferæ (LXXVII. L.C.)

- Juniperus communis*, L. 60. C. J. Ashfield, 1864. +. A. Wilson, 1883. 69. Miss Hodgson, 1874, etc. ! [f. *nana* (Willd)]. 69. W. Wilson, Miss Hodgson]

XCIX.—Taxaceæ.

- Taxus baccata*, L. [59.] 60. C. J. Ashfield, 1864. A. Wilson, 1883. 69. Atkinson in *With.* ed. iii. 615. 1796. *Humphrey Hd.*; +; Baker's *Fl.* 1885

CLASS IV.—CRYPTOGAMIA VASCULARIA = PTERIDOPHYTA

XCIV.—Filices.

- [*Hymenophyllum tunbridgense*, Sm. ? 59. *Top. Bot.* 69]
- *unilaterale*, Bory. 59. *Top. Bot.* 60. *Clougha*; George Stabler, 1881. *Udale* district, 1902; O. *Wyresdale*, 1902; Wheldon and Wilson. *Top. Bot.* 69. *Conisten Old Man*; Miss M. Beever in *Phytol.* 1841. *Broughton-in-Furness*; 1902. R. J. Tillyard, Rev. W. W. Mason in litt.
- Cryptogramme crispa*, R.Br. 59. Buxton's G. 128. Leyland sp. *Top. Bot.* 60. *Top. Bot. Wyresdale*; A. Wilson in *J. of Bot.* 1901. +. W. and W. 69. Jackson in *With.* ed. iii. 764, 1796. About *Ulverston*; luxuriant on the Fells; Miss Hodgson !

A HISTORY OF LANCASHIRE

CLASS IV.—CRYPTOGAMIA VASCULARIA =

PTERIDOPHYTA (continued)

Order XCV.—Filices (continued)

- Asplenium Adiantum-nigrum*, L. 59. *Top. Bot. Kirkby*; Hall. *Hale*; +; Dickinson. *Tyldesley*; Buxton's G. 60. *Trocobarrow*, *Silverdale*; Nr. *Leck*; 1883, L. Petty. +. W. and W. 69. *Coniston*; Miss M. Beever in *Phytol.* 1843. Nr. *Humphrey Head*; Dr. Windsor in *Phytol.* 1857, etc.
- *marinum*, L. 59. Hall sp. *Top. Bot. Dingle rocks*; Hall, seen as recently as 1895, Green's *Fl.* 60. *Top. Bot.* coast of north district, 1884 and since; A. Wilson. 1902, Rev. W. W. Mason in litt. 69. *Ruins of Piel Castle, Piel I.*; Miss Hodgson. *L. Allitwaite*, 1902; Rev. W. W. Mason in litt.
- *viride*, Huds. 59. *Top. Bot.*? 60. A. Wilson in *B.R.C. Rep.* 1887. 69. *Gaithwaite Moor*. . . Mrs. Woodhouse in Miss Hodgson's paper in *J. of Bot.* 1874. *Coniston O. M.*; Baker's *Fl.* 1885
- Ceterach officinarum*, Willd. 59. ? *Top. Bot.* 60. *Top. Bot. Silverdale*. Known since 1859. L. Petty, 1902. +. W. and W. 69. Dr. Windsor. Miss Hodgson, +. 1874. Ch. Bailey confirmed Dr. Windsor's record, Baker's *Fl.* 1885. *Coniston*; Miss Beever, *Windermere*; J. Coward in Baker's *Fl. Grange*; *Torver*; 1902. Rev. W. W. Mason in litt.
- Cystopteris fragilis*, Bernh. 60. *Top. Bot. Linton*. In districts 1, 2, 3, 6, 7 and 8. W. and W. *Warton*; +; L. Petty. 69. Miss M. Beever in *Phytol.* 1843. Dr. Windsor in *Phytol.* 1857
- var. *dentata*, Hook, 60
- Polystichum lobatum*, Presl. 59. *Top. Bot.* F. M. Webb, Nr. *Knowsley*; Dickinson. Nr. *Warrington*; J. F. Robinson. *Upholland (aculeatum)*, C. T. Green in *Fl. of L'pool.*, 1902. 60. *Top. Bot. (aculeatum)*. *Hodder Banks*; +; *Fl. Stonyhurst*. 69. Miss M. Beever, 1843. Dr. Windsor, 1860. Both in *Phytol.*
- *angulare*, Presl. 59. *Top. Bot.* F. M. Webb. Dickinson's *Fl.* Nr. *Warrington*; F. J. Robinson. 60. *Fl. Stonyhurst*. Miss M. Beever, 1843. Mr. and Mrs. Hodgson in Miss Hodgson's paper in *J. of B.* 1874
- Lastrea Thelypteris*, Presl. 69. Miss Hodgson, 1853, in *J. of B.* 1874. J. Coward, Baker's *Fl.* 1885
- *rigida*, Presl. Lancashire; Hooker, *Ferns of Gt. Britain*, 16. 59. *Top. Bot.* 60. *Top. Bot. Silverdale*, 1843. Smythes. A. Wilson in *J. of Bot.* Oct. 1902. 69. E. T. Bennett, *J. of Bot.* 1885. Baker's *Fl.* 1885

CLASS IV.—CRYPTOGAMIA VASCULARIA =

PTERIDOPHYTA (continued)

Order XCV.—Filices (continued)

- Lastrea spinulosa*, Presl. 59. *Top. Bot. Dickinson's Fl. Simonswood Moss*, 1902; Wheldon. 60. +. W. and W. 69. Linton, 1864. J. C. Melvill, 1865. Miss Hodgson, 1874
- *æmula*, Brackenridge. 69. Miss Hodgson, 1874, in *J. of B.* Baker's *Fl.* 1885
- Phegopteris Dryopteris*, Fée. 59. *Top. Bot. Dickinson's Fl. Buxton's G.* 129. 60. *Top. Bot. Fl. Stonyhurst. Hindburn*; A. Wilson in *J. of B.* 1900. +. W. and W. 69. Miss M. Beever in *Phytol.* 1843. J. C. Melvill, 1865. Miss Hodgson, 1874. A. W. Bennett and Baker's *Fl.* 1885
- *calcareo*, Fée. 59. Leyland sp. *Top. Bot.* (?) 60. *Ease Gill, Leck*; 1883. L. Petty. +. W. and W. 69. *Hampfield Fell*; Mr. Douthwaite in Miss Hodgson's paper *J. of B.* 1874
- *polypodioides*, Fée. 59. *Top. Bot. Dickinson's Fl. Buxton's G.* 129. 60. *Top. Bot. Linton. Leck Fell*; Petty. O. Wyre-dale; W. and W. 1901. +. 69. Pinder in *Phytol.* 184. Miss Hodgson, 1874. Baker's *Fl.* 1885.
- XCVI. *Equisetaceæ*
- Equisetum pratense*, Ehrh. 59 ? *Top. Bot.*
- *hyemale*, L. 59. Goodlad Hb. *Top. Bot.* 60. Nr. *Halton*, 1899; A. Wilson. 69. Mr. Gabriel Baimi in Miss Hodgson's paper, 1874. (Lancashire; Ray, Merret)
- *variegatum*, Schleich. 59. *Top. Bot. F. M. Webb. Blundellsands; Formby; Birkdale*; Wheldon. 60. *St. Anne's; South Shore*. 69. On the shore nr. the road to *Holme Isle*; C. C. Barington in Baker's *Fl.* 1885
- XCVII. *Lycopodiaceæ*
- Lycopodium Selago*, L. Lancashire; Hudson, 1778. 59. *Top. Bot. Goodlad Hb.* Dickinson's *Fl.* 60. *Top. Bot. Linton. Wheldon and Wilson*, 1901. ! 69. Jackson in Withering, ed. iii. 1796. Miss Hodgson, 1874. !
- *inundatum*, L. 59. Hobson sp. *Top. Bot. Hale*; Dr. Carrington. *Formby*; H. S. Fisher. (error ? selaginella, Wheldon in litt. 1904)
- *clavatum*, L. 59. Goodlad Hb. *Top. Bot. Buxton's G.* 133. Dickinson's *Fl.* 60. +. W. and W. 69. Miss M. Beever, 1841. *Phytol.* Miss Hodgson, 1874. Rev. W. W. Mason in litt. 1902.
- *alpinum*, L. 59. *Top. Bot.* 60. *Greygarth Fell and Ease Gill*; A. Wilson. ! 69. Jackson in With. ed. iii. 759, 1796. Miss M. Beever. Miss Hodgson !

BOTANY

CLASS IV.—CRYPTOGAMIA VASCULARIA — PTERIDOPHYTA (continued)

XCVIII. *Selaginellaceæ*

- Selaginella selaginoides*, Gray. 59. ! *Top. Bot. Dickinson's Fl.* H. E. Smith. *Birkdale*; Wheldon. +. 60. Wheldon and Wilson. +. 69. Miss M. Beaver in *Phytol.* 1841, 90. W. F. Miller, 1882, *J. of B.* 347
- Isoteles *lacustris*, L. 69. Neighbourhood of *Coniston*; Miss M. Beaver, *Phytol.* 1842, 154

XCIX. *Marsileaceæ*

- Pilularia globulifera*, L. 59. *Top. Bot. Allerton*; Hall. *Formby*; Dickinson, F. M. Webb

In the following orders the sign * means sub-species.

CLASS V.—CRYPTOGAMIA CELLULARIA

SUB-CLASS—MUSCINEÆ

Order—Musci

Sub-Order I.—Sphagnaceæ

Section I.—*Sphagna acutifolia*, Schimp.

- Sphagnum fimbriatum*, Wils. 59. *Rainford Moss*; *Parr Moss*; *Marrat. Whiteley Dean*; Holt. *Reddish*; (*Warbrack Moor*; extinct, J. A. Wheldon); *Whitehead*. 60. *Calder Valley*; *Grizedale*; A. Wilson. *Damas Gill Head*; W. and W. +.
- var. *tenuë*, Grav. 60. *Cockerham Moss*; also f. *compacta*.
- var. *robustum*, Br. 60. *Thrusbigill, Hindburn*; W. and W.
- *Russowii*, Warnst. var. *virescens*, Russ. 60. *Gaton Moor*; W. and W.
- var. *rhodochromum*, Russ. 60. *Tatham Beck*; *Hindburn*; A. Wilson; *Grizedale, Abbeystead*; W. and W.
- *Warnstorffii*, Russ. var. *versicolor*, Russ. 60. *Marshaw Fell*, A. Wilson. *Over Wyresdale*; W. and W. +.
- var. *viride*, Russ. 60. *Bog nr. Docker*; A. Wilson.
- var. *flavescens*, Warnst. 60. *Cockerham Moss*; W. and W.
- *rubellum*, Wils. var. *flavum*, C. Jens. 60. *Cockerham Moss*; W. and W.
- var. *purpurascens*, Warnst. 60. *O. Wyresdale*; +; W. and W.
- var. *rubrum*, Grav. 60. *O. Wyresdale*; +; W. and W. 69. *Newby Bridge*; Paul in *Horrell's Sphagn.* p. 24
- var. *versicolor*, Warnst. 60. *O. Wyresdale*; +; W. and W. *Greygarth Fell*.
- var. *pallescens*, Warnst. 60. *Cockerham Moss*; W. and W. +
- *fuscum*, Klinggr. var. *fuscescens*, Klinggr. 60. *Cockerham Moss*; W. and W.
- var. *pallescens*, R. and W. 60. *Cockerham Moss*; Wheldon and Jones
- *acutifolium*, R. and W. var. *flavo-rubellum*, W. 60. *Mallowdale Fell*; +; W. and W.

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

- Sphagnum acutifolium*, R. and W. (continued)
- var. *griseum*, W. 60. *Longridge Fell*; +; W. and W.
- var. *pallescens*, W. 60. *Mallowdale Fell*; +; Wheldon
- var. *pallido-glaucescens*, W. 60. *Harris End Fell*; A. Wilson
- var. *rubrum*, W. 60. *Clougha*; Wheldon. *Lower Salter*; A. Wilson
- var. *versicolor*, W. 60. *O. Wyresdale*; W. and W. *Ease Gill. Greygarth Fell*
- f. *robusta*. 60. *Tarnbrook Fell*; A. Wilson
- var. *viride*, W. 60. *O. Wyresdale*; +; W. and W. *Leck Fell*. 69. *Coniston Old Man*. 29 Oct. 1903
- *quinquefarium*, W. var. *fusco-flavum*, W. 60. *Greygarth Fell*; W. and W.
- var. *pallescens*, W. 60. *Leck Fell*; W. and W.
- var. *roseum*, W. 60. *Greygarth Fell*; W. and W.
- var. *viride*, W. 60. *Clougha*; Wheldon. +
- *subnitens*, R. and W. var. *flavescens*, W. 60. *Gressingham Moor*; Wilson. *Clougha*; Wheldon
- var. *flavo-rubellum*, W. 60. *Longridge Fell*; +; W. and W.
- var. *griseum*, W. 60. *Upper Ease Gill*; A. Wilson
- var. *obscurum*, W. 60. *O. Wyresdale*; +; W. and W.
- var. *pallescens*, W. 60. *Upper Grizedale*; A. Wilson
- var. *versicolor*, W. 60. *Upper Grizedale*; +; A. Wilson. 69. *Coniston Old Man* (1780 feet)
- var. *violascens*, W. 60. *O. Wyresdale*; +; W. and W. 69. *Coniston Old Man* (1150 feet)
- var. *virescens* W. 59. *Barton Moss, nr. Southport*; Wheldon. +. 60. *Clougha Scar*; Wheldon and Beesley. +. *Fairnape Clough*; A. Wilson. 69. *Coniston Old Man* (1780 feet)
- Section II.—*Sphagna squarrosa*, Schimp.
- *squarrosum*, Pers. 59. *Rainford Moss*; Higgins. *Middleton*; *Whitehead. Whiteley Dean*; *Belfield. Netherton*; Wheldon
- var. *spectabile*, R. 60. *Mallowdale Fell*; +; W. and W.
- var. *subsquarrosum*, R. 60. *Calder Valley*; *Mallowdale Fell*; W. and W.
- var. *imbricatum*, Schimp. 59. *Netherton*; Wheldon
- *teres*, Ångstr. var. *squarrosulum*, W. 59. *Netherton*; Wheldon. 60. *Cockerham Moss*; W. and W.
- var. *subsquarrosum*, W. 59. *Netherton*; Wheldon

A HISTORY OF LANCASHIRE

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINÆ (continued)

Order—Musci (continued)

Section III.—*Sphagna cuspidata*, Schimp.

- Sphagnum riparium*, Ångstr. 60. *Cockerham Moss*; H. Beesley, J. A. Wheldon, and A. Wilson. This handsome peat moss has been found in only one other locality in England (E. Cornw.)
- *cuspidatum*, R. and W. 59. *Woolston Moss*; W. Wilson. *Rainford Moss*; *Simonswood Moss*; Harrison and Skellon. *Crosby*; Tudor. *Walton*; Gasking (extinct, J.A.W.). 60. Common on the fells and mosses; W. and W. + var. *falcatum*, R. 59. *Whiteley Dean*; Holt. 60. *Upper Grizedale*; +; W. and W.
- var. *submersum*, Schimp. 59. 60. Common on all the fells, W. and W.
- var. *plumosum*, Nees and Hornsch. 59. *Netherton*; *Pendle Hill*; Wheldon. 60. *Cockerham Moss*; W. and W. Nr. *Scorton*; H. Beesley. [59. *Whiteley Dean*; *Rooley Moor*; Holt (require confirmation)]
- var. *densissimum*, Horrell in litt. Summit of *Greygarth Fell*. 21 Oct. 1903.
- *trinitense*, C. Müll. 60. *Cockerham Moss*; *Longridge Fell*; Wheldon. *Lower Bleasdale*; A. Wilson
- *pulchrum*, W. +. 60. *Cockerham Moss*; Wheldon. *U. Roeburndale*; A. Wilson. Nr. *Abbystead*; W. and W.
- *Torreyanum*, Sulliv. 60. *Mallowdale Fell*; W. and W. (teste Horrell and Warnstorf)
- *obtusum*, W. 59. Nr. *Aintree*, about 6 miles from *Liverpool Town Hall*; Wheldon, in litt. (confd. by Warnstorf and Horrell). 60. *Cockerham Moss*; Wheldon and Wilson
- var. *tenellum* W. 59. With the type, Wheldon
- These are the only known stations in Britain at the time of writing this article
- *recurvum*, R. and W. Very common on the fells and mosses; W. and W. +. 59. *Pendle Hill*; *Netherton*; Wheldon. 60. *Mallowdale Fell*; W. and W.
- var. *amblyphyllum*, Warnst. 59. *Netherton*; Wh. 60. +. W. and W. *Longridge Fell*; H. Beesley. *Upper Roeburndale*; nr. *Docker*; W. and W. *Greygarth Fell*
- var. *micronatum*, W. 59. *Netherton*. +. Wheldon. 60. *O. Wyresdale*; +; W. and W. *Leck Fell*. *Greygarth Fell*. 69. *Coniston Old Man*. The commonest peat moss in the county, and probably in Britain
- *molluscum*, Bruch. 60. *O. Wyresdale*; *Tarnbrook Fell*; W. and W. +. *Ease Gill*; *Whitmoor*; A. Wilson. *Cockerham Moss* (f. *compacta*, W); W. and W.

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINÆ (continued)

Order—Musci (continued)

Section V.—*Sphagna rigida*, Schimp.

- Sphagnum compactum*, DC. Frequent on the drier fells; W. and W. + var. *imbricatum*, W. 60. *O. Wyresdale*; +; W. and W.
- var. *subquarrosium*, W. 60. *Longridge Fell*; +; W. and W.

Section VII.—*Sphagna subsecunda*, Schimp.

- *contortum* (Schultz), Limpr. Syn. S. *laricinum*, Spruce MS. 1847. 60. *Wolfhole Crag*; A. Wilson. Very fine and abundant in the bog at *Docker*; W. and W. +
- *subsecundum*, Limpr. 60. *Longridge*; H. Beesley, Wheldon. Summit of *Greygarth Fell*; W. and W.
- *inundatum*, W. 60. *Lords Lot Wood*, *Arkholme*; A. Wilson. *Catforth*; *Longridge*; H. Beesley
- *Gravetii*, W. 60. *Tatham Beck*; A. Wilson. *Harris End Fell*; W. and W. +. Nr. *Fulwood*; H. Beesley
- *rufescens*, W. Common on the fells and mosses; W. and W. 60. *O. Wyresdale*; +; W. and W. 69. *Coniston Old Man*
- *aquatile*, W. 60. *Whitmoor*; W. and W. (first station recorded for Britain). *Longridge Fell*; Wheldon. *Tarnbrook Fell*; W. and W.
- *crassicladium*, W. 60. Slope of *Fairnope Fell*; Wh. *Harris End Fell*; A. Wilson. *Udale*; +; W. and W.

Section VIII.—*Sphagna cymbifolia*, Schimp.

- *turfaceum*, W. 59. *Rainford Moss*; Wheldon. 60. *Clougha*; +; W. and W.
- *cymbifolium*, W. 59. *Pendle Hill*; Wheldon. *Woolston Moss*; W. Wilson. *Whiteley Dean*; Holt
- var. *glaucescens*, Warnst. 59. Wh. 60. *O. Wyresdale*; +; W. and W.
- var. *Scorton*; H. Beesley. *Greygarth Fell*, 21 Oct. 1903. 69. *Newby Bridge*; Paul. *Coniston Old Man*. 29 Oct. 1903
- var. *glauco-pallens*, W. 59. Wh. 60. *O. Wyresdale*; +; W. and W.
- var. *pallenscens*, W. 60. *Longridge Fell*; +; W. and W.
- var. *flavo-glaucescens*, Russ. 60. *Hd. of Damas Gill*; W. and W.
- var. *carneum*, W. 60. Bog nr. *Docker*; *Arkholme Moor*; A. Wilson. *Hd. of Damas Gill*; W. and W.
- *papillosum*, Lindb. 59. *Rooley Moor*; *Whiteley Dean*; *Syke*; Holt
- var. *normale*, Warnst. 59. *Barnton Moss*, *Southport*; Wheldon. +. 60. Common on the fells. *O. Wyresdale*; +; W. and W. *Greygarth Fell*. 69. *Coniston Old Man*.

BOTANY

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musi (continued)

Sect. VIII.—Sphagna cymbifolia, Schimp. (cont.)

- Sphagnum papillosum*, Lindb. (continued)
f. conferta (Lindb.), W. 60. Common on the fells; W. and W. 59. *Barton Moss, Southport*; Wheldon
 var. *sublaeve*, Limpr. 60. Frequent on the fells; W. and W. +. 69. *Newby Bridge*; Paul
 — *medium*, Limpr. var. *roseum*, W. 60. O. *Wyresdale*; +; W. and W.
 var. *rosco-pallescens*, W. 60. *Walfbole Crag*; A. Wilson. *Cockerham Moss*; W. and W.
 var. *glauco-purpurascens*, Russ. 60. *Tatham Moor*; W. and W.

Sub-Order II.—Andreaeaceæ

- Andreaea petrophila*, Ehrh. 60. Silurian rocks, nr. *Leck Beck*; A. Wilson. Grit rocks, nr. the summit of *Greygarth Fell*; +; W. and W.
 — *Rothii*, Webb and Mohr. 60. *Roeburndale*; + 9 other localities; W. and W.
 var. *falcata*, Lindb. 60. *Hawthornthwaite*; *Catsbaw Greaves*; W. and W.
 * — *crassinervia*, Bruch. 60. U. *Roeburndale*; *Gt. Clough of Tarbrook Fell*; W. and W. 69. *Coniston Old Man*.

Sub-Order III.—Tetraphidaceæ

- Tetraphis Browniana*, Grev. 60. Nr. *Hindburn*; W. and W. *Harter Beck*; *Roeburndale*; Wilson. Fall of the *Keer*, in *Wasb Dub Wood*; W. and W. +

Sub-Order IV.—Polytrichaceæ

- Catharinaea crispa*, James. 59. Nowell, Whitehead, and Wheldon. 60. A characteristic plant of this part of the county, on Millstone Grit uplands, by streams; W. and W. +
 — *undulata*, Web. and Mohr. var. *Hausknechtii* (Broth.), Dixon. 59. *Walton*; Wheldon
Oligotrichum incurvum, Lindb. 59. *Rooley Moor*; Wheldon. 60. *Wyresdale*; +; W. and W.
Polytrichum nanum, Neck. 59. Harrison, Percival, Buxton's *Guide App.* 60. *Gatebarrow Woods*, nr. *Silverdale*; Wilson. 69. Pathside, on muddy pulverized slate, *Coniston Old Man*
 — *aloides*, Hedw. 59. *Ashton-under-Lyne*; +. Wheldon. 60. +. *Silverdale*; *Longridge Fell*; W. and W. 69. *Grange*; A. Wilson
 var. *Dicksoni*, Wallm. 59. *Prestwich*; Buxton's G. 60. Nr. *Lancaster*; Wh.
 — *alpinum*, L. 60. O. *Wyresdale*, descending to 600 feet; +; W. and W.
 — *gracile*, Dicks. 59. *Rainsford Moss*; +; Wheldon, Beesley, Whitehead, etc. 60. *Cockerham Moss*; *Rawcliffe Moss*; A. Wilson.

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musi (continued)

Sub-Order IV.—Polytrichaceæ (cont.)

- Polytrichum strictum*, Banks. 59. *Pendle Hill*; Wheldon. 60. O. *Wyresdale*; +; W. and W. *Greygarth Fell*. Locally abundant. 69. *Coniston*

Sub-Order V.—Buxbaumiaceæ

- Diphyscium foliosum*, Mohr. 60. Scars, N.W. side of *Wardstone*; W. and W. Silurian rocks, *Ease Gill*, May, 1903; c. fr.; A. Wilson in litt.

Sub-Order VI.—Dicranaceæ

- Archidium alternifolium*, Schimp. 59. *Hyde Road, Manchester*; Hunt
Pleuridium axillare, Lindb. 59. *Ashton*; Whitehead. *Burnley*; *Dearden Hulme*; nr. *Warrington*; W. Wilson. +. 60. *Calder Valley*; W. and W.
 — *subulatum*, Rab. 59. *Roby*; Harrison. Nr. *Warrington*; W. Wilson. *Pikington*; *Blackley*; Buxton's G. 60. *Silverdale*; A. Wilson
 — *alternifolium*, Rab. 59. Nr. *Liverpool*; Taylor. 60. Nr. *Blackpool*; Wheldon. *Cottam*; H. Beesley
Ditrichum homomallum, Hampe. 59. *Cūtherae*; Wheldon. 60. Common in the East, not always barren. W. and W.
 — *flexicaule*, Hampe. 59. *Southport*; *Marrat*. *Croby*; *Skellon*; Wheldon. 60. *St. Anne's*; H. Beesley. 60. *Silverdale*; frequent in this part of the county, always barren; +; W. and W.
Swartzia montana, Lindb. 60. *Ease Gill*, c. fr.; A. Wilson. By the *Greta*; W. and W.
Seligeria pusilla, B. and S. 60. *Caton*; Wheldon
 — *recurvata*, B. and S. 59. *Bamford Wood*; Whitehead. *Ashworth Wood*; Wheldon. 60. *Caton*; Wheldon. Nr. *Kirkby Lonsdale*; W. and W.
Brachyodus trichodes, Fūrn. 59. *Bolton*; *Ainstooth*; *Scholefield*. 60. Nr. the foot of *Gravell's Clough*, c. fr.; +; W. and W.
Dichodontium flavescens, Lindb. 59. *Pendle Hill*; Wheldon. *Bamford*; Buxton's G. 60. Not uncommon by streams. Nr. *Lancaster*; Holt. *Caton*; +; Wheldon
Dicranella crispa, Schimp. 59. *Oldham*; Whitehead. *Prestwich*; *Tatlow*. Nr. *Warrington*; W. Wilson
 — *secunda*, Lindb. 59. *Baggart Hole Clough*; Kent. *Sailor's Shore*; Percival. *Radcliffe*; Buxton's G.
 — *rufescens*, Schimp. 59. Wheldon's paper, *J. of B.* Jan. 1899. 60. *Hindburn*; +; W. and W.
 — *Schreberi*, Schimp. 59. Nr. *Bardsley*; Wheldon. *Rochdale*; Holt. +; Buxton's G. etc. 60. Nr. *Lancaster*; Hamilton

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CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-Order VI.—Dicranaceæ (cont.)

- Dicranella squarrosa*, Schimp. 59. *Bamford Wood*; Whitehead. *Healey Thraitch*; W. Wilson. *Pendle Hill*; Wheldon. 60. *Udale*; +; W. and W. *Leck Fell*. 69. *Coniston Old Man*
- Blindia acuta*, B. and S. 59. *Bamford Wood*; Holt. 60. *O. Wyresdale*; W. and W. *Gravell's Clough*; *Greygarth Fell*; A. Wilson.
- var. *trichodes*, Braithw. 59. Wheldon
[*Dicranoweisia crispula*, Lindb. 59. *Rochdale*; +]
- Campylopus flexuosus*, Brid. Common on the fells. 59. 60. 69
- var. *uliginosus*, Ren. 60. +; A. Wilson
- var. *paradoxus*, Husn. 60. *Halton*; +; W. and W.
- var. *zonatus*, Milde. 60. *Clougha*; +; W. and W.
- *— *pyriformis*, B. and S. 59, 60. Common; W. and W. *C. fragilis*, B. & S. 59. 60. W. and W.
- *atrovirens*, De Not. 60. *Clougha*; +; W. and W. 69. *Coniston Old Man*
- *brevipilus*, B. and S. 60. 'Rare.' *Clougha*; 1881. G. Stabler
- Dicranodontium longirostre*, B. and S. 60. *Hell Crag*, *Tarnbrook Fell*; *O. Wyresdale*; W. and W.
- var. *alpinum*, Schimp. 60. *Thrusghill Fell*; *Greygarth Fell*; A. Wilson
- Dicranum Bergeri*, Bland. 59. *Risley Moss*; W. Wilson
- *scoparium*, Hedw. 59. 60. 69
- var. *orthophyllum*, Brid. 59. 60. W. and W.
- var. *turfosum*, Boul. 60. W. and W.
- var. *paludosum*, Schimp. 60. *Whittington Moor*; *Dalton Hall*; A. Wilson
- var. *ericetorum*, Corbiere. 60. *Cockersham Moss*; +; W. and W.
- var. *spadiceum*, Boul. 60. *Greygarth Fell*, 2,000 ft.; +; A. Wilson (rare)
- *fuscescens*, Turn. 60. *O. Wyresdale*; +; c. fr. in several localities; W. and W. 69. *Coniston Old Man*
- var. *falcifolium*, Braith. 60. *Clougha*; Wheldon. *Upper Roeburdale*; A. Wilson

Sub-Order VII.—Fissidentaceæ

- Fissidens exilis*, Hedw. 59. 60. *Blackpool*; Wheldon. *Lea*; H. Beesley
- *viridulus*, Wahl. 59. *Walton*; nr. *Aintree*; Wheldon. 60. *Bank of Wyre*; +; Wheldon
- var. *Lylei*, Wils. 59. *Kirkby*; Wheldon and Beesley. *Rainford*; Wheldon. 60. Nr. *Garstang*; A. Wilson
- *pustillus*, Wils. 59. *Winwick*; W. Wilson. 60. W. and W.
- *incurvus*, Starke. 59. 60. Nr. *Stonyhurst*; Wheldon

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-Order VII.—Fissidentaceæ (cont.)

- Fissidens tamarindifolus*, Wils. 59. *Ashton*; Whitehead. *Clifton Junction*; Hunt
- *bryoides*, Hedw. 59. 60. 69
- *crassipes*, Wils. 59. *Hulme*; W. Wilson. 60. *Crook of Lune*; W. and W.
- *osmundoides*, Hedw. 59. *Fo Edge*; *Scand Moor*; Percival. *Whiteley Dean*; Holt. 60. Nr. *Gravell's Clough*, c. fr.; W. and W.
- *adiantoides*, Hedw. 59. 60. 69
- *decipiens*, De Not. 60. Only on the limestone in the north; W. and W. +
- *taxifolius*, Hedw. 59. 60. 69

Sub-Order VIII.—Grimmiaceæ

- Grimmia maritima*, Turn. 59. *Dingle*; Marrat. 60. Abundant on rocks about *Lower Heysham*; Wheldon
- *Doniana*, Sm. 59. 60. *Clougha*; *Wolf Fell*; *Greygarth Fell*; A. Wilson. 69. *Coniston Old Man*
- *trichophylla*, Grev. 59. *Aigburth*; *Garston*; Marrat
- Rhacomitrium aciculare*, (L.), Brid. 60. Frequent among the fells. *O. Wyresdale*; W. and W. *Ease Gill*
- var. *denticulatum*, Wils. 59. Nr. *Bolton*; *Scholefield*
- *protensum*, Braun. 60. Nr. *Dolphinholme*; Wheldon. 69. *Coniston*
- *fasciculare* (Schrad.), Brid. 59. *Pendle Hill*; Wheldon. [*Smithdown Lane*; Marrat, etc.; extinct.] 60. Common in the hilly districts, *O. Wyresdale*; +; W. and W.
- *heterostichum* (Hedw.), Brid. 59. *Aigburth*; *Smithdown Lane*; Marrat. *West Derby*; Skellon. Probably extinct, Wheldon. 60. Frequent on the fells; +; W. and W.
- var. *alopecurum*, Hüb. 60. *Ease Gill*; *U. Roeburdale*; A. Wilson. 69. Abundant on *Coniston Old Man*. Some forms approaching type
- var. *graciliscens*, B. and S. 60. *Greygarth Fell*, 2,000 feet. A. Wilson. 69. *Coniston Old Man*, 2,630 feet
- *lanuginosum*, Brid. 60. Common. W. and W. 69. *Hamps Fell*; A. Wilson, MS. *Coniston Old Man*
- *canescens*, Brid. 60. Nr. *Marsibaw*, *O. Wyresdale*. +. W. and W.
- Coscindon cribrus* (Hedw.), Spreng. 69. *Coniston*; Binstead, Holt
- Ptychomitrium polyphyllum* (Dicks), Füttnr. 59. *Walton*; Skellon. *Garston*; Sansom. (Extinct, Wheldon in litt.) *Worston*; Wheldon. 60. *Longridge Fell*; *Clougha*; *Damas Gill*; Wheldon. *Garstang*; +; A. Wilson. *Ease Gill*; W. and W. 69. Nr. *Grange*; A. Wilson, MS.
- Hedwigia ciliata*, Ehrh. 69. Nr. *Higher Newton*, on Silurian rocks; A. Wilson, MS.

BOTANY

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-order IX.—Tortulacæ

- Acaulon muticum* (Schreb.), C. Müll. 59. *Maghall*; *Skirby*; *Walton*; *Wheldon*. Nr. *Blackley*; *Buxton's G.*
- *— *mediterraneum*, Limpr. 60. Muddy bank nr. *Biopham*; *H. Beesley*
- Pottia recta*, Mitt. 59. *Manchester*; *Hunt*. 60. Nr. *Garstang*; *A. Wilson*. Nr. *Carnforth*; *Silverdale*; +; *W. and W.*
- *Heimii* (Hedw.), Fűrnr. 59. *Southport*; *Marrat*. Nr. *Warrington*; *W. Wilson*. *Hightown*; +; *Wheldon*. 60. Frequent along the coast; *W. and W. Lytham*; *Yates*, *Wheldon*. +; *Wh.*
- *intermedia*, Fűrnr. 59. 60. and f. *littoralis* (Mitt.), *W. and W.*
- *Wilsoni*, B. and S. 59. *Southport*; *Wild*, 1876
- *minutula*, Fűrnr. 59. Very frequent, *Walton*; *Aintree*; +; *Wheldon*. 60. *Caton*; +; *Wheldon*. *Tunbrook Wood*; *H. Beesley*. *Chipping*; *A. Wilson*
- *lancoelata*, Fűrnr. 60. Nr. *Silverdale*; *A. Wilson*
- Tortula pusilla* (Hedw.), Mitt. 59. Between *Broadgreen* and *Roby*; *Harrison*
- *rigida*, Schrad. 59. *Blackburn*; *Burnley*; *Hunt*. Nr. *Maghall*; *Wheldon*
- *ambigua*, Ångstr. 60. *Garstang*; +; *A. Wilson*. *Scorton*; *H. Beesley*
- *aloides*, De Not. 59. *Blackburn*; *Hunt*. *Walton*; *Wheldon*. *Burnley*; *Scholefield*. 60. *Lytham*; *Wheldon*. +. *W. and W.*
- *mutica*, Lindb. 59. *Mitton*; *Glitheroe*; *Chatburn*; *Wheldon*. 60. Nr. *Stonyhurst*; nr. *Lancaster*; nr. *Kirkby Lonsdale*; +; *W. and W.*
- *ruralis*, Ehrh. 60. *Silverdale*; nr. *Whitewell*; *Wheldon*. 'Rare'
- *— *ruraliformis*, Dixon. (*T. ruralis* var. *arenicola*, Braithw.) 59. *Southport*; *Hunt*. Frequent from *Crosby* to *Southport*; *Wheldon*. 60. Abundant on the sand-hills; *Wheldon*
- *papillosa*, Wils. 60. 'Very rare.' *Silverdale*; *Nowell*. Nr. *Heysham*; *Wheldon*
- Barbula lurida*, Lindb. 60. 'Rare,' *Caton*; +; *Wheldon*
- *spadicea*, Mitt. 59. *Pendle Hill*; *Wheldon*. 60. *Preston*; *Ease Gill*; +; *W. and W.*
- *recurvifolia*, Schimp. 60. *Silverdale*; +; *W. and W.*
- *cylindrica*, Schimp. 59. *Chatburn*; *Wheldon*. 60. +. *W. and W.*
- *— *vinealis*, Brid. 59. *Southport*; *Marrat*. *Walton*; +; *Wheldon*. 60. Most frequent on the sandhill; +. *W. and W.*
- *sinuosa*, Braithw. 60. *Silverdale*; *Wheldon*

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-Order IX.—Tortulacæ (cont.)

- Barbula Hornschuchiana*, Schultz. 59. *Newton*; *W. Wilson*. *Burnley*; *Dearden*. *Southport*; *Wheldon*. 60. *Thrang End*; nr. *Blackpool*; *W. and W. St. Anne's*; *Wheldon*
- *revoluta*, Brid. 59. *Childwall*; *Harrison*. *Clifton*; *Heugh End Hall*; *Buxton's G.*
- Leptodontium flexifolium* (Dicks), Hampe. 59. *Manchester*; *Hobson*. 60. Nr. *Lancaster*; *Holt*. *Greygarth Fell*; *W. and W.* +. *Clougha*; *Wheldon*
- Weisia crispata*, C. Müll. 60. Confined to the scar limestone of the north, where it is abundant. *Silverdale*; *Borwick*; *Warton*; *A. Wilson*. *Tealand*; *Troabarrow*; *Thrang End*; +; *Wheldon*. *Dalton Crag*, *W. and W.* 69. *Grange*; *A. Wilson*, MS.
Grows in rock crevices often with *Funaria calcarea* and *Bryum murale*, also with *Polygonatum offic.*, *L. rigida*, *Polyp. calc.*, *Hylacom. rugosum*, and *Scap. aspera*; *Wheldon*. See *J. of B.* Sept. 1899, p. 375
- *squarrosa*, C.M. 59. Nr. *Parkside*; *W. Wilson*. *Walton*; *Wheldon*. 60. *Coat Banks*, *Preesall*; *Wheldon*
- *microstoma*, C.M. 59. *Walton*; *Wheldon*. *Kersal Moor*; *Buxton's G.* 60. *Whitewell*; *F. C. King*. *Silverdale*; *W. and W. Preesall*; *Wheldon*
- *tenuis*, C. M. 59. *Broughton*; *Holt* and *Wild*
- *rupestris*, C. M. 59. 60. +. *W. and W.*
- *verticillata*, (L.), Brid. 60. *Garstang*; *A. Wilson*. *Wash Dub Wood*; nr. *Abbeystead*; *W. and W.* +
- Trichostomum crispulum*, Bruch. 59. *Chatburn*; *Wheldon*. 60. Apparently only on the limestone area. *Dalton Crag*; +; *W. and W.*
- *mutabile*, Bruch. 59. *Dingle*; *Marrat*. *Gasking*, 1898, *Wheldon*. 60. *Silverdale*; *Lindeth*; *Wheldon*. *Lancaster*; *W. P. Hamilton*
var. *littoralis*, Dixon. 59. *Southport*; *Cash*. *Hall Road*; *Wheldon*. 60. *Silverdale*; *A. Wilson*
var. *cophocarpum*, Schimp. 60. *Silverdale*; *Wheldon*
- *flavovirens*, Bruch. 60. *St. Anne's*; *Cash*. *Lytham*; *Preesall*; *Heysham*; *Wheldon*
- *nitidum*, Schimp. 59. *Pendle Hill*; *Chatburn* (var.); *Wheldon*. 60. Common on the scar limestone, *Silverdale*; +; *W. and W.*
- *tortuosum*, (L.), Dixon. 60. Frequent. *Silverdale*; +; *W. and W. Lancaster*; *W. P. Hamilton*. *Ease Gill*, *Leck Fell*. 69. *Grange*; *A. Wilson*, MS.
var. *fragilifolium*, Dixon. 60. *Ease Gill*, 2,000 feet; +; *W. and W.*
- Pleurochaete squarrosa*, Lindb. 60. Limestone rocks near *Silverdale*; *Wheldon*

A HISTORY OF LANCASHIRE

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-Order X.—Encalyptaceæ

(Only the common species have been found)

Sub-Order XI.—Orthotrichaceæ

- Zygodon Mougeotii*, B. and S. 59. *Fo Edge* ; Percival. 60. 'Rare.' *Middle Gill, Hindburn* ; *Ease Gill* ; A. Wilson. 69. *Coniston Old Man*, 2,630 feet
- *Stirtoni*, Schimp. 60. Limestone rocks nr. *Whitewell*, March, 1903. W. and W. MS.
- *conoideus*, Hook and Tayl. 59. *Manchester* ; Hobson. 60. Trees by *Lune, K. Lonsdale* ; *Wash Dub Wood* ; wood below *Whitewell*, 'fruiting freely, a rare occurrence' ! 1903. W. and W. MS.
- Ulotia Drummondii*, Brid. 60. Tree by the *Keer*, in *Wash Dub Wood* ; W. and W.
- *Bruchii*, Hornsch. 60. On ash in pot hole on *Leck Fell* ; *Docker* ; nr. *Wray* ; A. Wilson. *Hindburn* ; *Wash Dub Wood*, with the last sp. ; + ; W. and W.
- *crispa*, Brid. 59. *Rainhill* ; Higgins and Marrat. 60. *Ease Gill* ; A. Wilson, MS.
- Orthotrichum rupestre*, Schleich. 60. 'Rare,' *Silverdale* ; nr. *Leck* ; W. and W. *Ease Gill* ; A. Wilson, MS.
- *anomalous*, Hedw. var. saxatile, *Milde*. 59. *Clitheroe* ; + ; Wheldon. 60. *Ease Gill* ; *Dalton Crag* ; + ; W. and W. 69. *Grange* ; A. Wilson MS.
- *cupulatum*, Hoffm. 60. *Silverdale* ; + ; W. and W.
- var. *nudum*, Braithw. 60. *Leck Beck* ; A. Wilson. *Whitewell* ; W. and W.
- *leiocarpum*, B. and S. 60. *Silverdale* ; A. Wilson
- *Lyellii*, Hook and Tayl. 60. *Melling* ; + ; A. Wilson
- *rivulare*, Turn. 59. *Clitheroe*, sparingly ; Wheldon. 60. *Caton* ; *Hamilton. Preston* ; *Milton* ; Wheldon. *Nether Barrow* ; A. Wilson, MS. +
- *stramineum*, Hornsch. 60. *Over Kellet* ; *Whittington* ; *Yealand* ; A. Wilson. Nr. *Cockleach* ; Wheldon. Nr. *Kirkby Lonsdale* ; W. and W.
- *tenellum*, Bruch. 60. Nr. *Garstang* ; nr. *Arkolme*, on ash ; A. Wilson

Sub-Order XII.—Schistostegaceæ

- Schistostega osmundacea*, Mohr. 59. Between *Tyldesley* and *Worsley* ; Evans. *Claf-ton Junction* ; nr. *Bolton* ; W. Wilson. *Claf-ton Junction* ; Hunt

Sub-Order XIII.—Splachnaceæ

- Splachnum ampullaceum*, L. 59. Probably common on the mosses formerly, but now very rare (Wheldon). *Woolston Moss* ; W. Wilson (extinct, Wheldon in litt.). Nr. *Blackley* ; *Buxton's G. Unsworth Moss* ; Percival

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-Order XIII.—Splachnaceæ (cont.)

- Splachnum sphericum*, L. 59. *Chat Moss* ; *Grindon. Woolston Moss* ; W. Wilson. *Rochdale* ; *Belfield. Whiteley Dean* ; Holt. 60. *Greygarth Fell* ; *Boston Head Fell* ; A. Wilson. O. *Wyresdale* ; *Grizedale Hd.* ; *Wolffole Crag* ; W. and W.
- Tetraplodon mnioides*, B. and S. 59. *Rainford Moss* ; *Skellon. Windle Moss* ; Higgins ; *Chat Moss* ; *Grindon* ; *Woolston Moss* ; W. Wilson. 60. *Clougha* ; Wheldon. *Marshaw Fell* ; A. Wilson. *Cockerham Moss*, 1881 ; A. Wilson, perhaps exterminated

Sub-Order XIV.—Funariaceæ

- Discelium nudum*, Brid. 59. *Manchester*, 1795 ; *Caley*. (Probably *Boggart Hole Clough*, Wheldon). *Sailor's Shore*, etc. ; *Whitehead. Bolton* ; Sims. + ; Wheldon in *J. of B.*, January, 1899. 60. O. *Wyresdale* ; *Abbeystead Fell* ; + ; W. and W.
- Ephemerum serratum*, Hampe. 59. *Liverpool Bot. Gardens* ; *Skellon. Walton* ; Wheldon. *Wilgrave* ; *Dallam* ; W. Wilson. 60. *Lytham*, 1881 ; Wheldon (infrequent)
- Funaria fascicularis*, Schimp. 59. *Railbanks, Walton* ; Wheldon
- *Templetoni*, Sm. 59. *Clifton* ; *Prestwich* ; *Horsefield*
- *calcareæ*, Wahlb. 60. Frequent on limestone in the north, *Silverdale* ; + ; W. and W. 69. *Hamps Fell* ; A. Wilson, MS.
- Sub-Order XV.—Meesiaceæ
- Amblyodon dealbatus*, P. Beauv. 59. *Sandhills, Crosby to Southport* ; *Marrat* (still plentiful, Wheldon, in litt.). 60. *Lytham* ; *St. Anne's*, c. fr. ; Wheldon. Nr. *Gravel's Clough* ; *Tarnbrook Fell* ; A. Wilson. *Over Wyresdale* ; W. and W. *Clougha*, 1881 ; *Stabler*
- Meesia trichoides*, (L.), Spruce. 59. *Southport* ; *Marrat* (Wheldon). *Sailor's Shore* ; Percival. *Formby* (very fine), *Freshfield*, c. fr., 1903 ; Wheldon in litt. 60. *St. Anne's* ; Wheldon
- Sub-Order XVII.—Bartramiaceæ
- Catascopium nigrum*, Brid. 59. *Southport* ; Higgins. *Formby* ; B. B. Scott (both confirmed by Wheldon). *Freshfield* ; Captain P. G. Cunliffe. *Birkdale* ; *Cash Bartramia* (Ederi, Swartz. 60. 'Rare,' *Ease Gill* ; *Leck* ; A. Wilson
- *ithyphylla*, Brid. 60. 'Rare,' *Ease Gill* ; A. Wilson. *Greygarth Fell* ; W. and W.
- *pomiformis*, Hedw. 59. *Walton* ; dying out rapidly. *Fazakerley* ; Wheldon, + ; 69. Frequent, *Garstang* ; *Ease Hill* ; nr. *Pilling* ; + ; W. and W. 69. *Coniston*

BOTANY

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-Order XVII.—Bartramiaceæ (cont.)

- Philonotis calcarea*, Schimp. 59. *Formby*; Dr. Braithwaite, Wheldon, and H. Beesley, 1903; Wheldon, in litt. 60. *Marshaw Fell*; *Tarnbrook Fell*; above *Oakenclough*; all ♂, W. and W.
- Breutelia arcuata*, Schimp. 59. Nr. *Manchester*; Bradbury in Turner's *Bot. G.* 1805. 60. Nr. *Leck*; *Middlebarrow*; *Hindburn*; A. Wilson

Sub-Order XVIII.—Bryaceæ

- Leptobryum pyriforme*, (L.), Wils. 59. *Formby*; Higgins. *Clifton Junction*; +; Holt. *Ashton*; *Southport*; *Walton*; Wheldon. *Rusholme*; Cash. Not native in all these, some would be in garden ground, etc. Perhaps native on the sandhills, Wheldon, in litt. 60. Sandhills, *Lytbam*; Wheldon
- Webera elongata*, Schwaegr. 59. *Shawforth*; Horsfield. 60. 'Rare.' *Ease Gill*; W. and W. Nr. *Garstang*; H. Beesley
- *annotina*, Schwaegr. 59. *Winwick*; *Padgate*; W. Wilson. *Taunton*; Wheldon. *Clifton*; Holt. *Bamford Wood*; Holt, Whitehead. 60. *Tootell Heights*; *Clougha*; Wheldon. *Barnacre*; A. Wilson. Nr. *Caton*; W. and W.
- *commutata*, Schimp. 59. *Pendle Hill*; Wheldon
- *erecta* (Roth.), Correns. 60. *Tatbam Moor*, *Hindburn*; W. and W., September, 1902
- Plagiobryum Zierii*, Lindb. 60. 'Rare,' *U. Ease Gill*, 1,500 feet; A. Wilson
- Bryum filiforme*, Dicks. 59. *Clifton Viaduct*; Buxton's G. 60. *Lower Ease Gill*, on Silurian rocks; A. Wilson
- *pendulum*, Schimp. 59. Common on the sandhills from *Hightown* to *Southport*; W. and W. 60. Frequent, *Blackpool* to *Lancaster* and *Garstang*; +; W. and W.
- *Warneum*, Bland. 59. *Southport*; *Marrat*, W. Wilson, still plentiful, Wheldon, 1903. *Birkdale*; Wild, abundant in 1903, Wheldon. *Formby*; *Freshfield*; still plentiful, 1903, Wheldon. 60. *St. Anne's*; Wheldon
- *calophyllum*, R. Br. 59. *Southport*; *Marrat*, still there, Wheldon, 1903. *Taunton*; *Gordon* and *Whitehead*. *Ainsdale*; Wheldon, plentiful still, 1903
- *Marratii*, Wils. 59. *Southport*; *Ainsdale*; *Marrat*, 1854
'I think this is now lost as a Lancashire plant,' Wheldon, in litt. (*Phytologist*, Dec., 1858, pp. 638-643, *ibid.* April, 1859, pp. 104-107)

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-Order XVIII.—Bryaceæ (cont.)

- Bryum lacustre*, Brid. 59. *Taunton*; *Schimper*, *Whitehead*, and *Gordon*. *Freshfield*; *Ainsdale*; *Southport*; *Hunt*. Still occurs in all these localities, Wheldon in litt. 1903; also a little seen at *Birkdale*, 1903. 60. 'Rare.' *St. Anne's*; *Lytbam*, ♂ fr., Wheldon
- *inclinatum*, Bland. 59. *Sandhills*, *Crosby* to *Southport*; *Marrat*. *Ashton-under-Lyne*; *Whitehead*. *Chadburn*; Wheldon. 60. Frequent, but less so than *B. pendulum*; W. and W.
- *uliginosum*, B. and S. 59. *Southport*; *Wood*, 1843, *Marrat*, *W. Wilson*, still there and at *Formby*, Wheldon in litt. 1903. Nr. *Manchester*; *Wood*. *Sailor's Shore*; *Percival*. *Taunton*; *Prestwich*; *Hunt*. 60. *St. Anne's*; Wheldon
- *turbinatum*, Schwaegr. 59. *Scar Wheel*, *Broughton*; Dr. *Wood*. *Clifton Junction*; *Wild*. *Ashton*; *Gordon* and *Whitehead*!
- *pseudo-triquetrum*, Schwaegr. 59. *Rainford Moss*; +; W. and W. etc. 60. Common on the fells; W. and W.
- var. *compactum*, Schimp. 59. *Southport*, 1863; *Whitehead*. *Birkdale*; *Ainsdale*; Wheldon
- *neodamense*, Itz. 59. *Southport*, Dr. *Wood*, 1859; *Percival* and *Rogers*, June, 1875, ♂ fr. *Ainsdale*, 1860. *Hb. Brit. Mus.* (young fruit). *Formby*; (fr. 1905.) *Freshfield*; Wheldon, who showed it to Dr. Braithwaite in 1903
- *affine*, Lindb. 59. *Oxford*; W. Wilson. *Eccles*; *Old Trafford*; *Hunt*. *Taunton*; *Whitehead*. 60. *Longridge Fell*; Wheldon. *Greygarth Fell*; A. Wilson
- *Donianum*, Grev. 59. *Winwick Quarry*; W. Wilson. *Quarry*, nr. *Kirkby*; Wheldon
- *alpinum*, Huds. 60. O. *Wyresdale*; *Tarnbrook Fell*; *Marshaw Fell*; W. and W. *Ease Gill*; A. Wilson. +. *Clougha*; Wheldon in litt.
- *roseum*, Schreb. 59. *Boole*; *Skellon* (not there now, Wheldon in litt.) *Hightown*, under *Salix repens*; Wheldon. *Blackley*; *Hobson*, 1839. 60. 'Very rare' and barren. Nr. *Fairhaven*; Wheldon. *Silverdale*; A. Wilson. 69. *Yewbarrow*, in mossy limestone rock crevices; A. Wilson, MS.
- Mnium serratum*, Schrad. 59. Between *Birkdale* and *Ainsdale*; *Marrat*. *Bamford Wood*; Holt. *Clifton Junction* (Wheldon in *f. of B.*). 60. *Dale Gill*, *Hindburn*; A. Wilson. *Ease Gill*; Near *Whitwell*; W. and W. *Longridge*; H. Beesley

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CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINÆ (continued)

Order—Musci (continued)

Sub-Order XVIII.—Bryaceæ (cont.)

- Mnium orthorrhynchum*, B. and S. 60. 'Rare.' *Ease Gill*; A. Wilson
- *stellare*, Reich. 59. Between *Birkdale* and *Ainsdale*; *Marrat*. 60. Rocks by the *Brook*; A. Wilson. *Hodder Valley*; Wheldon
- *subglobosum*, B. and S. 59. *Ashton*; *Reddish*; Whitehead. +; Wheldon in *J. of B. Jan.* 1899. 60. *Fairmope Clough*; ð fr.; Wilson. *Blaze Moss*; +; W. and W.

Sub-Order XIX.—Fontinalaceæ

- Fontinalis antipyretica*, L. var. *gracilis*, Schimp. 60. *Leck Beck*; *Ease Gill*; A. Wilson. *Roeburndale*; W. and W.
- *squamosa*, L. 59. *Blackley*; Miller. 60. 'Rare.' *Udale*; W. and W. *Leck Beck*; A. Wilson

Sub-Order XX.—Cryphæaceæ

- [Obs. C. heteromalla, Mohr., has never been found in Lancashire]

Sub-Order XXII.—Hookeriaceæ

- Pterygophyllum lucens*, (L.), Brid. 59. 60. Not common, fruiting in some upland cloughs; W. and W.

Sub-Order XXIII.—Leucodontaceæ

- Myrinia pulvinata*, Schimp. 59. *Jackson's Boat*; Buxton's G. 'Now lost.' J. A. W.
- Antitrichia curtipendula*, Brid. 'Apparently very rare.' 60. On a wall in *Wash Dub Wood*; near *Leck*; W. and W.

Sub-Order XXIV.—Leskeaceæ

- Heterocladium heteropterum*, B. and S. 59. *Bamford Wood*; Whitehead. *Bolton*; *Makin* (Dixon). *Rowley Moor*; Buxton's G. *Jumbles*; Percival and Rogers. 60. Nr. *Bolton*; W. and W. Nr. *Hindburn*; *Clougha*; Wheldon
- Thuidium recognitum*, Lindb. 59. Nr. *Chatburn*; Wheldon. 60. 'On the limestone only, rare.' *Silverdale*; +; W. and W.
- *delicatum*, Mitt. 60. *Lower Ease Gill*, July, 1903. A. Wilson in litt.

Sub-Order XXV.—Hypnaceæ

- Climacium dendroides*, (L.), Web. and Mohr. 59, 60. Common, but very rarely found in fruit. (*Hightown*; *Fl. L'pool*)
- Cylindrothecium concinnum* (De Not) Schimp. 60. *Silverdale*; Wheldon. *Dalton Crag*; A. Wilson
- Orthothecium intricatum*, B. and S. 60. 'Rare and barren.' Nr. *Leck*; nr. *Silverdale*; A. Wilson

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINÆ (continued)

Order—Musci (continued)

Sub-Order XXV.—Hypnaceæ (cont.)

- Brachythecium glareosum*, B. and S. 59. *Whitehead* and *Grindon*. 60. W. and W.
- *albicans*, B. and S. 59. *Whitehead* and *Grindon*. 60. W. and W.
- *salebrosium*, B. and S. 'Rare.' 59. 60. Nr. *Preston*; H. Beesley var. *palustre*, Schimp. 59. *Crossens*; Wheldon. *Simonswood*; Wheldon and Beesley. 60. *St. Anne's*; Wheldon
- *rivulare*, B. and S. 59. *Whitehead* and *Grindon*. 60. 'Frequent'; W. and W.
- *velutinum*, B. and S. var. *intricatum*, Hedw. 60. *Catforth*; H. Beesley var. *prælongum*, B. and S. 60. *Lytham*; H. Beesley. (Both confirmed by Dr. Braithwaite)
- *populeum*, B. and S. 59. *Whitehead* and *Grindon*. 60. Not very common; W. and W.
- *plumosum*, B. and S. 59. *Whitehead* and *Grindon*; 60. Frequent in east and fruiting; W. and W.
- *cæspitosum*, (Wils.), Dixon. 59. *Dallam*; *Longford*; W. Wilson. 'Extinct.' Chemicals in refuse in stream; Wheldon
- Hyocodium flagellare*, B. and S. 59. *Bamford*; *Whiteley Dean*; Holt. *Clitheroe*; *Worston*; Wheldon. *Rowley Moor*; Buxton's G. 60. Frequent in east by streams, *Ease Gill*; +; W. and W.
- Eurhynchium speciosum*, Schimp. 59. Nr. *Aintree*; Wheldon; 60. Nr. *Preston*; H. Beesley
- *hians* (Hedw.), Lesq. and James. 60. *Caton*; Wheldon
- *abbreviatum*, Schimp. 60. *Silverdale*; Wheldon
- *tenellum*, Milde. 60. *Silverdale*; Wheldon. *Scorton*; H. Beesley. 69. On limestone rocks, *Grange*; A. Wilson, MS.
- *megapolitanum*, Milde. 59. *Crosby*; Harrison, W. Wilson. *Birkdale*; Wheldon. 60. 'Rare,' *St. Anne's*; *Fairbaces*; ð fr.; Wheldon
- Plagiothecium depressum* (Bruch), Dixon. 60. 'Rare and sterile,' U. *Roeburndale*; A. Wilson
- *Borrierianum*, Spruce. 59. *Bamford*; Holt. 60. Common; W. and W. 69. *Coniston* var. *collinum*, Wils. *Clougha*; W. and W. (The *Coniston* plant should perhaps be placed here.)
- *pulchellum*, B. and S. 59. *Burnley*; *Dearden*. 60. 'Rare,' *Clougha*; W. and W.
- Amblystegium Sprucei*, B. and S. 59. *Southport*; Wood, 1853
- *varium* (Hedw.), Lindb. 59. On damp bricks in a ditch near *Aintree*; Wheldon. *Paddington*; Wilson. (A radi-cale, P. de Beauv.)

BOTANY

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (CONTINUED)

Sub-Order XXV.—Hypnaceæ (cont.)

- Amblystegium irriguum*, B. and S. 60. 'Rare,'
Nr. Lancaster; Hamilton. Nr. *Silverdale*;
A. Wilson
- *Juratzkanum*, Schimp. 59. *Birkdale*; nr.
Aintree; Wheldon. 60. Nr. *Glas-*
son; Wheldon. *Lea*; Beesley
- *fluviatile*, B. and S. 60. *Leighton Beck*;
on stones in *Lune* below *Kirkby*
Lonsdale; *Ease Gill*; A. Wilson.
Halton; W. and W.
- *filicinum*, De Not. var. *Whiteheadii*,
Wheldon. 59. *Southport*; +; Whel-
don. *Rainford*; Beesley and Wheldon.
60. Between *Lytbam* and *St. Anne's*;
Wheldon. Distr. *Haddington*; *Dixon*.
- var. *elatum*, Schimp. *Southport*, 1882;
Holt

A. CAMPYLIUM

Hypnum

- *elodes*, Spruce. 59. *Southport*; W. Wilson,
Marrat. *Birkdale*; *Burcough*; +;
Wheldon. 60. 'Rare,' *St. Anne's*;
Wheldon. *Haves Water*; *Silverdale*;
A. Wilson
- *polygamum*, Schimp. 59. *Warbreck Moor*;
Wheldon in litt. 60. Mostly on
sandhills, *St. Anne's*; +; Wheldon.
Ribbleton; nr. *Preston*, not sandhill;
Beesley

B. 'HARPIDIUM'

('Harpidioid' Hypna, after Renaud, arranged
by J. A. Wheldon)

Hypnum aduncum, Hedw.

Group typicum, Ren.

- forma falcata*, Ren. 59. Wheldon and
Holt. 60. Wheldon
- forma graciliscens*, Ren. 59. W. Wilson.
60. Wheldon
- forma tenuis*, Ren. 59. Holt
- var. *aquaticum*, Sanio. 59. W. Wilson,
Wheldon. 60. H. Beesley
- var. *diversifolia*, Ren. 59. Wheldon.
60. Wheldon

Group Kneifii, Ren.

- var. *polycarpon*, Bland. 59. Wheldon.
60. Wheldon
- var. *attenuatum*, Boul. 59. Wheldon.
60. A. Wilson
- var. *intermedium*, Schimp. 59. Whel-
don, Holt. 60. A. Wilson
- f. *penna*, Sanio. 59. Wheldon
- f. *laxifolia*, Ren. 59. Wheldon,
Holt. 60. H. Beesley

Group pseudo-fluitans, Sanio

- var. *paternum*, Sanio. 59. Wheldon,
Holt. 60. H. Beesley
- f. *gracilis*. 59. Wheldon

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (CONTINUED)

Group pseudo-fluitans (cont.)

- Hypnum Sendtneri*, Schimp. 'In marshes
near the sea, but also inland.'
- f. *vulgaris*, Sanio. 59. Wheldon.
60. Wheldon
- f. *trivialis*, Sanio. 59. Renaud in
Husn. Musc. Gall. p. 374
- *Wilsoni*, Schimp. *Southport* [locus classi-
cus], W. Wilson. *Birkdale*; *Ainsdale*;
W. Wilson. Still abundant in these
localities, Wheldon. 60. *St. Anne's*;
Wheldon
- var. *hamatum*, Schimp. 59. Wheldon.
60. Wheldon
- Obs. This rare moss, named by
Schimper in honour of the well-
known Lancashire botanist Wm. Wil-
son, has only been found in three
other localities.

- *lycopodioides*, Schwaegr. 59. *Ainsdale*;
Southport; W. Wilson, *Marrat*, etc.
'Where it still grows abundantly,
and occasionally fruits.' *Formby*;
Wheldon. 60. *St. Anne's*; Wheldon
- *uncinatum*, Hedw. 'Frequent in sub-
alpine places, not a marsh plant.'
- f. *plumosa*, Ren. 60. Nr. *Preston*;
H. Beesley. *Greycarth Fell*; A.
Wilson

- *fluitans*, L. Not common, except in parts
of East Lancashire. 60. *Lower Bleas-*
dale; +; W. and W.

Group amphibium, Ren.

- var. *Jeanbernati*. 60. O. *Wyresdale*;
Greycarth Fell; +; W. and W.
- f. *tenella*, Ren. 60. *Bleasdale Fell*;
+; W. and W.
- f. *condensata*, Ren. 60. *White Moss*,
Hindburn; W. and W.
- var. *atlanticum*, Ren. 59. *Pendle Hill*;
Wheldon; 60. *Wyresdale*; *Greycarth*
Fell; +; W. and W.
- var. *clatum*, Ren. et Arnell. 60. *Cocker-*
ham Moss; W. and W.
- var. *gracile*, Boulay. 59. *Pendle Hill*;
Wheldon. 60. *Longridge Fell*; +;
W. and W.
- var. *setiforme*, Ren. 60. *Goodber Com-*
mon; A. Wilson
- var. *Payoti*, Ren. [60. *Greenbank Fell*;
W. and W. 'Not typical.']

Group falcatum, Ren.

- var. *falcatum*, Schimp. 59. *Pendle*
Hill; Wh. 60. Nr. *Garstang*; +;
W. and W.
- var. *ovale*, Ren. MS. in litt. ad Whel-
don. 59. *Pendle Hill*; Wheldon.
60. *Greycarth Fell*, 1800 ft.; A.
Wilson

Group exannulatum, Ren. (H. exan- nulatatum, Güemb.)

60. *Calder Valley*; +; A. Wilson.
Not very common

A HISTORY OF LANCASHIRE

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Group exannulatum, Ren. (continued)

- var. pinnatum, Boul. 59. *Pendle Hill*; Wheldon. 60. *Hindburn*; +; W. and W.
- f. acuta, Sanio. 60. W. and W.
- f. stenophylloides, Ren. 60. W. and W.
- f. polyclada, Ren. MS. 60. W. and W.
- var. falcifolium, Ren. 60. O. *Wyresdale*; W. and W. (also f. inundata, Ren.)
- var. brachydietyon, Ren. 60. *Longridge Fell*; +; W. and W.
- var. purpurascens, Schimp. 60. *Calder Valley*; +; A. Wilson. 69. *Barrow*; Mrs. Monsarrat.
- var. molluscum, Sanio. 60. *Crag Wood*, near *Clougha*; Wheldon in litt. 'new to Britain.'

Sub-group Rotæ, Ren.

- 59. *Pendle Hill*; Wheldon (a form)
- var. falcifolium, Ren. 59. *Simonswood Moss*; Marrat. *Martin Mere*, near *Southport*; Wheldon. 60. *St. Anne's*; +; W. and W.
- f. viridis, Boul. 60. Above *Marshaw*; A. Wilson
- f. inundata, Ren. 60. O. *Wyresdale*; W. and W.
- vernicosum, Lindb. 60. *Bog nr. Docker*; A. Wilson
- var. majus, Lindb. 60. *Bog nr. Docker*; A. Wilson
- revolvens, Swartz. f. typica, Ren. 59. *Pendle Hill*; *Southport*; *Ainsdale*; Wheldon. 60. *St. Anne's*; *Roeburndale*; +; W. and W.
- var. Cossoni, Ren. 59. *Southport*; Holt. *Birkdale*; Wheldon (f.). 60. *Docker*; U. *Roeburndale*; W. and W.
- f. falcata (Sanio), Ren. 60. *Udale*; W. and W.
- var. intermedium (Lindb.), Ren. 59. *Southport*; *Whiteley Dean*; Holt. *Ainsdale*; W. Wilson. (Still there, Wheldon.) 60. *Leighton Beck*; W. and W.
- f. falcata, Sanio. 59. *Southport*; Holt. *Formby*; Wheldon
- scorioides, L. 'Deep bogs, either siliceous or calcareous, rather rare.' 59. *Southport*; Marrat. Nr. *Todmorden*; Nowell. 60. *Silverdale*; +; W. and W.
- giganteum, Schimp. 60. *St. Anne's*; *Ease Gill*; nr. *Docker*; A. Wilson
- falcatum, Brid. 59. *Clifton*; Wild, Dixon. *Burnley*; Scholefield. 60. *Borwick Swamp*; *Hawes Water*; +; W. and W.
- intermedium, Lindb. 59. *Ainsdale*; W. Wilson. *Southport*; Holt. 60. *Udale*; W. and W. *Leighton Beck*; A. Wilson

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Musci (continued)

Sub-group Rotæ, Ren. (cont.)

- Hypnum intermedium, Lindb. (continued)
- f. falcata, Sanio. 59. *Southport*; Holt. *Formby*; Wheldon¹

C. DREPANIUM

- Patientiæ, Lindb. 59. *Newton*; *Warington*; W. Wilson. *Hale*; Marrat. 60. *Ease Gill*; *Warton*; *Garstang*; *Lower Bleasdale*; A. Wilson
- [— crista-castrensis, L. 59. *Whitworth*; *Grindon*. 'Error,' Holt, etc.]

D. LIMBOBIUM

- palustre, L. 59. Wheldon. 60. Common and fruiting; W. and W.
- var. hamulosum, B. and S. 60. *Wyresdale*; Wheldon
- ochraceum, Turn. 59. *Whiteley Dean*; Holt. 60. O. *Wyresdale*; +; W. and W. *Ease Gill*; A. Wilson
- var. flaccidum, Milde. 60. *Hindburn*; *Marshaw Fell*; W. and W.
- var. complanatum, Milde. 60. *Hindburn*; A. Wilson

E. CALLIERGON

- stramineum, Dicks. 59. *Prestwich*; Percival. *Simonswood*; Marrat. 60. 'Plentiful,' *Ease Gill*; *Hindburn*; A. Wilson; +.
- cordifolium, Hedw. 59. Several places; 2. fr. in two; +; Wheldon. 60. *Silverdale*; +; W. and W.
- sarmentosum, Wahlenb. 60. North side of *Marshaw Fell*, alt. 650 ft. only; 'a remarkably low altitude for this moss.' W. and W.
- Schreberi, Willd. 59, 60, 69.
- Hylacomium brevirostre (Ehrh.), B. and S. 59. *Clitheroe*; *Worston*; Wheldon. *Trewbarrow*; Wheldon. *Gatebarrow*; nr. *Leighton Beck*; A. Wilson. *Tarnbrook Wood*; H. Beesley
- loreum (L.), B. and S. [59. *Wavertree*; Marrat.] 60. Abundant, locally. *Udale*; +; W. and W.
- rugosum (Ehrh.), De Not. 60. 'Very fine and locally abundant on the scar limestone in the north, unknown elsewhere.' *Tbrang End*; *Trewbarrow*; *Dalton Crag*; *Silverdale*; *Hawes Water*; W. and W. *Leighton Beck*; A. Wilson. 69. *Yewbarrow*, very fine; A. Wilson, MS.

¹ The last two species are included under 'Harpidium' by Dixon, but not by Renault and Wheldon, who place falcatum under Cratoncuron.

BOTANY

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Hepaticæ

Sub-Order I.—Jungermaniaceæ

- Frullania Tamarisci* (L.), Dumort. 60. *Silverdale*; *Ease Gill*; +; W. and W.
- *fragilifolia*, Taylor. 60. *Ease Gill*; *Dalton Crag*; W. and W.
- Lejeunia Mackaii* (Hook.), Spreng. 60. *Oter Kellet*; A. Wilson. *Yealand*; *Woodwell*; *Trowbarrow*; *Dalton Crag*; W. and W.
- *calcareæ*, Lib. 60. *Ease Gill*, 1905. W. and W. in litt.
- *Rossettiana*, Massal. 60. *Leepers Wood*, *Kellet Seeds*, 1905; W. and W. in litt.
- *ulicina* (Taylor), Spruce. 60. Wood below *Whitewell*, March, 1903; W. and W. A. Wilson in litt.
- Radula complanata* (L.), Dum. 'Rare,' *Silverdale*; between *Caton* and *Aughton*; W. and W.
- Porella lævigata* (Schrad.). 60. *Silverdale*; *Trowbarrow*; W. and W.
- Blepharostoma trichophyllum* (L.), Dumort. 60. *Clougha*; Wheldon
- Trichocolea tomentella* (Ehrh.), Nees. 59. *Rochdale*; G. A. Holt. 60. *Woodwell*; *Ease Gill*; *Calder Valley*; +; W. and W.
- Lepidozia cupressina* (Swartz.), Pearson. 60. *Clougha*; G. Stabler. *Long Crag*, O. Wyresdale; 'always associated with L. Pearsoni, M. Taylori, Bazz. trilobata, and D. fuscescens,' W. and W.
- *Pearsoni*, Spruce. 60. 'Frequent on higher grit-stone moorlands,' *Hell Crag*, O. Wyresdale; +; W. and W.
- *setacea* (Web.), var. *setularioides*, Nees. 59. *Simonswood Moss*; Wheldon. 60. *Cockerham Moss*; Jones and Wheldon
- Bazzania trilobata* (L.). 60. *Clougha*; +; W. and W. *Hindburn*; A. Wilson
- Kantia submersa*, Arnell. 60. *Cockerham Moss*; W. and W. J. of Bot. January, 1903
- *Sprengelii* (Mart.). 59. *Walton*; *Kirkby*; *Rainford*; Wheldon. 60. *Longridge* c. fr.; Wheldon. +; W. and W.
- *arguta* (Mont. et Nees), Lindb. 59. *Ormskirk*; Wheldon. 60. *Quernmore*; *Calder Wood*, nr. *Garstang*; W. and W.
- Cephalozia catenulata* (Hübner) Lindb. 59. *Kirkby*, in a damp quarry; Wheldon
- *lunulæfolia*, Dumort. 59. *Carr*, nr. *Netherton*; Wheldon. 60. *Cockerham Moss*; *Kemple End*; *Clougha*; +; W. and W.
- *Lammersiana* (Hübner). 59. *Kirkby*; *Simonswood*; Wheldon. 60. *Pilling*; Wheldon. *Upper Grizedale*; A. Wilson. *Cockerham Moss*, c. per. W. and W.

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINEÆ (continued)

Order—Hepaticæ (continued)

Sub-Order I.—Jungermaniaceæ (cont.)

- Cephalozia connivens* (Dicks.), Lindb. 59. *Chat Moss*; W. H. Pearson. *Simonswood Moss*; Wheldon. 60. *Whitestone Clough*; W. and W. in litt. *Longridge Fell*; Wheldon
- *fluitans* (Nees), Spruce. 59. *Barton Moss*; W. H. Pearson. *Rainford Moss*; Wheldon. 60. *Tarnbrook Fell*; *Cockerham Moss*; +; W. and W. *Arkholme Moor*; A. Wilson
- *heterostipa*, Spruce. (See *Jungermania inflata*, var.)
- Dr. Spruce is said to have changed his opinion in the latter part of his life regarding the position of this plant
- *Sphagni* (Dicks.), Spruce. 59. *Whiteley Dean*; Holt. *Rainford Moss*; *Simonswood Moss*; Wheldon. 60. 'Rather rare,' *Udale*; +; W. and W.
- *denudata* (Nees), Spruce. 59. *Clifton Junction*; C. J. Wild. 60. *Tarnbrook Fell*; A. Wilson
- Scapania compacta* (Roth.), Dumort. 60. *Arkholme Moor*; *Wash Dub Wood*; A. Wilson
- *resupinata* (L.), Dumort. 60. 'Frequent,' *Tarnbrook Fell*; +; W. and W.
- var. *minor*. 60. *Long Crag*; +; common on the fells, W. and W.
- *aspera*, Müll. and Bern. 60. 'Locally abundant on limestone rocks,' *Silverdale*; *Longridge Fell*; +; W. and W. 69. *Grange*; A. Wilson, MS.
- *nemorosa* (L.), Dumort. 59. *Barnford Wood*; *Clifton Junction*; Holt. *Knoclesley*; Higgins and Marrat. *Netherton*; Wheldon. 60. *Greygarth Fell*; W. and W. *Warton*; *Upper Grizedale*; A. Wilson
- *purpurascens* (Hook.), Taylor, MSS. 60. *Longridge Fell*; Wheldon. *Clougha*; +; W. and W. *Hindburn*; A. Wilson. 69. *Coniston Old Man*
- *irrigua*, (Nees), Dumort. 59. Bog nr. *Netherton*; Wheldon. 60. *Barnacre*, nr. *Garstang*; *Greygarth Fell*; A. Wilson
- *curta* (Mart.), Dumort. 59. *Barton Moss*; Dr. Carrington. 60. *Ease Gill*; W. and W. 69. *Coniston Old Man* up to 2630 ft.
- Diplophyllum obtusifolium* (Hook.), Dumort. 59. Damp sandstone rocks, nr. *Kirkby*; Wheldon
- Lophocolea cuspidata*, Limpr. 59. Nr. *Formby*; Wheldon. 60. Wall, nr. *Leck*; A. Wilson. *Leagram Hall*; Wheldon
- *heterophylla* (Schrad.), Dumort. 59. 60. 'Very common,' W. and W.
- Chiloscyphus polyanthus* (L.), Corda. 59. 60. 'Very common,' W. and W.
- var. *palleescens* (Schrad.). 59. *Barnford Wood*; *Reddish*; *Rainford Moss*; *Netherton*; Wheldon. 60. Nr. *Pilling*; Wheldon

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CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINERÆ (continued)

Order—Hepaticæ (continued)

Sub-order I.—Jungermaniaceæ (cont.)

Mylia Taylori (Hook.), B. Gr. 60. *O. Wyresdale*; *Marshaw Fell*; *Long Crag*; *Tarnbrook Fell*; +; W. and W. *Greygarth Fell*, 2050 ft.

— *anomala* (Hook.). 59. *Barton Moss*; *Pearson*. 60. *White Moss*; *Hindburn*; *Cockerham Moss*; W. and W.

Plagiochila spinulosa (Dicks.), Dumort. 60. *Clougha*; *Halton*; W. and W. *Greygarth Fell*; *Wheldon*. *Ease Gill*. 69. *Coniston*. +.

Jungermania cordifolia, Hooker. 60. *Udale*; *Ease Gill*; *Tarnbrook Fell*; +; W. and W.

— *riparia*, Tayl. 59. *Bamford Wood*; G. A. Holt

— *inflata*, Huds. var. *laxa*, Carr. 59. *Simonswood Moss*; *Beesley* and *Wheldon* var. *heterostipa* (Spruce), Lindb. *Tarnbrook Fell*; *Wheldon*. *Greygarth Fell*; 21 Oct. 1903

— *turbinata*, Raddi. 59. *Southport*; G. E. Hunt and Dr. Carrington
Obs. Recorded as *J. affinis*, Wils. Its rediscovery would be interesting. 60. Nr. *Wennington*; W. and W.

— *sphaerocarpa*, Hook. 60. *Kemple End*; *Wheldon*. *Hindburn*; +; W. and W.

— *Floerkii*, W. and M. 60. Commonest 'barbata' form, *Wheldon* in lit. var. *Naumaniana*, Nees. 60. *Heights Wood*; *Wheldon*

— *barbata*, Schmidel. 60. Much rarer than *J. Floerkii*, but frequent. *Hindburn*; *Udale*; +. W. and W.

— *Lyoni*, Tayl. 60. *Clougha*; *Wheldon*. *Greygarth Fell*; W. and W. *Ease Gill*

— *gracilis*, Schleich. 60. *Clougha*; *Udale*; *O. Wyresdale*; +; W. and W.

— *incisa*, Schrad. 60. *Clougha Pike*; *Wheldon*

— *capitata*, Hooker. 60. *Udale*; W. and W.

— *bicrenata*, Schmid. 59. *Whiteley Dean*, nr. *Hollingsworth Lake*; G. A. Holt

— *ventricosa*, Dicks. 59. *Bamford Wood*; *Clifton Junction*; Holt. 60. W. and W. 69.

— *minuta*, Crantz. 60. *Clougha*; *Hell Crag*; *Great Clough*; *Tarnbrook F.*; +; W. and W.

— *crenulata*, Sm. 60. 'Very frequent,' nr. *Garstang*; *Ease Gill*; +; W. and W.

Eucalyx obovata (Nees), Lindb. 59. *Bamford Wood*; *Clifton Junction*; Holt. 60. *Udale*; +; W. and W. *Thrusbigill Fell*; *Ease Gill*; A. Wilson

Nardia compressa (Hook.), B. Gr. 60. *Longridge Fell*; nr. *Wolfhole Crag*; *Haylot Fell*; W. and W.

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINERÆ (continued)

Order—Hepaticæ (continued)

Sub-order I.—Jungermaniaceæ (cont.)

Nardia silvrettae (Gottsche), Pears. 59. *Gorpsey Clough*, *Tadmorden*; G. A. Holt

'This locality is within the Lancashire area,' being 3 miles S.W. of *Tadmorden*. Albert Wilson in litt.

Marsupella emarginata (Ehrh.), Dumort. 60.

Udale; +; W. and W.
Saccogyna viticulosa (L.), Dumort. 59. *Bamford Wood*; C. J. Wild. 60. *Ease Gill*; W. and W. in litt. 1905. 'r.r.'

Fossombronnia caespitiformis, De Not. 59. *Taunton*; *Whitelegge*. *Clifton Junction*; *Cheetbam Hill*; Holt

— *pusilla* (L.), Dumort. 59. *Bowker Bank*; C. J. Wild

var. *ochrospora*, Lindb. *Winwick*; W. Wilson. *Eccles*; Dr. Carrington

Petalophyllum Ralfsii, (Wils.), Gottsche. 59. *Southport*; Dr. Carrington, C. J. Wild, W. H. Pearson

Moerckia (*Dilena*) *hibernica* (Hook.), Gottsche. var. *Wilsoniana*, Gottsche. 59. *Southport*; Dr. Carrington, 1863. C. J. Wild, 1882. W. H. Pearson, *Crosby to Southport*; Wilson and Marrat. *Formby*; Jones and Wheldon, August, 1905

For synonyms see Du Mortier, *Hep. Eur.* pp. 136–7, and later works

Blasia pusilla, L. 59. *Daisy Nook*; *Sailor's Shore*; *Holden Clough*; *Whitehead*. 60. *Caton Moor*; +; W. and W. *Tatham Beck*; A. Wilson

Pellia Neesiana, (Gottsche). 60. *Hindburn*; *Gravell's Clough*; *Greygarth Fell*; W. and W. *Whiteray Gill*, *Hindburn*; A. Wilson

— *calycina* (Tayl.), Nees. 59. *Southport*; *Rainford*; *Walton*; *Wheldon*. 60. *Longridge*; *St. Anne's*; *Wheldon*. *Hindburn*; *Arkbolme*; A. Wilson

Aneura palmata (Hedw.), Dumort. 59. *Park Bridge*; R. Roberts. (Fl. Ashton and Pearson's *Hep.* 451)

— *multifida* (L.), Dumort. 59. *Walton Junction*; *Formby*; *Wheldon*. 60. Nr. *Stonyhurst*; nr. *Lead Lower Bridge*; *Wheldon*

— *latifrons*, Lindb. 59. *Walton*; *Wheldon*

— *sinuata* (Dicks.). Dumort. 59. *Bamford Wood*; *Clifton Junction*; *Whitehead*. *Walton*; *Rainford*; *Netherton*; *Wheldon*

— *pinguis* (L.), Dumort. 59. *Taunton*; *Cheetbam Hill*; *Clifton Junction*; *Whitehead*. *Walton*; *Formby*; *Southport*; *Penallie Hill*; *Wheldon*. 60. 'Frequent on the fells.' *O. Wyresdale*; +; W. and W.

Metzgeria pubescens (Schränk), Raddi. 60. *Silverdale*; *Over Kellet*; +; W. and W. *Ease Gill*; A. Wilson

— *conjugata*, Lindb. 60. *Thrang End*; *Wheldon*

BOTANY

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINÆÆ (continued)

Order—Hepaticæ (continued)

Sub-order II.—Marchantiaceæ

- Reoulia hemispherica* (L.), Raddi. 59. *Southport*; *Crosby*; *Marrat*. Nr. *West Derby*; *Harrison*. *Churchtown*; *Wheldon*. 60. *Middlebarrow*; *Leek Fell*; A. Wilson. *Dalton Crag*; *Borwick*; *Whitewell*; W. and W.

- Chomocarpon quadratus* (Scop.), Lindb. 59. *Sand-hills, Formby*; *Southport*; *Wh. 60. Wash Dub Wood*; *Gravel's Clough*; *Dolbinholme*; +; W. and W.

There are two forms in the county; for description see Lindberg's last work. *C. commutatus* is an arctic plant. Lindberg also corrects the spelling of the generic name of Corda

CLASS V.—CRYPTOGAMIA CELLULARIA (cont.)

SUB-CLASS—MUSCINÆÆ (continued)

Order—Hepaticæ (continued)

Sub-order II.—Marchantiaceæ (cont.)

- Lunularia cruciata* (L.), Dumort. 60. *Between Hulton and Shyne*; *Wheldon. Garstang*; A. Wilson. Nr. *Hurst Green*; W. & W

Sub-order III.—Ricciaceæ

- Riccia glauca*, L. 59. *Walton*; *Aintree*; *Wheldon*. 60. Nr. *Marion Mere*, 1905. *Wheldon* in litt. var. *minima*. 59. C. J. Wild

- *Lescuriana*, Aust. 60. *Limest. rocks*, nr. *Silverdale*, 1904; W. and W. in litt.

- Ricciella fluitans* (L.), Braun. 59. *Ashton-under-Lyne*; J. E. *Sunderland*, J. T. *Newton. Moston*; R. Lees. *Reddish Canal*; Holt. *Pearson's Hep. rep.*

Sub-order IV.—Anthocerotaceæ

- Anthoceros punctatus*, L. 59. *Formby*; *Aintree*; *Wheldon*

SUB-DIVISION AND CLASS.—CHARACEÆ

ORDER CHAREÆ

- Chara fragilis*, Desv. A. Bennett! in litt. 59. *H. Searle*, Hb. Ar. Bennett. 1882. *J. of B. March*, 1885, pp. 81–83. *West Kirby*; C. T. *Green. Reddish*; +; *Whitehead, Wheldon*. 60. *Silverdale*; *Leek*; *Petty*. Nr. *Leighton Beck, Silverdale*; A. Wilson. 69. *Urswick Turn*; *Miss Hodgson*
- *aspera*, Willd. A. Bennett! in litt. 60. *Canal nr. Cabus*, July, 1901. *H. Beesley*, W. and W.
- *contraria*, Kütz. *Lancashire*; A. Bennett! in litt. 59. *Birkdale*, 1898, 'abundant.' *Southport*; *Ainsdale*, 'sparingly'; *Wheldon*
- *hispidula*, L. 59. *H. Searle*, 1884. *J. of B. March*, 1885. *Ponds on Caton Moss*; *Buxton's G. App.* Nr. *Birkdale*; *Wheldon*. 60. *Silverdale*, 1890; C. Bailey
- *vulgaris*, L. A. Bennett! in litt. 59. *Buxton's G. App.* 60. *Stonyhurst*; *Crossshaw Reservoir*; *quarry nr. Leagram Mill*; *Fl. Stonyhurst*
- var. *longibracteata*, Kütz. 59. *H. Searle*, 1882. *J. of B. March*, 1885. Nr. *Crossens*; nr. *Walton*; *Wheldon. Guidebridge*; *Whitehead*. 60. *Between Blackpool and St. Anne's*; *Wheldon*

ORDER CHAREÆ (continued)

- Chara vulgaris*, L. (continued)
var. *papillata*, Wallr. 59. *H. Searle*, 1882. *Mouth of Alt*; *Wheldon*
- *Braunii*, Gmelin. *Lancashire*; 'probably introduced, A. Bennett!' in litt. (with cotton from Egypt probably, J. C. Melville, in litt. 59. *Canal at Reddish*; *Whitehead, Armitage, Wheldon*

ORDER NITELLEÆ

- Tolypella glomerata*, Leonh. *Lancashire*; A. Bennett! in litt. 59. *Birkdale*; *Wheldon*. 60. Nr. *Lancaster*, 1900; *Wheldon*
- *intricata*, Leonh. 60. *Canal nr. Cabus*; W. and W.
- Nitella flexilis*, Ag. or N. *opaca*, Ag. 59. *Chorlton Fields*. 60. *Abundant in Grizedale Reservoir*; 'not yet found in fruit,' W. and W.
- *opaca*, Agardh. *Lancashire*; A. Bennett! in litt. 59. *Waterhouses*; *Park Bridge*; *Filton Hill*; *Whitehead*. 60. *Garstang*; A. Wilson. 69. T. *Hebden. J. of B. March*, 1885

SUB-DIVISION AND CLASS.—ALGÆ

A. FRESH WATER ALGÆ

In the Appendix to Buxton's *Botanical Guide* to environs of Manchester (16 miles radius), 1849, there are a few records by Professor Wm. C. Williamson, F.R.S., and Mr. Joseph Sidebotham. The following list contains all the species named therein, very little having been added since so far as is known. There must be upwards of a thousand species of F. W. Algæ, including diatoms, in the whole county. The meagre lists given below will show how much might be done.

B. G. App. = Buxton's *Guide Appendix*.

* = Additions since B. G. App. 1849.

CLASS FLORIDEÆ

- Batrachospermum moniliforme*, Roth. 59. *Reddish*; +; B. G. App.

CLASS CHLOROPHYCEÆ

- Coleochaete scutata*, Bréb. 59. In a pond in *Victoria Park*; B. G. App.
- Edogonium Rothii* (Le Cl.), Pringsh. 59. *Victoria Park*; B. G. App.

CLASS CHLOROPHYCEÆ (continued)

- Bulbochæte setigera* (Roth.), Ag. 59. *Chorlton Fields*; B. G. App.
- * *Hormiscia subtilis* (Kütz.), De Toni. 60. *Summit of Greycroft Fell*. 21 Oct. 1903
- Chætophora cornu-damæ* (Roth.), Ag. 59. *Victoria Park*; +; B. G. App.

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CLASS CHLOROPHYCEÆ (continued)

- Chætophora tuberculosa* (Roth.), Ag. 59. *Chorlton Fields*; *B. G. App.*
 — *elegans* (Roth.), Ag. 59. Common (locally). *B. G. App.*
Draparnaudia plumosa, (Vauch.), Ag. 59. *Chorlton*; *B. G. App.*
 — *glomerata* (Vauch.), Ag. 59. *Reddish*; *B. G. App.*
Cladophora glomerata (L.), Kütz. 59. Abundant (locally). *B. G. App.*
Mougeotia genulfexa (Dillw.), Ag. 59. In almost every ditch; *B. G. App.*
Zygnema Vaucherii, Ag. var. *stagnale* (Hass.), Kirchn. 59. Common in ditches; *B. G. App.*
Spirogyra gracilis (Hass.), Kütz. 59. Boggy pools; *B. G. App.*

FAM. DESMIDIACEÆ

- Cylindrocystis Brebissonii*, Menegh. (59.) *B. G. App.* (no loc.)
Closterium Dianæ, Ehrenb. (59.) *B. G. App.* (no loc.)
 — *moniliferum* (Bory), Ehrenb. (59.) *B. G. App.* (no loc.)
 — *Leibleinii*, Kütz. (59.) *B. G. App.* (no loc.)
 — *acerosum* (Schrank), Ehrenb. (59.) *B. G. App.* (no loc.)
 — *Lunula* (Müller), Nitzsch. (59.) *B. G. App.* (no loc.)
 — *lineatum*, Ehrenb. (59.) *B. G. App.* (no loc.)
 — *striolatum*, Ehrenb. (59.) *B. G. App.* (no loc.)
 — *juncidum*, Ralfs. (59.) *B. G. App.* (no loc.)
 — *turgidum*, Ehrenb. (59.) *B. G. App.* (no loc.)
 — *Ralfsii*, Bréb. (59.) *B. G. App.* (no loc.), conf. needed
 — *rostratum*, Ehrenb. (59.) *B. G. App.* (no loc.)
 **Tetmemorus penioides*. 69. Among Sphagnum, *Farness Fells*. M. C. Cooke in *Grevillea*, vi. 1886
 **Cosmarium Sphagnicolum*, West. 60. Summit of *Greygarth Fell*. 21 Oct. 1903
 **Staurastrum margaritaceum* (Ehrenb.). Menegh. 60. Summit of *Greygarth Fell*. 21 Oct. 1903

FAM. PALMELLACEÆ

- Raphidium polymorphum*, Fresen. var. *falcatum* (Corda), Rabenh. (59.) *B. G. App.*
Apicocystis Brauniana, Näg. 59. *Broad Green, Liverpool*; W. Narramore

Mr. J. A. Martindale very kindly furnished a summary of Fresh Water Algæ, and one of Desmids only, for Westmorland and Lake Lancashire, V.C. 69. Diatoms are not included, there being no reliable information in reference to them. The lists were very carefully drawn up by Mr. Martindale, from the *Journal of the Roy. Microsc. Soc.* 1884, 1886, and 1892, and the plants were collected and vouched for by Mr. J. P. Bisset, Alf. W. Bennett, and Wm. West. The total number of species recorded, 35 Fr. Water Algæ (excl. Diatoms); 167 Desmids, for V.C. 69. Lake Lancashire. The district is the Lancashire Leven, that is, the lower portion. Less time was spent here than in the upper (Westmorland) portion; the number of species is therefore greater for the latter. Mr. Martindale, however, thinks the lower Leven basin will be found quite as rich in forms as the upper.

SUMMARY OF FR. WTR. ALGÆ (EXCLG. DIATOMS). V.C. 69

Palmellaceæ . . . 5	Ulvaceæ . . . 1	Chætophoraceæ . . . 2	Chantransiaceæ . . . 1
Protococcaceæ . . . 4	Confervaceæ . . . 4	Chroococaceæ . . . 7	Batrachospermæ . . . 2
Volvocineæ . . . 1	Ædogoniaceæ . . . —	Nostochineæ . . . 3	Lemnaceæ . . . —
Zygnemaceæ . . . 1	Ulotrichaceæ . . . —	Scytonemæ . . . 3	—
Vaucheriaceæ . . . 1	Chroolepidæ . . . 1	Trichophoræ . . . —	Total . . . 35

CLASS MYXOPHYCEÆ.—Order HORMOGONÆÆ

- Tolyptothrix distorta* (Fl. Dan.), Kütz. 59. Very common; *B. G. App.*
Lyngbya Martensiana, Menegh. 59. Abundant on boggy pools; *B. G. App.*
Symplocma muralis, Kütz. 59. *B. G. App.* (This and the last need confirmation)
Oscillatoria tenuis, Ag. 59. *B. G. App.* 69. *Coniston Old Man*. 29 Oct. 1903 (ascending to 1,700 ft.)

CLASS DIATOMACEÆ = BACILLARIÆÆ

- Achnanthes minutissima*, Kütz. (59.) Pond in *Bot. Gardens*
Cymbella lanceolata, Kirchn.
Stauroneis Phœnicenteron (Nitsch.), Ehrenb.
Navicula viridis, Kütz.
Gomphonema acuminatum, Ehrenb.
 — *dichotomum*, Kütz.
Eunotia Arcus, Ehrenb. Ditches, *Independent College*
Synedra capitata, Ehrenb.
 — *ulna*, Ehrenb.
 — *affinis*, Kütz.
 var. *fasciculata* (Kütz.). V.H. (Needs confirm.)
Meridion circulare, Ag.
Diatoma elongatum, Ag.
 — *vulgare*, Bory.
Surirella biseriata, Bréb. *Chorlton Fields*
Melosira varians, Ag.

All the above diatoms are recorded in Buxton's *Guide App.*, and are said to be more or less common, but no locality is given excepting as quoted above. Presumably they were found in the Lancashire area, otherwise they would not be considered common about Manchester.

The following from Buxton's *G. App.* must be considered ambiguities if not errors:—

- Gyrosigma hippocampus*, Hass.
Shintocystis libralis, Hass.
Fragilaria pectinalis, Lyngb.
 — *hymalis*, Lyngb.
 — *rhabdosoma*, Bréb.
Navicula platystoma, Ehr.

There is also Mr. Comber's list of Diatomaceæ found in the neighbourhood of Liverpool, publ. in *Trans. of Historic Soc. of Lanc. and Ches.*, vol. xi. 1859.

BOTANY

SUMMARY OF GENERA AND SPECIES OF DESMIDIACEÆ

Gonatozygon 2	Docidium 4	Euastrum 17	Arthrodesmus 4
Sphærozosma 1	Closterium 21	Cosmarium 42	Staurastrum 32
Hyalotheca 2	Mesotœnium —	Calocylindrus 7	—
Gymnozyga 1	Tetmemorus 4	Xanthidium 4	Total 167
Bambusina —	Spiroœnia 3	Penium 13	
Desmidium 1	Micrasterias 8	Cylindrocystis 1	

LIST OF MARINE ALGÆ

Of V.C. 69. Lake Lancashire, compiled by J. A. MARTINDALE, revised by E. M. HOLMES.
 \ Collected chiefly near Barrow-in-Furness

Authorities for records: Martyn's *Plantæ Cantabrigiensis*, 1763; Dr. Gibson, *Handbook to the Lakes*, 1854; Miss Hodgson, Ulverston; Mr. W. B. Kendall

Enteromorpha compressa, Grev. (Dr. Gibson)	Pelvetia canaliculata (L.), Decaisne et Thuret. (Dr. Gibson)
Monostroma lactuca (L.), J. Ag. (Dr. Gibson)	Haliidrys siliquosa (L.), Lyngb. (Dr. Gibson)
Ulva latissima, J. Ag. (Dr. Gibson)	Dictyota dichotoma, Lamour. (Dr. Gibson)
Cladophora pellucida, Kütz. (Robson's <i>Brit. Fl.</i> 1777)	Padina pavonia, Gaill. (Martyn's <i>Fl. Cantab.</i> 1763)
— Hutchinsia, Harv. (Dr. Gibson)	Porphyra laciniata, C. Ag. (Dr. Gibson)
— utriculosa, Kütz.	Chondrus crispus (L.), Stack. (Dr. Gibson)
var. leteviriens, Hansch. (Dr. Gibson)	Phyllophora membranifolia (Good and W.), J. Ag. (Miss Hodgson)
— rupestris (L.), Kütz	Ahnfeltia plicata (Huds.), Fries. (Mr. Kendall)
— glaucescens, Guff. (Mr. Kendall)	Gracilaria confervoides, Grev. (With. Arr. 1796)
Bryopsis hypnoides, Lamour. (Dr. Gibson)	Calliblepharis ciliata, Kütz. (Rodymenia ciliata, Miss Hodgson)
— plumosa (Huds.), C. Ag. (Dr. Gibson)	Lomentaria articulata, Lyngb. (Dr. Gibson)
Vaucheria litorea, B. and Ag. } Nordstedt.	— clavellosa, Gaill. (Miss Hodgson)
— synandra, Woronin	Champia parvula, Harv. (Dr. Gibson)
— Thuretii, Woronin	Chylocladia kalifornis, Grev. (Dr. Gibson)
— sphaerospora	Nitophyllum laceratum, Grev. (Mr. Kendall)
Dictyosiphon feniculaceus (Huds.), Grev. (Dr. Gibson)	Laurencia obtusa, Lamour. (Dr. Gibson)
Punctaria latifolia (Roth.), Grev. (Mr. Kendall)	— pinnatifida, Lamour. (Dr. Gibson)
— plantaginea, Grev. (Dr. Gibson)	Chondria dasyphylla, C. Ag. (Miss Hodgson)
Ectocarpus confervoides (Roth.), Le Jol.	Polysiphonia urceolata (Lightf.), Grev. f. formosa, J. Ag. (Dr. Gibson)
f. siliculosa (Dillw.), Kjellm. (Dr. Gibson)	— fibrillosa (Dellw), Grev. (Dr. Gibson)
Pylaiella litoralis (L.), Kjellm. (Dr. Gibson)	— migrescens (Huds.), Grev. f. affinis, Harv. (Miss Hodgson)
Arthrocladia villosa, Duby. Miss Hodgson	— fastigiata (Roth.), Grev. (Dr. Gibson)
Elachista fucicola (Vell.), Aresch. (Dr. Gibson)	Antithamnion plumula, Thur. (Dr. Gibson)
Sphacelaria cirrhosa (Roth.) C. Ag. (Martyn's <i>Pl. Cantab.</i> 1763)	Ceramium rubrum (Huds.), C. Ag. f. proliferum, J. Ag. (Miss Hodgson)
Cladostephus spongiosus (Lightf.), C. Ag. (Miss Hodgson)	— flagelliferum, J. Ag. (Mr. Kendall.) († H. F.)
Stypocaulon scoparium (L.), Kütz. (Dr. Gibson)	Microcladia glandulosa (Soland.), Grev. (Mr. Kendall)
Leathesia difformis (L.), Aresch. (Miss Hodgson)	Gloiosiphonia capillarum, Carm. MS. (Miss Hodgson)
Scitosiphon lomentarius (Lyngb.), Jag. (Mr. Kendall)	Rare.
Fucus ceranoides, L. (Dr. Gibson)	Dumontia filiformis (Fl. Dan.), Grev. (Dr. Gibson)
— vesiculosus, L. (Dr. Gibson)	Corallina officinalis, L. (Dr. Gibson)
— serratus, L. (Dr. Gibson)	
Ascophyllum nodosum (L.), Le Jol. (Dr. Gibson)	

Since the latest records of the above list a number of marine algæ have been recorded as follows:—

Trans. Liverpool Marine Biological Committee, containing reports and memoirs of work since 1885. The marine algæ were named by Prof. R. J. Harvey Gibson, Prof. Weiss, Dr. Darbishire, and others. *Trans. L'pool Biol. Soc.* vol. 5, 1890-1, pub. 1891, pp. 83-143, contains a revised list of marine algæ of the L.M.B.C. District. Reprinted in vol. iii. of *Reports on the Fauna of L'pool Bay*, 1892, with pagination altered to 65-125. The first list of algæ was published in 1886, pp. 312-314, by Alfred Leicester. There are ten memoirs of the L.M.B.C., containing full descriptions of typical marine plants and animals. The greater number of these memoirs relate to animals. The district embraces not only Lancashire, but the whole coast from S.W. Scotland to Cardigan, and the Isle of Man. A list of marine algæ extracted from the above Transactions was given in the *Southport Handbook, Brit. Assoc.* meeting, 1903, under Zoology, but no localities are given; therefore the plants mentioned must not be considered as belonging to the county, with-

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out reference to the above Transactions. Two very common plants are recorded in *Ann. Rep. Manch. Micr. Soc.* for 1889, pp. 114-116. These are *F. vesiculosus* and *F. nodosus*.

The following six species of marine algæ are recorded in 'A Catalogue of the British Marine Algæ,' by E. A. L. Batters, LL.B., Supplement to the *Journal of Botany*, 1902. Of the six species only three are additional to the list compiled by Mr. Martindale. They are marked thus.*

Vaucheria litorea, B. and Ag. *Ulverston*
 **Sphacelaria plumigera*, Holmes. *Addingham, Walney I.*
 **Padina pavonia*, Grillon. *Walney I.*

Lomentaria articulata, Lyngb. *Walney I.*
 **Ceramium Deslongchampsii*, Chauv. *Ulverston*
 — *flabelligerum*. *Ulverston*

Dr. H. Stolterforth, M.A., of Chester, named all the marine diatoms for the Liverpool Marine Biol. District. The account is published in *2nd Report of the L.M.B.C.*, 1889. None of these records refer to Lancashire, but to Cheshire and North Wales. A bibliography of Liverpool, etc., is given. It is unaccountable that Lancashire Algæ (including Diatoms), both of fresh and salt water, should have been so neglected, more so than any other county apparently.

For further references see Dr. Van Heurck's *Synopsis*, ch. iii. p. 43, etc.

CLASS LICHENES

(Lichen forming Fungi)

More conveniently placed here than under the class Fungi proper. No attention was paid to the lichens until the present decade. Messrs. Wheldon and Wilson have recently devoted some time to the study of West Lancashire species. The following list, which is based on their MS. must not therefore be taken as representative of the lichen flora of the county. Many of their doubtful plants have been submitted to Messrs. J. A. Martindale and E. M. Holmes. See *Journal of Botany*, September, 1904.

FAM. II.—COLLEMACEI

Tribe II.—COLLEMEI

- Lichina confinis*, Ag. 60. Tidal rocks, nr. *Silverdale*; W. and W.
Collema granuliferum, Nyl. 59. *Birkdale*; Wh. 60. *Silverdale*; +; Wh. and W.
 — *melaenum*, Ach. 60. *Yealand*; Wheldon
 — *furvum*, Ach. 60. *Silverdale*; W. and W.
 — *flaccidum*, Ach. 60. Nr. *Henriddan*; W. and W.
 — *pulposum*, Ach. 60. Nr. *Yealand*
 — *multipartitum*, Sm. *Eng. Bot.* 60. *Silverdale*; near *Whitewell*; W. and W.
 — *isidioides*, Nyl. 60. *Warton Crag*; Martindale
Collemodium plicatile, Nyl. 60. *Silverdale Cove*; near *Whitewell*; W. and W.
 — *fluviatile*, Nyl. 60. Stones in *R. Hodder*; Wh. — *Schraderi*, Nyl. 60. *Dalton Crag*; W. and W.
 **Leptogium pulvinatum*, Nyl. 60. +; W.
 — *lacerum*, Gray. 60. *Dalton Crag*; *Ease Gill*; W. and W.

FAM. III.—LICHENACEI

- Sphinctrina turbinata*, Fr. 69. Nr. *Ferry Hotel, Windermere*; J. A. Martindale in litt.
Coniocybe pallida, Fr. 60. *Clougha*; R. Jacob
Calcium hyperellum, Ach. 60. Between *Hornby* and *Melling*; nr. *Wennington*; Wh. and W.
Trachylia tympanella, Fr. 60. *Greystoneley*; *Crag Wood*; W. and W.

FAM.—SPHÆROPHOREI

- Sphærophorus coralloides*, Pers. 60. *Gravell's Clough*; *Clougha*; W. and W. 69. *Coniston Old Man*.
 — *fragilis*, Ach. 60. *Gravell's Clough*; *Bottom Head Fell*; *Deer Clough*; *Wolfbole Crag*; Wh. and W.

Series II.—Tribe III.

- Bæomyces rufus*, DC. 60. *Middle Gill, Hindburn*; nr. *Gressingham*; W. and W.

FAM.—STEREOCAULEI

- Stereocaulon evolutum*, Graewe. 60. *Clougha, Deer Clough*; W. and W.
 — *denudatum*, Flörke. 60. *Head of Great Clough*; *Greygarth Fell*; W. and W.
 — *condensatum*, Hoffm. 60. *Wolfbole Crag*; W. and W.

FAM.—CLADONIEI

- Cladonia pyxidata*, Fr. Common. 59. 60. 69.
 var. *chlorophaea*, Flörke. 60. *Tatbam Moor*; W. and W. 69. Nr. *Ferry Hotel, Windermere*; Martindale. *Waterhead, Coniston*
 var. *poecilum*, Fr. 60. Shore at *St. Anne's*; Wheldon
 — *pityrea*, Flörke. 60. Gully nr. *Lea Fell*; W. and W.
 — *fimbriata*, Fr. 60. Railbanks, *Silverdale*; *Parlick Pike*, etc.; W. and W.
 var. *tubaeformis*, Fr. 59. *Netherton*; Wheldon. 69. *Waterhead, Coniston*
 * — *fibula*, Nyl. var. *subcoronata*, Nyl. 69. *Ferry Hotel, Windermere*; Martindale
 — *ochrochlora*, Flörke. 69. Nr. *Ferry Hotel, Windermere*; Martindale
 — *cervicornis*, Schaer. 60. *Clougha*; *Long Crag*, etc.; W. and W.
 — *lepidota*, Nyl. 60. *Clougha*; Wheldon. *Wardstone*; W. and W.
 — *furcata*, Hoffm. 59. *Hightown*; Wheldon. 60. *Whitewell*, etc.; W. and W. *Greygarth Fell*. 69. *Coniston Old Man*

BOTANY

- Cladonia furcata*, Hoffm. (*continued*)—
 var. *corymbosa*, Nyl. 60. *Greygarth Fell*
 var. *spinosa*, Hook. 69. Nr. *Ferry Hotel*,
Windermere; Martindale
- *— *racemosa*, Hoffm. f. *recurva*, Flörke. 69. *Coniston*
Old Man
- *pungens*, Flörke. *C. *muricata*, Crombie. *Greygarth Fell*, 2,050 ft.; A. Wilson
- *squamosa*, Hoffm. 60. *Clougha Pike*; W. and W.
 L. *Easegill*; Wilson. *Greygarth Fell*
- *caespititia*, Flörke. 60. Common; W. and W.
- *coficifera*, Schuer. 60. *Clougha*, etc.; W. and W.
- *digitata*, Hoffm. 60. *Grizedale*; *Clougha*; +;
 W. and W.
- *macilenta*, Hoffm. 60. Common on the fells;
 W. and W. 69. *Coniston Old Man*
 var. *coronata*, Nyl. 60. *Greygarth Fell*
- *bacillaris*, Nyl. 60. *Clougha*; *Middle Gill*; W.
 and W.
 var. *subcoronata*, Nyl. 69. *Coniston Old*
Man
- Flörkeana, Fr. forma. 60. *Grizedale Hd.* W.
 and W.
- Cladina rangiferina* (L.) Nyl. 60. *Greygarth Fell*;
 A. Wilson.
- *silvatica*, (Hoffm.), Nyl. 59. 60. On all the fells;
 A. Wilson. 69. Common
 var. *alpestris*, Nyl. 60. *Wardstone Breast*;
 W. and W.
- *uncialis*, Nyl. 60. *Tarnbrook Fell*; *Clougha*, etc.;
 W. and W. *Greygarth Fell*
 f. *adunca*, Cromb. *Greygarth Fell*, 2,050 ft.;
 W. and W.

Series III.—Tribe IX.

- Ramalina farinacea*, Ach. 60. *Ireby*; nr. *Leck*; A.
 Wilson
- *fraxinea*, Ach. 60. Nr. *Burrow*; A. Wilson
- *fastigiata*, Ach. 60. *Lower Ease Gill*; A. Wilson
- *polymorpha*, Ach. 60. Nr. *Heysbam*; W. and W.
- *scopulorum*, Ach. 60. *Heysbam*; Wh.
 var. *incrassata*, Nyl. *Heysbam*; Wheldon
- *cuspidata*, Nyl. 60. *Heysbam*; *Middleton* (and
 f. *minor*); W. and W.

Tribe X. USNEI

- Usnea hirta*, Hoffm. 60. *Whitewell*; *Trough of*
Bowland; W. and W. *Leck*; Wi.
- *ceratina*, Ach. var. *scabrosa*, Ach. 60. On grit
 rocks, *Clougha*; *Ease Gill*; W. and W.
- *dasyopoga*, Nyl. var. *plicata*, Nyl. 60. Nr.
Lower Emmetts; W. and W.
- *articulata*, Hoffm. 59. *Burnley*; Crombie (pro-
 bably extinct)

Tribe XI., Nyl

- Alectoria bicolor*, Nyl. 60. *Clougha*; W. and W.
- *jubata*, Nyl. var. *lanestris*, Ach. 60. On fir tree,
Marshaw Fell; W. and W.

Tribe XII., Nyl

- Cetraria islandica* (L.) Ach. f. *crispa*, Ach. 60.
 Summit of *Greygarth Fell*
- *aculeata* (Ach). Fr. 59. 60. 69. Very common
 on the fells. f. *hispidata* 60. 69.

- Platysma glaucum* (L.) Nyl. 59. Wh. 60. Common;
 W. and W.
 f. *ampullaceum*, Crombie (a monstrosity,
 caused by a parasite, *Abrothallus Smithii*)
 59. *Cohs* (first detected here as British
 Crombie, p. 227)
- var. *tenuisetium*, Crombie. 60. *Clougha*;
 Martindale. *Hell Crag*, *Wardstone*, etc.;
 W. and W.
- *triste* (Web.). (*Parmelia tristis*, Nyl.) 60. *Hell*
Crag; *Long Crag*; W. and W.

Series IV. Tribe XIII., Nyl

- Evernia prunastri*, Ach. 59. *Langbo*; Wh. 60
Yzalana, etc.; W. and W. 69. (Martindale)
- f. *sorediata*. 60. *Whitewell*; *Leck*; W.
 and W.
- *furfuracea*, Fr. 59. *Pendle Hill*; 60. *Greygarth*
Fell (2,000 feet), etc.; W. and W.
- Parmelia perlata*, Ach. 60. *Lower Ease Gill*; A.
 Wilson. 69. Nr. *Windermere Ferry Hotel*;
 Martindale
- *cetrarioides*, Nyl. 60. *Chaigley*; nr. *Clougha*;
 W. and W.
- *laevigata*, Ach. 60. *Whitewell*; W. and W.
- *scortea*, Ach. 69. Nr. *Ferry Hotel*, *Windermere*;
 J. A. Martindale (in litt.)
- *saxatilis*, Ach. 59. *Maghull*; Wh. 60. (W.
 and W.)! 69. (Martindale)!
- *sulcata*, Tayl. 59. *Netberon*; Wh. 60. (W.
 and W.) 69. (Martindale)
- *omphalodes*, Ach. 59. (Wheldon). 60. (W.
 and W.)
- *Borreri*, Turn. 60. Nr. *Aughton*; W. and W.
- *caperata*, Ach. 60. *Ireby*; nr. *Caton*; etc. W.
 and W.
- *conspersa*, Ach. 60. *Ease Gill*; W. and W.
69. Nr. *Ferry Hotel*, *Windermere*; Martindale
- *prolixa*, Nyl. 60. *Ease Gill*; W. and W.
- *exasperata*, Nyl. 60. *Dolphinbalm*, etc.; W.
 and W.
- *subaurifera*, Nyl. 60. Nr. *Kirkby Lonsdale*;
Whitewell; W. and W.
- *fuliginosa*, Nyl. 59. *Netberon*; Wheldon. 60.
Whitestone, etc.; W. and W. 69. *Windermere*;
 Martindale
- v. *lacte-virens*, Nyl. 59. Wheldon. 60.
 (W. and W.)
- *lanata*, Wallr. 60. *Hell Crag*
- *physodes*, Ach. 60. Frequent, W. and W.

Tribe XV., Nyl

- Peltidea aphthosa*, Ach. 60. *Middle Gill*; *Hindburn*;
Silverdale; *Ease Gill*; W. and W.
- Solorina saccata* (L.), Ach. 60. *Ease Gill Kirk*;
Silverdale; W. and W. *Dalton Crag*; A.
 Wilson
- Peltigera canina* (L.), Ach. 59. 60. 69
- *rufescens*, Hoffm. 60. (W. and W.)
 f. *praetextata*, Flk. 69. Nr. *Ferry Hotel*,
Windermere; Martindale. *Coniston*
- *polydactyla*, Hoffm. 60. *Lower Salter*; W. and
 W. 69. Nr. *Ferry Hotel*, *Windermere*; Mar-
 tindale
- *horizontalis*, Hoffm. 60. (W. and W.)

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Tribe XVI., Nyl

- Physcia parietana* (L.), De Not. 59. 60. 69
 — ciliaris, DC. 60. *Aughton*; W. and W. 'rare'
 — lychnea, Nyl. 60. Nr. *Whitewell*; W. and W.
 — pulverulenta (Schreb.), Nyl. 59. *Kirkby*; Wheldon. 60. *Silverdale*; *Yealand*; Wh. Nr. *Carnforth*; Wi.
 — pityrea, Nyl. 60. *Silverdale*; nr. *Carnforth*; W. and W.
 — stellaris, Nyl. v. leptales, Ach. 59. *Kirkby*; Wh. 60. Between *Carnforth* and *O. Kellet*; Wi. *Eaves Wood*; Wh.
 * — tenella (Scop.), Nyl. 60. *Greystoneley*; *Whitewell*; W. and W. Nr. *Carnforth*; Wi.
 — aipolia, Nyl. 60. Nr. *Gressingham*; W. and W.

Tribe XVII.

- Gyrophora cylindrica* (L.), Ach. 69. *Coniston Old Man* (2,630 feet and 1,780 feet)
 — torrefacta (Lightf.), Crombie. 60. Frequent above 1,500 feet; W. and W.
 — polyphylla (L.), Turn. and Borr. 60. *Wardstone*; *Foxdale Head*; *Grizedale Hd.*; *Long Crag*; *G. Clough of Tarnbrook Fell*; W. and W. *W. Wall*; *Lower Ease Gill*; A. Wilson
 — flocculosa (Wulf.), Turn and Borr. 60. *Tarnbrook Fell*; *Gravell's Clough*; W. and W.
 — hyperborea, Ach. 60. *Leighton's Lichen Flora*

Series V.—PLACODEI, Nyl

- Pannaria brunnea*, Nyl. 60. *Lower Ease Gill*; W. and W.
Pannaria nigra, Nyl. 59. *Clitheroe*; Wh. 60. *Silverdale*; nr. *Leck Hall*; *Whitewell*; *Greystoneley*; *Warton Crag*; W. and W.
Coccocarpi plumbea, Nyl. 60. Nr. *Aughton*; nr. *Arkbolme*; W. and W.
Leproloma lanuginosum, Nyl. 60. *L. Ease Gill*; W. and W.
Lecanora crassa, Ach. 60. Nr. *Borwick*; W. and W. *Silverdale*; Wh. 69. *Hamps Fell*, *Grange*; A. Wilson, MS.
 — saxicola, Ach. 60. Nr. *Whitewell*; nr. *Melling*
 — callopisma, Ach. 60. *Silverdale*; W. and W.
 — sympagea, Nyl. 60. *Whitewell*; *Borwick*; *Hornby*; W. and W.
 — tegularis, Nyl. 60. *Silverdale*; *Lower Emmetts*; Wh. and W.
 — lobulata, Somm. 60. *Silverdale*; W. and W.
 — xantholyta, Nyl. 60. *Over Kellet*; A. Wilson. *Silverdale*; Wheldon
 — pruinosa, Nyl. 60. Nr. *Wennington*; W. and W.
 — laciniosa, Nyl. 60. Nr. *Carnforth*; W. and W.
 — vitellina, Ach. 59. *Maghull*; Wheldon. 60. *Borwick*; *Caton*; *Aughton*; *Hornby*; W. and W.
 — erythrella, Nyl. 60. *Ease Gill*; W. and W.
 — ferruginea, Nyl. 60. *L. Ease Gill*; W. and W.
 — galactina, Ach. 60. *Ease Gill*; A. Wilson
 — chlorona, Nyl. 60. *Abbeystead*; W. and W.
 — coilcarpa, Nyl. 60. *L. Ease Gill*; W. and W.
 — allophana, Nyl. 59. *Kirkby*; Wh. 60. *Wash Dub Wood*; *Abbeystead*
 — rugosa, Nyl. 60. *Silverdale*; *Yealand*; W. and W.
 — glaucoma, Ach. 60. *Greyarth Fell*; A. Wilson
 — varia, Ach. 60. Nr. *Whitewell*; W. and W.

- Lecanora conizaea*, Nyl. 59. *Maghull*; Wheldon. 60. *Whitewell*; W. and W. *Barnacre*; A. Wilson
 — conizaeoides, Nyl. 60. *Silverdale*; *Whitewell*; Wheldon
 — intricata, Nyl. 60. *L. Ease Gill*; W. and W.
 — expallens, Ach. var. *lutescens*, Nyl. 60. Below *Kirby Lonsdale*; W. and W.
 — badia, Ach. 60. *L. Ease Gill*; W. and W.
 — symmetrica, Nyl. 59. *Falings*, nr. *Maghull*; Wheldon
 — polytrypa, Schaer. 69. *Coniston Old Man*, 2,633 feet
 — ventosa, Ach. 60. *Ease Gill*; W. and W.
 — tartarea (L.), Ach. 60. *Wolfbole Crag*; *Wardstone*; *Clougha*, etc; W. and W.
 — subtartarea, Nyl. 60. Nr. *Burrow*; W. and W.
 — parella, Ach. The *Perelle d'Auvergne* of S. France. 59. *Netberton*; Wheldon. 60. Nr. *Carnforth*; A. Wilson. *Melling*; W. and W. 69. *Windermere*; *Martindale*
 — subfusca, Nyl. 60. *Hornby*; W. and W.
 — atra, Ach. 60. *Trees*, nr. *Caton*; Wheldon
 — ochracea (Schaer). 60. *Silverdale*; W. and W.
 — irrubata, Nyl. 60. *Silverdale*; Wheldon
 — privigna, Nyl. 59. *Maghull*; Wheldon
 — pallescens, Nyl. Nr. *Dalton Hall*; W. and W.
 — calcarea, Somm. f. *contorta*, Nyl. 60. *Silverdale*; W. and W.

Sub-Tribe III., Nyl

- Pertusaria globulifera* (Turn.), Nyl. 60. *Crook of Lune*; W. and W. 69. Nr. *Ferry Hotel*, *Windermere*; *Martindale*
 — velata, Nyl. 60. *Black Clough*; W. and W.
 — dealbata, Nyl. 60. *Middle Gill*, *Hindburn*, and *Tarnbrook Fell*; W. and W.
 — lactea, Nyl. 60. Nr. *Hornby*; *Caton*; W. and W.
 — communis, DC. 60. *Hindburn*; W. and W. *Wennington*; *Wilson*. 69. Nr. *Ferry Hotel*, *Windermere*; *Martindale*
 — aipolia, Nyl. 60. *Gressingham*; W. and W. f. *rupestris*, DC. 60. *Black Clough*; W. and W.
 — Wulfenii, DC. 60. *Middle Gill*; *Wolfbole Crag*, on trees; W. and W.
 — amara, (Ach.), Nyl. 59. *Clitheroe*; Wh. 60. *Whitewell*, etc., W. and W. 69. *Windermere*; *Martindale*
Phlyctis agelæa, Körb. 60. Nr. *Wennington*; W. and W.
Thelotrema lepadinum, Ach. 60. *Whitewell*, W. and W. 69. Nr. *Ferry Hotel*, *Windermere*; *Martindale*
Urceolaria scruposa, Ach. 59. *Rainford*; Wheldon. 60. *Clougha*; *Whitstone Clough*; W. and W.
 * — bryophila, Nyl. 60. On *Cladonia pyxidata* and mosses in *Whitstone Clough*; W. and W.

FAM.—LECIDEINEI

- Lecidea lurida* (Swartz.). 60. *Dalton Crag*; W. and W.
 — crustulata (Ach.). 60. *Dale Gill*, *Hindburn*; *Clougha*; W. and W.
 — lucida, Ach. 59. Nr. *Liverpool*; Sir J. E. Smith. 60. *Melling*, etc.; Wh. and Wi. 69. Nr. *Ferry Hotel*, *Windermere*; *Martindale*

BOTANY

FAM.—LECIDEINEI (*continued*)

- Lecidea decolorans*, Flörke. 60. *Cloughs*; Wh. *Wardstone*; W. and W.
 — *enteroleuca*, Ach. 60. *Greygarth Fell*; A. Wilson
 — *parasema*, Ach. 59. *Rainford*. 60. *Silverdale*; *Yealand*; Wh. *Wash Dub Wood*; W. and W.
 var. tabescens, Leight. 60. Nr. *Hawes Water*; Wheldon
 — *uliginosa* (Schrad.), Ach. 60. *Wardstone Breast*; W. and W.
 — *coarctata* (Sm.). 60. *Hindburn*; W. and W.
 — *plana*, Lahm. 60. *Cloughs*; Wheldon
 — *lactea* (Flörke). 60. *Ease Gill*; W. and W.
 — *fusco-atro*, Ach. f. *fumosa*, Ach. 60. *L. Ease Gill*; W. and W.
 — *subkochiana*, Nyl. 60. *Greygarth Fell*; W. and W.
 — *contigua*, Fr. 59. *Netherton*; Wh. 60. *White-stone Clough*; +; W. and W.
 f. *platycarpa*, Fr. 60. *Gravell's Clough*; W. and W. 69. Nr. *Windermere*; *Martindale*
 — *confluens*, Web. 60. Wall on summit of *Greygarth Fell*; Wilson. *Great Clough*; W. and W.
 — *calcivora* (Ehrh.). 60. *Silverdale*; W. and W.
 — *canescens*, Dicks. 60. *Borwick*; W. and W. *Silverdale*; Wheldon
 — *myriocarpa*, DC. 60. *Melling*; W. and W. *Caton*; Wh.
 — *cæruleo-nigricans*, Nyl. 60. Frequent about *Silverdale*; *Yealand*; Wheldon. *Dalton Crag*; A. Wilson
 — *lenticularis*, Ach. 60. *Silverdale*; W. and W.
 — *albo-atra* (Hoffm.). 60. On oak, *Barnacre*; A. Wilson
 — *aromatica*, Ach. 60. *Warton Crag*; A. Wilson
 — *exauthematica*, Sm. 60. Nr. *Hawes Water*; Wheldon. *Dalton Crag*; A. Wilson
 — *pelidna*, Ach. (umbrina, Ach.). 60. *Lower Ease Gill*; W. and W.
 — *sabuletorum*, Flörke. 60. *Dalton Crag*; A. Wilson
 — *endoleuca*, Nyl. 60. Below *Kirkby Lonsdale*; W. and W.
 — *muscorum* (Swartz). 60. *L. Ease Gill*; W. and W.
 — *geographica* (L.) 60. *Great Clough*; W. and W. *Ease Gill*; A. Wilson. 69. *Coniston Fells*
 — *concentrica*, Dav. 60. *Gravell's Clough*; 60. *Whitewell*; W. and W.
 — *rimosa*, Dicks. 60. *Greygarth Fell*; A. Wilson
 — *cupularis* (Ehrh.). 60. *Greygarth Fell*; nr. *Hawes Water*; A. Wilson
 — *parasitica* (Flörke). 60. On *Lecan. parella*, *Ease Gill*; W. and W.
 — *coriacea*, Nyl. 69. *Coniston Old Man*; J. A. *Martindale* (in litt.)

FAM.—LECIDEINEI (*continued*)

- Lecidea neglecta*, Nyl. 60. An undeveloped state of this (*Lepraria lobiferaria*, Nyl.), spreading over mosses, *Borwick*, etc.; W. and W.

FAM.—GRAPHIDEI

- Opegrapha atra*, Pers. 60. *Dalpinbolme*; Wheldon
 — *herpetica*, Ach. 60. Nr. *Abbestead*; W. and W.
 — *varia*, Pers. 60. (W. and W.) f. *notha*, Ach. *Barnacre*; Wi. f. *pulicaris*, Lightf. 60. *Silverdale*; W. and W.
 — *vulgata*, Ach. 60. *Hawes Water*; *Whitewell*; W. and W.
 — *saxatilis*, DC. 60. (W. and W.)
 — *Chevallieri*, Leight. 60. (W. and W.)
Arthonia Swartziana, Ach. 60. *Wash Dub Wood*; W. and W.
 — *pruinosa*, Ach. 60. Nr. *Abbestead*; W. and W.
Graphis elegans, Sm. 60. *Roeburndale*; *O. Wyrsdale*; *Whitewell*; +; W. and W.
 — *scripta*, Ach. 60. *Roeburndale*; *Abbestead*; +; W. and W.
 — *sophistica*, Nyl. 60. *Silverdale*; *Whitewell*; *Ease Gill*; W. and W.

PYRENOCARPEI

FAM.—ENDOCARPEI

- Endocarpon minutum* (L.), Ach. 60. *Silverdale*; *Hodder Valley*, etc.; W. and W. 69. *Tewbarrow*; A. Wilson, MS.
 v. complicatum (Sw.). 60. *Hawes Water*; Wheldon. *Leck Fell*; Wilson
 — *rufescens*, Ach. 60. *Hawes Water*; Wh. *Warton Crag*; Wi. 69. *Hamps Fell*; A. Wilson, MS.

FAM.—VERRUCARIEI

- Verrucaria calciseda*, DC. 60. *Silverdale*; Wh. *Whitewell*; W. and W.
 — *Dufourei*, DC. 60. *Ease Gill*; *Silverdale*; W. and W.
 — *nitida*, Weig. 60. *Silverdale*; Wh. *Whitewell*; W. and W.
 — *glaucoma*, Ach. 60. *Silverdale*; W. and W.
 — *conoidea*, (Fr.). 60. *Over Kellet*; A. Wilson
 — *margacea*, (Wahlenb.). *var. Æthiobola*, Wahlenb. 60. *Wash Dub Wood Beck*; W. and W.
 — *nigrescens* (Pers). 60. *Silverdale*; Wheldon
 — *rupestris*, Schrad. 60. *Ease Gill*; W. and W.
 — *epidermidis*, Ach. 59. *Netherton*; Wheldon
 — *immersa*, Leight. 60. *Ease Gill*; W. and W.
 — *gemmata*, Ach. 59. Trees near *Clitheroe*; Wheldon. Nr. *Whittington*; W. and W.
 — *maura*, Wahlenb. 60. S. of *Heysham*; W. and W.
 — *mauroides*, Scher. 60. *L. Ease Gill*; W. and W.
 — *chlorotica*, Ach. 60. *Silverdale*; W. and W.

SUB-DIVISION AND CLASS.—FUNGI

Of this great and important sub-division of the vegetable kingdom with its groups and classes, not a single order has had any attention given to it. As far as publications go, there are only the most casual references to solitary species. The only attempt at list-making is one of eight species, all found in the north of the county. All these eight species are more or less well known parasites on herbaceous plants, and as all flowering plants and many flowerless plants have theirs, there should be found in the county some two to three thousand forms. Of the fifteen hundred British *Agaricaceæ* only two names have been put on paper in a little-known periodical, that is as far as we can ascertain.

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Three other Hymenomycetes in the same periodical, and twenty miscellaneous species, belonging to various groups and orders, constitute the records. There may be old records, and some in local societies' publications, unknown to us. A well organized mycological society is much needed in the county, having members residing in all the vice-counties. However energetic the student may be he cannot alone investigate more than a small portion of a county the size of Lancashire, even if he gave all his leisure hours to the study of its fungi. It does not seem desirable to enumerate the recorded species of fungi, but the references are given below.

<p><i>Grevillea</i>, March and June, 1886 ; March and December, 1887 ; June and September, 1889 ; December, 1890 <i>The Naturalist</i>, June, 1901 ; November, 1896, etc. <i>Midland Naturalist</i>, July, 1888, p. 189</p>	<p><i>Gardener's Chronicle</i>, 28 July, 1888, p. 104, fig. 11 <i>Wesley Naturalist</i>, June, September, 1888 ; June, 1889, etc. <i>Rep. Manch. Microsc.</i> 1889, pp. 117-118 <i>Research</i>, November, 1889, p. 114</p>
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The vertical range in Lancashire of some more or less well-known Agaricacæ may be of interest, as they have not previously been recorded for the county. The observations were made in the middle of the autumn of 1903 by the writer of this article. In other parts of the county some of these fungi, now recorded for the agrarian zone of Watson, may be found just within the Inferred zone, that is, where the land rises to that height.

	Greygarth Fell. Feet.	Coniston Old Man. Feet.		Greygarth Fell. Feet.	Coniston Old Man. Feet.
<i>Lepiota granulosa</i> , Batsch.	2,050	2,620	<i>Naucoria semiorbicularis</i> , Bull.	2,050	1,150
<i>Clitocybe brumalis</i> , Fr.	—	1,600	<i>Stropharia stercoraria</i> , Fr.	—	2,600
<i>Mycena galericulata</i> , Scop.	—	400	— <i>semiglobata</i> , Batsch.	—	2,300
— <i>filipes</i> , Bull, forma	—	1,150	<i>Hygrophorus laetus</i> , Fr.	—	900
— <i>pullata</i> , Bolt	—	1,150	— <i>obrusseus</i> , Fr.	—	800
<i>Omphalia fibula</i> , Bull, v. Swartzii, Fr.	—	400	— <i>Colemanianus</i> , Blox.	1,350	—
<i>Entoloma sericeum</i> , Bull	1,350	1,700	<i>Marasmius androsaceus</i> , (L.), Fr.	—	400

ZOOLOGY

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It is quite impossible, in an article of this nature, to treat the invertebrate fauna of the sea fringing the coast of Lancashire in anything like detail. An immense amount of investigation has been carried out during the last twenty years, and the fauna and flora of the Irish Sea have now been investigated more completely than most other similar areas of the British seas, the Firth of Forth and St. Andrew's Bay in Scotland and the English Channel being excepted. There are now two biological stations in the northern part of the Irish Sea—one at Piel in the Barrow Channel, and the other at Port Erin in the Isle of Man. Four distinct organizations—the Lancashire Sea Fisheries Committee, the Liverpool Biological Society, the Liverpool Marine Biology Committee, and the Southport Society of Natural Science—are now in existence and are still investigating Lancashire waters. The marine zoology of this area has therefore received and is still receiving very considerable attention.

Physically the Irish Sea is for the most part a shallow water basin. The North Channel which connects it with the Atlantic and the Firth of Clyde is, in places, of considerable depth (over 140 fathoms), and on the south St. George's Channel varies from 40 to about 90 fathoms. To the westward of the Isle of Man there is a deep depression in which depths of 50 to 80 fathoms may be found. With these exceptions the greater extent of the Irish Sea area is comparatively shallow. The southern entrance is wide, but the northern inlet is very restricted, and to this cause is due the peculiar conditions of the tides. The tidal wave coming in from the Atlantic impinges obliquely on the south-west coast of Ireland, and there splits up into three main streams. One of these passes up the English Channel and enters the North Sea through the Straits of Dover, but, becoming reflected from this narrow outlet, sets up very peculiar tidal phenomena. Another main stream passes up the Bristol Channel, producing the high tides in the Severn. The remaining stream passes up through St. George's Channel into the Irish Sea. Continuing on, the Atlantic tidal crest passes round the north of Scotland, entering the North Sea, but a part of it also runs down the North Channel, and so enters the Irish Sea from the north. Thus there are two main tidal streams entering the latter basin from different directions, but in consequence of the much wider southern channel, more water enters the Irish Sea from the south than from the north. There is therefore a very evident surface drift of the water from south to north, helped no doubt by the prevailing west to south winds.

These two tidal streams meet in a straight line drawn from the north of the Isle of Man across to Morecambe Bay, and from the Isle of Man to the Irish coast. Between the Irish and Manx coasts there is a large area where tidal streams practically do not exist, and where the water simply rises and falls. All along the east Irish coast the velocity of the stream is small, but

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over towards the coasts of Lancashire and north Wales it is very much greater, and in the bays and estuaries of that side the stream is very rapid and the rise of the water is very great. Thus at Liverpool the maximum velocity of the stream in the River Mersey is from 7 to 8 knots per hour, and the maximum tidal rise during spring tides is over 30 feet.

It is due to these conditions that the gradient of depth in the Irish Sea is much greater on the Irish than on the Lancashire side. Starting out from (say) Dundrum Bay on the former side we encounter the 50-fathom line at about 15 miles from the coast, and long before we reach the Calf of Man we are in water of about 80 fathoms in depth. But crossing from Fleetwood towards the Calf, the gradient is very much less, and the average distance of the 10-fathom line from the coast may be stated as about 10 miles. The 20-fathom contour is about 20 to 30 miles from land, and between the Lancashire and Manx coasts the greatest depth is not over 20 fathoms except for one considerable depression. It is a credible hypothesis that Morecambe Bay itself has resulted from the rapid eastward stream due to the meeting of the north and south tidal streams, and however this may be it seems certain that the shallow water area along the coast of Lancashire is due to erosion of the coast-line in the past, and the distribution of the débris so formed by the strong easterly and north-easterly tidal streams. The peculiarly evanescent nature of the Lancashire coastal waters is due to the shallow sea so produced, and to the great rise and fall of the tides. Twice a day practically the whole of Morecambe Bay and great stretches of the Lancashire coast are laid bare and become dry land.

Sand is the characteristic bottom deposit in the sea off the coast of Lancashire. Here and there the bottom consists of sand with varying proportions of mud, and far out at sea we find extensive deposits of calcareous matter, shells and comminuted fragments of the same, with material resulting from the denudation of calcareous rock, also deposits formed by calcareous algæ. For the most part the Irish Sea bottom is clean sand or shelly gravel, and affords good trawling ground. Only here and there do we find rough ground on which the trawl net cannot be used. The greater portion of the inshore sea bottom consists of sand or mud, with in places very restricted patches of rough stones or gravel.

We find as a result of the shallow seas and the rapid tidal streams that the sea water off the Lancashire coasts hardly ever presents that pellucid appearance which may be observed in the sea off a rocky coast, or far out from land. The rapid tidal streams stir up the bottom and cause muddy particles to be carried about in a state of suspension. River waters also carry down a considerable amount of suspended inorganic matter to the sea. There are no great rivers falling into the Irish Sea on the coast of Lancashire, but those that do exist exercise a considerable influence on the specific gravity of the sea water, which nowhere has the high density characteristic of truly oceanic water. As a general rule the specific gravity is less than 1.026, and is often very much less than that. Hydrometer readings of 1.016 have been made in the River Mersey off Liverpool landing stage, and readings of less than 1.020 in the Crosby Channel. On one occasion (Nov. 1904), I found the specific gravity of the sea water a mile or two off Blackpool to be no more than 1.021. About a week before this date there had been exceptionally high floods in

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both the Ribble and Wyre, and the fresh water carried down by these rivers was, even a week later, floating at the surface of the sea in admixture with normal sea water.

The characteristic marine fauna of the Lancashire inshore waters is the result of these physical conditions—the shallow depths, the extensive sand and mud deposits, the rapid tidal streams and the great rise and fall of the tides, and the somewhat low salinity due to river water. While these conditions produce a fauna which to the marine zoologist is somewhat lacking in variety, and may be described as commonplace, they have at the same time made the Lancashire inshore waters and the foreshore between tide marks one of the most valuable inshore fishing grounds round the British Islands, and one which presents many features of interest.

Shellfish beds are thickly distributed over the whole of the Lancashire coast, and the cockle fishery of Morecambe Bay is without exception the most valuable round the British Islands, while some parts of the coast yield mussel fisheries not much less important. Practically the whole of the northern part of Morecambe Bay consists of cockle-bearing sands. Here and there over this extensive area, and also at the mouth of the Ribble estuary and out from the Mersey along the Lancashire coast from Liverpool to Formby Point, cockle beds are abundantly distributed. The exact positions of these beds are always changing, for the formation of such a shell-fish bed depends on the deposit of the cockle 'spat' or 'seed'—that is the minute free swimming larvæ of the mollusc. During the spring of the year the cockle spawns, and after a week or two the eggs so produced develop into larvæ provided with ciliated swimming organs. These larvæ are borne in the water by the tides and currents, and the place where they settle down depends on the winds, tides, and other conditions. When they do settle down in the sand a cockle bed is produced and sometimes an incredible abundance of these shellfish results, so that the molluscs may actually smother each other. In a few months these shellfish may grow from half an inch in diameter to nearly twice that size and become big enough to be taken by the fishermen. Walking over a cockle bed one does not at first see many signs of the presence of these bivalves, for they are buried in the top layer of the sand with only the tops of their siphons projecting, presenting the appearance of a pair of small dark holes (the 'eyes' of the cockles). Sometimes a tuft of algæ attached to the posterior end of the shell betrays the presence of the mollusc, and the appearance of the 'groats' (a north Lancashire term) also indicates where a cockle lies hidden. The 'groats' are the extruded strings of fæcal matter lying on the surface of the sand. Few people have any idea of the value of this humble mollusc to the Lancashire fishermen, and it will surprise most to learn that from five to ten thousand tons of cockles may be taken annually from the Lancashire foreshores.

The habitat of the mussel is somewhat different from that of the cockle. While the latter mollusc lies buried in the sand and unattached to any substance, the mussel lives above the surface and is attached to stones, etc., by means of its byssus. In almost every case a deep deposit of mud, sometimes several feet thick, may be formed between the layer of mussels and the solid substratum of stones or gravel, etc. (the mussel 'skear'), to which the molluscs are attached, this process being accompanied by the gradual lengthening of the

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byssus. Sometimes this muddy deposit becomes so unresistant as to be washed away by the tides, and then the mussel bed is for a time destroyed. Mussel beds of greater or less extent are to be found all along the Lancashire coast, but the most extensive accumulations are at Morecambe and Heysham. Here there are literally miles of mussel beds, and in some years over 2,000 tons of this animal may be sent away from Morecambe alone. The mussel thrives best in localities where it is not uncovered by the tide for a very long interval, and where some considerable proportion of fresh water finds its way into the sea. Unhappily it must be added that it finds a certain admixture of sewage matters a reason for self-congratulation.

Although these two animals, the cockle and mussel, form perhaps the most abundant element of the Lancashire marine inshore fauna, the shrimp, prawn, and 'fluke' are not far behind them. The shrimp (*Crangon vulgaris*) is found all along the Lancashire coast a mile or two from low-water marks, but it is particularly abundant about the banks off the estuaries of the Mersey and Ribble, and in Morecambe Bay, and hundreds of boats are almost continually fishing for it there. The value of this little crustacean to the Lancashire fishermen, and to the shrimp potters of Southport and Morecambe, cannot be less than about £50,000 annually. The prawn, 'red shrimp,' or 'sprawn' (not the true prawn, but *Pandalus montagui*) is found also in all parts of Lancashire waters, but it is particularly abundant in the inshore waters near Fleetwood (hence the term Fleetwood prawn). It inhabits rough stony ground, while the shrimp prefers sand or sand and mud, and it is caught in trawl nets fitted with extra stout foot-ropes so as not to catch on the stones among which the prawn lives.

Then in addition to this characteristic 'shellfish' fauna, consisting of the cockle, mussel, shrimp, and prawn, we find that the Lancashire inshore seas contain enormous numbers of young fishes of comparatively few species. This indeed is the most striking feature of the inshore marine fauna. Nowhere round the British Islands (nor indeed on the north European coasts, so far as I am aware) do we find so abundant a piscine fauna. The whole of the inshore waters, but particularly those off the Mersey, off Blackpool, and in Morecambe Bay, are a vast 'nursery' for young pleuronectid fishes, particularly dabs, plaice, and soles. With these are associated shrimps, 'sprawns,' and a host of invertebrates belonging to comparatively few species. I will illustrate the general character of the fauna of these nursery grounds by quoting the results of a haul with a shrimp trawl witnessed by myself in August, 1899. The shrimp trawl was dragged for about an hour over two miles of sand and mud in the vicinity of the Deposit Buoy off Burbo Bank at the mouth of the Mersey. There were caught: 896 dabs (*Pleuronectes limanda*), 285 whiting (*Gadus merlangus*), 265 plaice (*Pleuronectes platessa*), 257 soles (*Solea vulgaris*), and 18 ray (*Raia clavata*). All these are of course edible fishes.

But in addition to such hauls of these common fishes, of which the above figures may be regarded as fairly representative, others are always found, whiting (*Gadus aeglefinus*), cod (*G. morrhua*), herring (*Clupea harengus*), sprats (*G. spratta*), and gurnards (*Trigla* spp.) being most common. Inedible fishes such as the solenette (*Solea lutea*), butterfish (*Centrotonus*), the bullhead (*Cottus scorpio*), the sand eels (*Ammodytes tobianus* and *lanceolatus*), the toad

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fish (*Liparis montagui*), the lump sucker (*Cyclopterus lumpus*), and others are (some of them at least) always present. A remarkable fish which is always present in more or less abundance is the virulent 'stinger' *Trachinus vipera*. A huge host of invertebrates is always present. Chief among these is the swimming crab *Portunus depurator*, and it is remarkable that an unusually large proportion of these are infested with the parasitic cirripede *Sacculina*. Starfishes (*Asterias*) are extraordinarily abundant at times, and during the summer months the Medusæ *Rhizostoma*, *Aurelia*, and *Cyanea* are present. Sometimes the former is a great nuisance to the shrimping boats. Large forms, a foot or more in diameter, are so abundant at times as to clog up the net with broken fragments. If these are allowed to dry on the meshes a fine dust is formed when the latter are shaken out which produces most unpleasant effects on the nasal and respiratory epithelia, due no doubt to the dried substance of the nematocysts of the medusæ. Other crabs, the shore crab (*Carcinus*), spider crabs such as *Hyas*, *Stenorhynchus*, the hermit crab (*Pagurus*), and the edible crab (*Cancer*), are often present. The squid (*Loligo*) and the cuttle fish (*Sepia*), mostly young specimens, occur during the autumn. The Ctenophore *Pleurobrachia* is incredibly abundant at times, being just large enough to be retained by the meshes of the nets. Shrimps and 'sprawns' are found, the former in immense numbers, the latter rarely; and small lobsters are frequently present. Zoophytes are rare.

The above forms may be regarded as fairly representative of the inshore marine fauna of Lancashire waters. The abundance of the fishes varies with the season, but large numbers are always present. As many as 15,000 dabs and 10,000 plaice have been taken on the shallow water grounds off Blackpool. About the middle of June (but the precise season varies) small pleuronectid fishes are extraordinarily abundant. If one walks along the shore about that time, following the receding tide, almost anywhere on the Lancashire coast—say on the shore near the New Brighton Pier—it is possible to observe and collect great numbers of small plaice and dabs in the pools left by the tide. These are then no bigger than the thumbnail. A few weeks later they disappear, having sought deeper water.

Further out at sea, beyond the zone of which I am now treating, the fauna changes somewhat. I may give as an instance a haul with a shrimp trawl near Liverpool Bar, in water of 6 fathoms. On this occasion over 17,000 specimens, belonging to thirty-four genera and thirty-nine species, were identified. The fishes were sole, plaice, dab, cod, whiting, haddock, herring and sprat, skate, ray, goby, 'stinger,' and the 'pogge' (*Agonus cataphractus*). The Mollusca were the mussel (*Mytilus edulis*), 'hen pens' (*Tellina tenuis* and *Mactra stultorum*), the whelk (*Fusus antiquus*). The Crustacea were various, swimming crabs (*Portunus* spp.), the hermit crab (*Eupagurus bernhardus*), shrimps, *Sacculina*, several Amphipoda, Copepoda (*Longipedia coronata*, *Ectinosoma spinipes*, *Sunaristes paguri*, *Dactylopusia rostrata*, *Cletodes limicola*, *Caligus rapax*); the sea-mat (*Flustra*). The polychætes were the sea mouse (*Aphrodite*), the sand-pipe (*Pectinaria*), and *Nereis*; the starfish, *Asterias*. The zoophytes were *Hydractinia echinata*, *Sertularia abietina*, and *Hydrallmania falcata*. The coelenterates were the Medusæ *Aurelia aurita* and *Cyanea*.

Because of the extensive sand and mud flats, the Lancashire coast does

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not form a very inviting shore collecting ground. An abundant and varied shore fauna is only to be seen on a coast with rock pools, caves, seaweeds, and the like. Nowhere on the Lancashire littoral do we find such conditions. Only here and there by taking advantage of the lowest spring tides do we find shore collecting at all attractive. But even the ordinary beach, unattractive as it may appear to the casual naturalist, yields a fair abundance of forms if studied minutely. Thus Dr. Chaster has recorded no less than 150 species of Foraminifera and 140 species of Mollusca from the ordinary beach round Southport. At a few places we do find a shore fauna of considerable interest to the amateur zoologist, and I may give as an instance the shore in the vicinity of the Lancashire Fishery Research Station at Piel in the Barrow Channel. There we have on the one hand the sandy flats with occasional *Zostera* meadows on which small crustaceans abound, and on the other the 'Scars'—rough stony ground with seaweed—which are exposed at low spring tides. Mussels, cockles, and periwinkles are of course abundant.

In association with the former Molluscs we find the extraordinary Trematode *Leucitbodendrium somateriae*, Lev., which is the cause of the pearls so abundant in the mussels on the Piel foreshore. This animal, as Dr. H. Lyster Jameson has shown, passes through larval stages in the cockle and mussel, and in the latter becomes encysted and surrounded by the calcareous investment which becomes the pearl. The adult stage of the Trematode is found in the 'Scoter' or Black Duck, which feeds on the mussel. Other Mollusca are abundant; oysters are found, though not frequently; *Mytilus modiolus*, the horse mussel, is frequently dredged in Barrow Channel; 'hen pens' (*Mactra*, *Scrobicularia*, and *Tellina*) may be got alive, and dead valves of the tapestry shell (*Tapes*), *Nucula*, the spiny cockle (*Cardium ecbinatum*), *Psammobia*, *Donax*, and others are numerous. The Clam (*Mya arenaria*) is quite common, and it often harbours the peculiar commensal Nemertine (*Malacobdella*) in its mantle cavity. The whelks *Buccinum undatum* and *Fusus antiquus*, the dog whelk (*Purpura lapillus*), and the limpet (*Patella vulgata*) are of course abundant. Nudibranchs such as the sea slugs *Doris* and *Eolis* are present, and the gelatinous spawn of the former may always be got during the early summer. Cephalopods turn up; *Octopus* is often got in the stake nets. Many crustacea occur, such as the crabs *Cancer*, *Carcinus*, *Portunus*, *Hyas*, *Stenorhynchus*, and the hermit *Pagurus*. The beautiful fairy prawns *Hippolyte varians*, *H. cranchii*, *H. fascigera*, and *H. pusiola* may be got here in greater abundance than anywhere else in the Irish Sea. These animals are remarkable for the adaptation of their colour markings to that of the seaweeds on which they are found. This form of adaptation has been explained as one of ordinary protective resemblance, but the phenomenon is far from being a simple one. *Mysis neglecta*, a common Schizopod, is extremely abundant. At least four genera of Pycnogonids may be collected—*Nymphon*, *Pallene*, *Ammothea*, and *Anoplodactylus*. Of the *Echinoderms*, the starfishes or 'crossfishes,' *Asterias* and *Cribella*, the Sun star (*Solaster*), and the urchin (*Echinus*) may be obtained alive, and dead tests of the heart urchin (*Spatangus*) and *Echinocardium* can be picked up. On this side of Morecambe Bay the common starfish has proved itself at times an intolerable nuisance, for many acres of the beach may be literally carpeted with these animals, which can be extremely destructive to the mussel beds. The starfish pulls apart the valves

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of the mollusc by long continued traction by its tube feet, and then inserts its eversible pharynx between the valves and devours the soft body of the mussel. Anemones, of which *Actinia* is the commonest, used to be abundant on the piles of the old pier and may still be obtained from the rock pools. Simple and compound ascidians are very abundant on the same ground, *Ascidia* and the peculiar colonial *Perophora* on the stones, and the compound forms *Botryllus* and *Amaroucium* on the seaweeds. Worms are abundant, the commonest being the lugworm (*Arenicola*), which forms an extensive bed, and *Sabellaria*, the agglomerated sand tubes of which form the hard sandy excrescences known locally as 'knarrs.' *Sabella*, *Serpula*, *Terebella*, *Pectinaria*, and *Onuphis* (the latter rare) are other common tubicolous Polychætes, and the errant forms *Phyllodoce*, *Scoloplus*, *Nereis*, and *Aphrodite* may also be obtained. The two former worms deposit green and red albuminous cocoons containing their eggs, and these little masses, about the size of a grape, are very abundant here during the spring and in Morecambe Bay generally, where they were formerly supposed by fishermen to be the spawn of the plaice and flounder. Nemertines may also be taken, but they are not abundant.

These are the common forms which can always be collected, but there are in addition hosts of amphipods and microcrustacea among the seaweeds and on the bottom deposits. Zoophytes are not uncommon. Incidentally it may be remarked that the mud flats yield a great abundance of diatoms.

PLANKTON

By *plankton* is understood the drifting pelagic microscopic life of the sea. This department of local marine zoology has received very considerable attention during the last twenty years. The late Mr. I. C. Thompson of Liverpool and the late Mr. R. L. Ascroft of Lytham both devoted much attention to this subject, and our knowledge of it is to a great extent the result of their joint labours. The former was one of the original members of the Lancashire Sea Fisheries Committee, and perhaps more than any other member of that Board encouraged and assisted in the scientific investigation of sea fisheries questions.

The uniformity of composition which one finds in oceanic plankton is wanting in that of inshore waters, where there is much greater variety in the collections made in different places and at different times in the year than in deep water far removed from land. At the beginning of the year the plankton of the Lancashire coastal waters is rather scanty. We find the Chætognathan worm *Sagitta* usually very abundant; Copepods too, belonging to the genera *Acartia*, *Calanus*, *Pseudocalanus*, *Anomalocera*, *Isias*, *Eutерpe*, *Oitbona*, and many others. Then about the beginning of March the pelagic eggs of teleostean fishes—the plaice, cod, haddock, whiting, dab, flounder, and many others—appear, and persist till about the beginning of May. Following these we often find the larvæ of the same fishes, though it is rare to find these little creatures in the surface tow-nets. About this time of the year the larvæ of various crustaceans appear in great abundance. The commonest is perhaps that of *Balanus balanoides*, the Barnacle or 'Scab.' I have seen a tow-net gathering containing practically nothing else than the nauplii of this Cirri-

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pede. Somewhat later in the year these nauplii disappear and are succeeded by the 'Cypris' stage of the same barnacle. The adult creatures resulting from this latter form then begin to settle down on all solid objects in the shallow water and they become a great nuisance to fishermen by encrusting the bottoms of their boats. Other crustacean larvæ are the nauplii of copepods, and the zoea stages of the crabs *Carcinus*, *Portunus*, and *Cancer*.

About the end of March and the beginning of April diatoms appear in great abundance, the principal genera being *Coscinodiscus*, *Biddulphia*, *Chaetoceros*, and *Rhizosolenia*. After lasting for a month or so the diatoms become very scarce and towards midsummer may almost disappear from the tow-net gatherings. About this time of the year the gelatinous alga *Halosphaera viridis* becomes very abundant. This form is always accompanied by a great mass of mucus which almost at once clogs up the meshes of the tow-nets and prevents the latter from 'fishing.' Another common constituent of the summer plankton is the flagellate *Noctiluca miliaris*, a common¹ cause of the phosphorescence of the water at this time and later in the year. *Noctiluca* is curiously restricted in its distribution. It appears in abundance all along the north Welsh, Cheshire, and Lancashire coasts in inshore waters, and it may reach out as far as the Liverpool N.W. and the Morecambe Bay light-ships; but it does not appear to get into Manx waters, nor is it common in the Firth of Clyde. Other flagellates are *Ceratium tripos* and *furca*, but these are not abundant. The ctenophores *Pleurobrachia* and *Beroë* also appear in the summer, the former being at times especially abundant. The Larvacean tunicate *Oikopleura* occurs also in the summer and autumn. During the autumn months diatoms may again become abundant. Medusoids, the zoea and megalopa stages of crabs, and the larvæ of the shrimp also occur. Copepods and the ubiquitous *Sagitta* form the bulk of the plankton and last until the beginning of the winter. Then the abundance of the plankton undergoes decrease and copepods form its principal constituent. This general scarcity in mass and lack of variety in forms lasts during the colder winter months.

SUMMARY OF LANCASHIRE AND IRISH SEA INVERTEBRATE ZOOLOGY

PROTOZOA

Two hundred and forty species of Foraminifera were recorded in the British Association List of 1896. Radiolaria and Infusoria are practically unworked, though both groups are abundantly represented. Quite recently the study of the parasitic Sporozoa has received much attention, and the following forms are recorded: *Glugea* (*Nosema*) *lophii*, *G. stephani*, *G. anomalum*, *Sphaerospora platessa*, and the remarkable *Lymphocystis johnstonei*.

PORIFERA (*Sponges*)

The sponges are fairly well known. Fifty-nine species were recorded in the B.A. List of 1896, of which five were new to science when first described in Lancashire waters.

CŒLEENTERATA (*Jelly-fish, sea anemones, etc.*)

Ninety-two species of Hydroids, 43 Hydromedusæ, 2 Siphonophores, 4 Ctenophores, 3 Alcyonaria, and 22 Actinians, are recorded in the B.A. List. The strictly Lancashire forms constitute only a fraction of this list. All the Hydromedusæ are, however, found in the inshore

¹ But by no means the exclusive cause. Occasionally when the water is phosphorescent the tow-nets may yield no organisms which are to be regarded as light-producing ones. In such cases the cause is no doubt some pathogenic bacterium.

MARINE ZOOLOGY

Lancashire waters, and also the Ctenophores, but the county waters contain relatively few of the zoophytes, and not all the Actinians described. The Siphonophores are *Agalmopsis elegans*, Sars., and *Velilla pelagica*, Esch. These are to be regarded as visitants only.

PLATYHELMINTHES (*Flat worms*)

Thirty-three species of Turbellaria are recorded in the B. A. List of 1896 and in subsequent lists. Most of these have been described from Manx waters, but there can be little doubt that they exist also on the Lancashire coasts, which, in many places, furnish a suitable habitat for these creatures.

Trematoda or 'flukes' are all parasitic in fishes, sea birds, and marine mammalia, larval stages being, however, found in every class of invertebrata. It is only recently that these animals have been worked at, and then only in connexion with the economic investigations of the Lancashire Sea Fisheries Committee. It is mainly because of the great importance that these parasites may possess in connexion with disease that this study has become of such importance. About a dozen ectoparasitic and four or five endoparasitic Trematodes have so far been recorded from fishes caught on the Lancashire coast. This can only be a small fraction of the number of these worms that are no doubt present. Of the ectoparasitic forms, four, *Diplectanum æquans*, Diesing, *Leucisthodendrium somateriæ*, Lev., *Microcotyle labracis*, van Ben. and Hesse, and *Placunella pini*, van Ben. and Hesse, were new to the British fauna when recorded from Lancashire.

Cestoda or tapeworms are as yet practically untouched, only about three species having been actually recorded from Lancashire fishes. These are *Bothriocephalus punctatus*, *Tetrarhynchus tetrarhynchus*, van Ben. and *T. erinaceus*, van Ben.

ECHINODERMATA (*Starfishes, etc.*)

Thirty-five species of Echinoderms are recorded in the B. A. List of 1896. Most of these occur on the Lancashire shores and sea, but the crinoid *Antedon*, the rosy feather star, is found about Puffin Island on the south and round the Isle of Man. The sea-cucumber, *Cucumaria plancei*, was first found in Britain in this district. I have seen it in great abundance in Luce Bay, north of the Irish Sea proper. The commonest forms, such as *Asterias*, *Echinus*, *Solaster*, *Spatangus*, *Ophiocoma*, and *Ophiura*, are, however, very abundant. I have known a tow-net gathering taken off the mouth of the Ribble to consist of practically nothing else than the pluteus larvæ of some Echinid.

ACANTHOCEPHALA

This small group of parasitic worms is apparently represented by *Echinorhynchus acus* only.

CHÆTOGNATHA

Sagitta bipunctata, Quoy and Gaimard, the arrow worm, is the only species recorded from Lancashire; but I think that other species probably exist and have not been discriminated.

NEMERTINEA

Twenty-six nemertines are recorded in the B. A. List of 1896.

HIRUDINEA (*Leeches*)

The well-known skate-leech, *Pontobdella muricata*, and a leech from the angler fish, are the only hirudineans recorded.

GEPHYREA

Only *Thalassema lankesteri*, Herd., and *Phascolosoma vulgare*, de Bl., are recorded, but no doubt other species exist. The former species does not belong to Lancashire waters, being got far out at sea.

CHÆTOPODA

Ninety species of Chætopods (including the Archiannelids and Myzostomida) are recorded in the B. A. List of 1896. Not all these are recorded from the Lancashire shores, but there is little doubt that the majority are to be found if properly looked for.

POLYZOA

About 150 species and named varieties are recorded in the B. A. List.

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BRACHIOPODA

Only two species, *Terebratula caput-serpentis*, Linn., and *Crania anomala*, Müll., are known from the Irish Sea.

CRUSTACEA

The crustacea have received more attention than any other marine group. The number of recorded species in the various sub-groups are: Brachyura, 28; Anomura, 13; Macrura, 23; Schizopoda, 18; Cumacea, 20; Isopoda, 22; Amphipoda, 134. The Copepoda have received an exceptional amount of attention; about 260 species are now recorded, and of these nearly 50 are parasitic forms inhabiting fishes.

Cirripedia are represented by eleven species. *Balanus balanoides*, Linn., the common barnacle or 'scab,' is, of course, the most abundant. At certain seasons in the year (March–April) the tow-nets at Piel may contain practically nothing else than the nauplius larvæ of these pests. The extraordinary form *Sacculina carcini* is very abundant on the crabs captured off the mouth of the Mersey. *Peltogaster*, a peculiar cirripede parasitic on the hermit crab, has also lately been recorded.

Ostracoda are relatively abundant, about fifty species being recorded.

PYCNOGONIDA

These are represented by twelve species.

MOLLUSCA

This group has naturally received very much attention; 98 species of Lamellibranchia are recorded, about 175 species of Gastropoda, 10 species of Chiton, 3 scaphopods; *Dentalium entale*, Linn., *D. tarentinum*, Lam., and *Siphonodentalium lofotense*, Sars. The cephalopods are *Sepioida atlantica*, Lam., and *S. scandica*, Steenstrup, *Rossia macrosoma*, Delle Chiaje, *Loligo media*, Linn., and *L. forbesi*, Steenstrup, *Sepia officinalis*, Linn., and *Eledone cirrosa*, Lam.

TUNICATA

Fifty-four species in all have been recorded from the Irish Sea. Most of these have been recorded from Puffin Island and Port Erin, and only four species are apparently recorded from the Lancashire coast. But there is no doubt that this is far below the number that might be found if looked for in suitable places.

LIST OF PUBLICATIONS REFERRING TO THE MARINE ZOOLOGY OF LANCASHIRE

1. Bryerly, Isaac, *Fauna of Liverpool*, 1856.
2. McNicoll, D. H., *Handbook for Southport*, 1859.
3. Herdman, W. A. (Editor), *Fauna of Liverpool Bay*, 5 vols., 1886, 1889, 1892, 1895, 1900. Liverpool Marine Biological Committee.
4. Herdman, W. A. (Editor), *Annual Reports Port Erin Biological Station*, 1894 to 1904. Liverpool Marine Biological Committee.
5. *Annual Reports Lancashire Sea Fisheries Laboratory*, 1892–1905; Liverpool.
6. *L.M.B.C. Memoirs*. Monographs on Irish Sea Animals and Plants: *Ascidia*, W. A. Herdman, 1899; *Cardium*, J. Johnstone, 1899; *Echinus*, H. C. Chadwick, 1900; *Codium*, R. J. Harvey Gibson and Helen P. Auld, 1900; *Alcyonium*, S. J. Hickson, 1901; *Lepophtheirus* and *Lernæa*, A. Scott, 1901; *Lineus*, R. C. Punnett, 1901; *Pleuronectes*, F. J. Cole and J. Johnstone, 1901; *Chondrus*, O. V. Darbishire, 1902; *Patella*, J. R. A. Davis and H. Fleure, 1901; *Arenicola*, J. H. Ashworth, 1904; *Gammarus*, Margaret Cussans, 1904. London, Williams and Norgate.
7. *Proceedings and Transactions Liverpool Biological Society*, vols. 1–18. Liverpool, 1887–1904.
8. *Reports of the Southport Society of Natural Science*: Southport, 1892–1904.
9. *British Association Handbook*: Liverpool, 1896.
10. *British Association Handbook*: Southport, 1903.

NOTE.—Nos. 3, 4, 5, and 6 are reprinted in *Proceedings and Transactions Liverpool Biological Society*.

MOLLUSCS

NON-MARINE

Except in the northern or lake-district portion of the county there is little limestone, while the drift deposits that mask the plains, the peat-beds, and the sand-dunes of the coast do not offer favourable conditions for molluscan life. Hence land-snails are not individually very numerous in Lancashire. That so many species are recorded is we believe mainly due to the industry and enthusiasm that seem to permeate north country naturalists.

The freshwater shells on the other hand abound, while it is among the brackish water forms that the few possible additions to the list are chiefly to be sought.

Of the 140, or so, species known to occur in the British Islands, 106 have been recorded for Lancashire. This is a very considerable proportion, and the number is not likely to be much increased by future researches.

Three aliens of note have invaded the county:—Specimens of *Pupa quinquedentata* (Born) [= *cinerea*, Drap.] are recorded by Mr. Wrigglesworth from Church, and by Mr. Long from near Stonyhurst, whither they have probably been brought from the continent by some student. *Physa heterostropha*, Say, a North American freshwater species, has been taken in canals at Gorton and Droylsden, and may ultimately become naturalized. Another freshwater form from the United States, *Planorbis dilatatus*, Gould, is almost certain to do so; it has been found in abundance at Pendleton, Gorton, Burnley, Stoneyholme, and Gannow, and is supposed to have been introduced adhering to cotton bales.

The more representative Lusitanian or south-western forms are absent, and the white-banded snail (*Helicella virgata*) and the heath snail (*H. itala*), so abundant in our southern coasts, occur but sparsely on the sand hills of the Lancashire sea-board; while the common garden snail (*Helix aspersa*) is not so universally distributed as it is further south.

Certain well-known southern or continental forms are missing from the fauna, such as the Kentish snail (*Helicella cantiana*).

On the whole, therefore, the assemblage may be considered to present a normally British facies.

The literature on the subject consists largely of scattered notes, the most complete list for the county being a paper by Mr. R. Standen (*Naturalist*, 1887, pp. 155-176), while the Manchester district has been dealt with by Mr. C. Oldham (*Science Gossip*, xx. 213), and the neighbourhood of Burnley by Mr. F. C. Long (*Journ. Burnley Lit. & Phil. Soc.*, No. 17, 1901).

For the sake of uniformity the same nomenclature is here followed as in other volumes of the *Victoria County Histories*, but for the most recent information on this subject reference should be made to the List published by the Conchological Society.

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LIST OF THE NON-MARINE MOLLUSCA

A. GASTROPODA

I. PULMONATA

a. STYLOMMATOPHORA

- Testacella haliotidea*, Drap. Clayton Hall, Accrington
 — *scutulum*, Sby. Cuerden Hall, Preston
Limax maximus, Linn.
 — *flavus*, Linn. Oldham; Preston; Swinton; Liverpool
 — *arborum*, Bouch.-Chant. Grange; Didsbury; Greenheys
Agriolimax agrestis (Linn.)
 — *lævis* (Müll.). Riversdale; Southport
Amalix soverbii (Fér.). Southport
Vitrea pellucida (Müll.)
Vitrea crystallina (Müll.)
 — *lucida* (Drap.). On a fernery, Avenham Lane, Preston; Swinton; Clayton-le-Moors; Grange
 — *alliaria* (Miller)
 — *glabra* (Brit. Auct.). Coniston; near Preston; near Chatburn; Manchester; at Whalley Nab and other localities in the Burnley district
 — *cellaria* (Müll.)
 — *mitidula* (Drap.)
 — *pura* (Ald.)
 — *radiatula* (Ald.)
 — *excavata* (Bean.). Coniston; Clifton; Preston; Manchester; Bardsley; Southport; Liverpool
 — *mitida* (Müll.)
 — *fulva* (Müll.)
Arion ater (Linn.)
 — *hortensis*, Fér. Common: also the var. *cærulea*, by some considered a species
 — *circumscriptus*, John. Coniston
 — *subfuscus* (Drap.). Near Widness; Bardsley; Southport
Punctum pygmaeum (Drap.). Barlow Woods; Grange; near Lancaster; near Southport; Liverpool
Pyramidula rupestris (Drap.). Grange; Carnforth; Clitheroe district; near Whalley
 — *rotundata* (Müll.)
Helicella virgata (Da. C.). Sandhills at Southport; and at Rossal
 — *itala* (Linn.). Rare: Southport; Carnforth; near Silverdale
 — *caperata* (Mont.)
Hygromia fusca (Mont.). Hough-end-Clough; Barlow Moor Woods; Clerkhill Wood
 — *granulata* (Ald.)
 — *bispida* (Linn.)
 — *rufescens* (Penn.)
Acanthinula aculeata (Müll.). Local
Fallonia pulchella (Müll.)
Helicigona lapicida (Linn.)
 — *arborescens* (Linn.)
Helix aspersa, Müll. Common: a reversed monstrosity was taken in Whalley Churchyard

- Helix nemoralis*, Linn. Common in places: supposed to be decreasing round Southport; a reversed monstrosity was found at Burnley
 — *hortensis*, Müll.
Buliminus obscurus (Müll.)
Cochlicopa lubrica (Müll.)
Azelea tridens (Pult.)
Cœcilianella acicula (Müll.). Near Silverdale
Pupa anglica (Fér.). Lord's Wood; Whalley; Clerkhill Wood
 — *cylindracea* (Da. C.)
 — *muscorum* (Linn.)
Sphyradium edentulum (Drap.). Carnforth; around Whalley; Molly Wood, Rosegrove
Vertigo antivertigo (Drap.). Barlow Wood (2 specimens)
 — *substriata* (Jeff.). Preston; Grange; Holden Clough; Riversdale; Clerkhill Wood
 — *pygmaea* (Drap.). Grange; near Ashley Mill; Clitheroe; Farington; Southport; near Silverdale
 — *alpestris*, Alder. Holker, near Cartmel; Clerkhill Wood (rare); Grange; near Silverdale
 — *pusilla*, Müll. Grange; Silverdale; near Lake Windermere
Balea perversa (Linn.)
Glaucilia laminata (Mont.)
 — *bidentata* (Ström.)
Succinea putris (Linn.)
 — *elegans*, Risso.

b. BASOMMATOPHORA

- Carychium minimum*, Müll.
Ancylus fluviatilis, Müll.
Velletia lacustris (Linn.)
Limnæa auricularia (Linn.)
 — *pereger* (Müll.)
 — *palustris* (Müll.). Common: a pure white variety was taken at Southport in 1876
 — *truncatula* (Müll.)
 — *stagnalis* (Linn.)
 — *glabra* (Müll.). Around Manchester; Huncot
Planorbis corneus (Linn.)
 — *albus*, Müll.
 — *glaber*, Jeff.
 — *nautilus* (Linn.)
 — *carinatus*, Müll.
 — *marginatus*, Drap.
 — *vortex* (Linn.)
 — *spirorbis*, Müll.
 — *contortus* (Linn.)
 — *fontanus* (Lightf.)
 — *lineatus* (Walker). Prestwich; Birch; Goosnargh; Whittingham; Gooseleach; Simonstone; Harwood.
Physa fontinalis (Linn.)
 — *bypnorum* (Linn.). Southport; Lytham; St. Annes; near Whalley

MOLLUSCS

II. PROSOBRANCHIATA

- Paludetrina jenkinsi* (Smith). Droylsden
— *ventrosa* (Mont.). Dead specimens, sparingly,
at Southport
Bitbynia tentaculata (Linn.)
— *leachii* (Shepp.)
Vivipara vivipara (Linn.)
- Vivipara contecta* (Millett)
Valvata piscinalis (Müll.)
— *cristata*, Müll.
Pomatias elegans (Müll.). Between Grange and
Carnforth
Acicula lineata (Drap.). Fleetwood ; Grange ;
around Manchester ; Preston
Neritina fluviatilis (Linn.)

B. PELECYPODA

- Dreissenia polymorpha* (Pall.)
Unio pictorum (Linn.)
— *tumidus*, Retz.
— *margaritifera* (Linn.). Gibertson (Alder Collec-
tion) ; River Lune at Caton (Dyson)
- Anodonta cygnea* (Linn.)
Sphaerium rivicola (Leach)
— *corneum* (Linn.)
— *ovale* (Fér.)
— *lacustre* (Müll.)
Pisidium amnicum (Müll.)
— *pusillum* (Gmel.). Near Silverdale, where also
the variety *P. obtusale*, now held by some
to be a distinct species, is found in a Shell-
marl.
- Pisidium nitidum*, Jenyns.
— *fontinale* (Drap.). Common : the var. *Hen-
slowiana* has been found near Preston and
near Manchester, and the variety *P. pul-
chellum* occurs in a Shell-marl near Silver-
dale.
— *milium* (Held.). Bardsley and neighbour-
hood

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If Lancashire maintains a smaller part of the total number of British insects than do several English counties of lesser area, we may attribute such a paucity more to its geographical position in the north-west than to natural condition of surface or environment, for these indeed in Lancashire are most varied. We have mountains, moorlands, extensive mosses and wide belts of littoral sand dunes—all of which suit and protect their exclusive fauna—the only distinct natural feature that is wanting being extensive and ancient forest land. There are however many detached woods, both of recent origin and of the earlier more primitive growths of birch and fir on the mosses or bogs of the southern part of the county. In fact, but few English counties excel Lancashire in diversity of natural conditions, and although in few counties have such conditions been more altered and indeed obliterated than they have in south-west Lancashire, still large tracts in the north and north-east remain untouched by the hand of man, and are populated by a fauna probably unaltered since it was first established there.

Before proceeding in detail to an enumeration of the insects which have so far been recorded from Lancashire, a few words may not be out of place on the local students of the order and the special localities whence most of our information of the occurrence of its members is derived.

LANCASHIRE ENTOMOLOGISTS

No account of the Insecta of Lancashire would be complete without some reference to the band of workers who have done so much in the past to explore the county entomologically, and to whose efforts is due to a great extent our knowledge of its fauna.

Most of these men have now passed away—the school of Lancashire working men entomologists especially seems to have left no descendants. For in the early years of the last century this county was distinguished by a group of self-taught naturalists, who, born for the most part in quite humble circumstances, without education, and denied all the assistances to self-education now so abundant in our large towns, living obscure and toilsome lives, were yet inspired by an innate and ineradicable love of nature.

These men belonged principally to the large manufacturing towns of the south of the county, and in days before factory acts and cheap railway excursions their scant leisure was employed in assiduous collecting and expeditions to distant parts of the county on foot, almost incredible to the modern collector.

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Unfortunately few of them left any enduring record of their labours; some of the later members of the group however, such as Chappell of Manchester and Gregson of Liverpool, were able to take advantage of the increased facilities for the recording of their knowledge afforded by the numerous periodicals devoted to natural history, and to them we certainly owe the best part of our knowledge of the entomological fauna of south Lancashire as it was before the changes of the last forty or fifty years had so altered the face of the county.

One of the earliest of these students of nature of whom we have any knowledge was James Crowther,¹ born 1768 in a cellar in Deansgate, Manchester, and employed at the age of nine as 'draw boy' at petticoat weaving. He was a botanist as well as an entomologist, but poverty necessitated the disposal of his collections before his death (1847), and except from oral traditions and a few references in natural history works of the last century, we know but little of his work.

Jethro Tinker of Staleybridge is a figure which stands out more distinctly. He was born near Staleybridge in 1788, where he died in 1871. Quite without education he began life as a hand-loom weaver, becoming overseer of a mill, inn keeper, and finally a gardener, but continuing throughout his life an ardent and self-taught botanist and entomologist. His entomological collections were left to the Staleybridge museum, where they now are, and a public monument in the town park attests the respect in which he was held by his fellow citizens.

Edward Hobson (after whom is named a variety of a beetle, *Cbrysomela orichalcea*, Müll.) was born in Manchester 1782, dying there in 1830. His claim to fame rests perhaps more in his researches as a muscologist than as an entomologist, although Stephens was much indebted to him for many of his localities in his *Manual of the Coleoptera of Great Britain*.

Other names that occur are those of George Crozier, a saddler, born at Ecclestone in the Fylde, who died at Manchester 1847, an accomplished entomologist and a member of the old Banksian Society of Manchester, and Samuel Gibson, born near Hebden Bridge 1790, died 1849, an entirely self-educated naturalist. The latter's entomological collections were for many years in the Peel Park Museum in Manchester, and his fine collection of fossil shells of the lower coal measures still remains in the Owens College Museum of that city. Samuel Carter, a cabinet maker, also of Manchester, who rearranged the entomological collections in the Manchester Museum in 1858, was one of the same group.

More especially should be mentioned Joseph Chappell, a mechanic in Sir Joseph Whitworth's works in Manchester, whose obituary appeared in the *Manchester City News*, 17 October 1896. His knowledge of the entomological fauna of Lancashire was intimate and exhaustive, his enthusiasm and perseverance unlimited; he has told the present

¹ For particulars as to the career of this and of other south Lancashire artisan naturalists I am greatly indebted to Dr. H. Bailey of Port Erin, Isle of Man, some time of Pendleton, Manchester.—W.E.S.

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writer how on a Saturday evening after work—and there was no Saturday half-holiday in those days—he would walk some thirty miles to Burnt Wood in Staffordshire, sleeping in the open, collect all day Sunday and walk back on Sunday night in time for work at six o'clock on Monday morning. Most of Chappell's knowledge however perished with him, but his fine local collections were purchased at his death by Mr. C. H. Schill of Manchester, in whose private museum they remain. To coleopterists his name will be remembered in connection with those rare species *Lymexelon navale* and *Cryptocephalus biguttatus*; and to lepidopterists with the clearwing moth, *Sesia culiciformis*.

C. H. Gregson, a plumber of Liverpool, belonged to the same group, and was possibly the last member of it. Born in Lancaster 1817, he died in 1899 in Liverpool. His first note on entomological subjects seems to have appeared in the *Annals of Natural History* in 1842, on a local moth, *Nyssia zonaria*, and from that time to his death his notes and contributions appear constantly in the various serial publications devoted to entomology. He had some acquaintance with the Coleoptera, but was more especially a lepidopterist, and his magnificent collection of Lepidoptera, particularly rich in varieties and aberrations, was purchased in 1888 by W. Sydney Webb of Dover, in whose possession it still remains.

Belonging to a somewhat different rank in life were Noah Greening of Warrington, the brothers Cooke of Liverpool, and Hodgkinson of Preston.

Noah Greening was born in 1821 and died in 1879. He is best known to the general public as an eminently successful business man and the founder of the Warrington firm of wire drawers which bears his name. But he was also an ardent student of nature, an ornithologist and geologist of considerable attainments, but more especially a lepidopterist. He left little in writing, but the assistance he rendered Newman is obvious to all readers of that author's *British Butterflies and Moths*, for years the standard work on our Lepidoptera. Greening introduced several species of moths to the British list, and formed a very complete and extensive collection of British Lepidoptera, the greater part of which is now in the Liverpool Museum combined with that of Nathaniel Cooke.

The brothers Cooke, Nathaniel above mentioned and Benjamin, born respectively in 1818 and 1817, were leading entomologists in south Lancashire during the second quarter of last century. They were both engaged in mercantile pursuits, devoting all their leisure to their favourite study. Nathaniel was almost exclusively a lepidopterist, and to him we owe the discovery of *Nyssia zonaria* as a British insect (1838).

He died in Liverpool 1885. His brother Benjamin was perhaps the better all round entomologist. He studied nearly all the orders, and the few records which exist of the Hemiptera, Diptera, etc., of south Lancashire are almost entirely his work. He died in Southport in 1883. Notes and articles by both brothers are to be found in all the magazines devoted to natural history quite up to the time of their deaths.

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J. B. Hodgkinson, a yarn agent of Preston, who died in 1897 aged 73, and his friend, W. H. Threlfall (who still survives) are best known as micro-lepidopterists. They collected together for many years in the country round Morecambe Bay, and their explorations of Witherslack have rendered that locality almost classic ground to the student of the Micro-lepidoptera. Hodgkinson's notes appear continually in the *Entomologist* of twenty to thirty years ago, and to his energy is due the addition of some six or eight species to the British list of Lepidoptera. His fine collection of some 40,000 specimens was sold at 'Stevens' and realized about £500.

As has been already said, the school of Lancashire artisan entomologists appears to have almost died out. The present local students of the class belong to a somewhat different social order. With better education and a wider grasp of the general scope of biology, their contributions to entomological science are more likely to survive than was the case with an older generation. Such present workers will be more particularly alluded to in the more detailed treatment of the separate orders which follows.

COLLECTING GROUNDS

The special localities or collecting grounds whence most of our knowledge of the Lancashire entomological fauna is derived may perhaps demand a few words. Since nearly all the workers in this branch of natural history have been dwellers in towns, these localities are principally in the south-west of the county where the population is densest. With a few exceptions, such as the district round Grange and Windermere, the extreme north and north-east still remain entomologically unexplored, and no doubt many species occur there yet unrecorded in our lists.

A district which has maintained, and to a great extent does still maintain a rich and exclusive fauna, is the belt of sandhills which line the coast from the mouth of the Mersey to that of the Ribble.

Although the lateral movements of this littoral zone have been, probably even within the historic period, extensive, yet its characteristic features are of high antiquity, and its fauna is for this reason perhaps the most specialized of the district. The immunity however which these sterile sands have enjoyed for centuries from either cultivation or other industrial operations has to some extent been interrupted by the spread of golf links, and this pastime is probably responsible to a greater extent for the diminution of the littoral fauna all round our coasts than all other human agencies put together. Among these sand dunes occur many otherwise very rare insects, and for a few species this is the only recorded locality in Great Britain. The great peat mosses of the south of the county were formerly favourite collecting grounds. These however within the last fifty years have been very much curtailed and are probably doomed to complete disappearance in the near future.

Of the largest of these, Chat Moss, which formerly extended over some 1,000 acres, there now remain only about 300 acres undrained and

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uncultivated, and the greater part of this remnant is being yearly dissipated as 'peat-moss litter' over the entire kingdom.

Risley and Carrington Mosses, which however are strictly outside the county, are in no better condition from an entomological point of view, and their special fauna and flora will no doubt within a few years become a memory merely.

The 'cloughs' or narrow gorges between the hills westward of Manchester, often well wooded, were favourite haunts of the older collectors, but of these few would now repay a visit from any entomologist.

The famous 'Stalybrushes' was a locality of this kind, and though strictly in Cheshire may be considered almost as one of the Lancashire collecting grounds. Here a wooded glen runs up between the hills a couple of miles from Staleybridge and opens out on the wild moorlands of the Peak. This was the favourite locality of Jethro Tinker above mentioned. Of late years however reservoirs have been erected in the valley, the trees cut down, and but little of the wild charm of the place and but few of the special insects now remain. Many of the favourite resorts of the old Manchester collectors, such as the Bollin valley, Dunham Park, and Delamere Forest, are in Cheshire. These localities have undergone but little change and are still most prolific hunting grounds, but they can hardly be considered or described as *Lancashire* collecting grounds.

Trafford Park near Manchester, lately opened to the public, although much disfigured by various 'works' as well as by the ship canal, has been found by Dr. Bailey (formerly of Pendleton) to be an excellent collecting ground for Coleoptera.

The moors and mosses round Bolton have been explored by Mr. Stott of that town, and the Southport district has been exhaustively worked for Coleoptera by Dr. Chaster.

Further north the researches of Messrs. Threlfall and Hodgkinson of Preston have made Witherslack a name familiar to all Lepidopterists. Witherslack and Arnside is a district of low limestone hills, woods, and mosses a few miles north-east of Grange and extending partly into Westmorland. The locality is entomologically very rich and is singular in maintaining a few species of Lepidoptera which are of quite southern distribution.

Near Preston the district of Red Scar has been worked with great success for Lepidoptera by Mr. J. R. Charnley of Preston, and the Rev. A. M. Moss (now of Norwich) has studied and recorded the same order as it occurs about Windermere.

PUBLIC COLLECTIONS

In most of the museums of the county there exist collections of insects of more or less importance. The town museums of Liverpool, Manchester, Preston, Warrington and Bolton may be specially mentioned. The best collection of Lepidoptera is probably the 'Cooke' collection of Liverpool. This includes the collections of N. Cooke and E. Birchall

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of Liverpool and N. Greening of Warrington. It was rearranged some years ago by Dr. Ellis of Liverpool, and the specimens being principally of local origin and in admirable condition it forms probably one of the best public collections of Lepidoptera in the provinces. In the other orders Liverpool possesses a fairly representative but small collection of exotic insects of the several orders. The British collections other than Lepidoptera are in process of reformation and will probably in course of time be worthy of the other excellent biological collections of the Liverpool Museum.

In the Owens College Museum of Manchester the insect collections are exceptionally good. This is particularly the case with the Coleoptera and Hymenoptera. The fine and extensive collection of exotic Lepidoptera presented by Mr. Schill of that town is also a noteworthy feature of the museum.¹

Bolton in the Chadwick Museum possesses excellent collections of Lepidoptera and Coleoptera and good representative ones of Hymenoptera, Hemiptera and Diptera. In this museum also are the exotic Coleoptera collected by the late Mr. Gray of Bolton and presented to the museum.

The Preston Museum contains one of the best generally representative entomological collections in the provinces. It has been formed to illustrate the distribution of the Insecta of the world and includes Coleoptera, Orthoptera, Neuroptera, Hymenoptera, Hemiptera and Diptera. Besides these there is a very good local collection of over 500 species of Lancashire Lepidoptera and several cases illustrating life histories of insects, mimicry, protective resemblance, etc.

The Warrington Museum is of somewhat recent date, and the entomological collections therein are to a great extent in process of formation. The local Lepidoptera are already fairly representative and the other orders have not been neglected.

ENTOMOLOGICAL SOCIETIES

At the present time there are two societies in Lancashire founded for and exclusively devoted to the study of entomology. The elder of these is the Entomological Society of Lancashire and Cheshire.

This society was founded in 1877 by Messrs. S. J. Capper, Ben. Cooke, and a few other local entomologists. The first president was Mr. Capper, and he has worthily filled the chair ever since. The meetings were held in the Liverpool Museum till about 1901, when a removal was made to the Royal Institution, Colquitt Street, in that city, and periodical meetings during the session are now held at Chester and St. Helens. This society has done much to encourage the study of entomological science throughout the district, and has numbered amongst its members all the local entomologists of the last thirty years.

Recently a somewhat similar society has been founded in Man-

¹ The very complete and valuable collection of British Coleoptera formed by W. Reston of Stretford, Manchester, has lately been acquired by this museum.

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chester, under the presidency of Mr. Hoyle of the Owens College Museum.

Besides these bodies, which are exclusively devoted to the study of insects, nearly every town in Lancashire has its field club or some form of natural history society. At many of such societies papers on entomology are read and discussed, but few of them publish more than an abstract of their proceedings. Larger and more comprehensive societies, such as the Liverpool 'Historic Society of Lancashire and Cheshire,' 'Biological Society,' and 'Literary and Philosophical Society,' have from time to time published papers dealing more especially with the entomology of the district.

In earlier days the 'Manchester Banksian Society,' which flourished between 1829 and 1836, formed a centre for the naturalists of that time in south-west Lancashire, and most of the early Lancashire entomologists appear to have been members of it.

At least two other more exclusively entomological societies seem to have existed in Manchester at a somewhat later date: 'The Northern Entomological Society,' which meets at the house of one of the members at Old Trafford, Manchester, and was in existence at any rate in 1862; and the 'Manchester Entomological Society,' which seems to have flourished from 1857 to some time in the 'sixties.' These societies appear however to have published no transactions or proceedings, and their meetings were probably of rather an informal character. Indeed it is difficult now to secure any authentic or consecutive information as to their character or results.

In the lists which follow, the local distribution of the orders Lepidoptera, Coleoptera, Hymenoptera (Aculeata), Hemiptera, and Orthoptera is given with as much detail as the space at our disposal will admit. These lists are far from exhaustive, and additions to all of them are yearly being made by students of the several orders. Few of the older entomologists appear to have realized the importance of the accurate recording of the localities of their captures, and the greater part of these lists is due to the exertions of more modern workers.

In regard to the other orders, Neuroptera, Trichoptera, Diptera, etc., there exists no material for the compilation of lists that would be of value for publication here. Of the Neuroptera and Trichoptera no authentic records are known to the writer. The Diptera have been to some extent studied by the late Benjamin Cooke of Liverpool and the late Rev. H. H. Higgins of Rainhill. The former published a list of Diptera taken near Manchester and Southport in the pages of the *Naturalist*, No. lvii.-lx. vol. 5 (1880), and the latter a short list of the *Syrphidæ* of the Liverpool district in the *Transactions* of the Historic Society of Lancashire and Cheshire (1858). Neither of these lists however is very complete and in some cases perhaps not absolutely trustworthy, and as neither professes to represent the order as it is generally distributed throughout the county they are not reproduced here.

A HISTORY OF LANCASHIRE

ORTHOPTERA

The order Orthoptera, including the Euplexoptera and Dermaptera, contains by far the smallest number of species of any order of the Insecta as represented in Britain. Malcolm Burr, in his recent work on the *British Orthoptera*, enumerates not more than fifty species in all, and many of these are undoubtedly of recent introduction. The Orthoptera include such familiar and, indeed, generally unpopular insects as the cockroaches, the earwigs, and the grasshoppers.

The order has been specially studied as it occurs locally by Mr. E. G. Burgess Sopp of Birkdale, to whom is due the substance of the notes which follow.

As the economy of many of the Orthoptera, especially of the cockroaches, has been extensively modified to suit that association with mankind which they in so many cases unfortunately adopt, they have been particularly the subjects of accidental immigration. Ports such as Liverpool and Manchester have thus been the avenues for the introduction of many exotic species, of which some have been able to establish themselves with more or less success in limited areas; but the greater number, if they succeed in escaping instant destruction at the hands of some unsympathetic discoverer, are only occasionally noticed and recorded by the entomologist before they succumb to a climate to which they find it impossible to adapt themselves.

The following are the members of this order which have been recorded from Lancashire:—

EUPLEXOPTERA

(*Earwigs*)

Labia minor, L. *Southport, Warrington,*
Liverpool

Forficula auricularia, L. Generally abundant

DERMAPTERA

BLATTIDÆ (*Cockroaches*)

Ectobia lapponica, L. *Liverpool*

— *livida*, F. "

Although a few members of the genus *Ectobia*, including these two species, are properly indigenous, still it is probable that these records are of imported exotic specimens, as the normal range of the genus in England is exclusively southern

Phyllodromia germanica, L.

Periplaneta americana, L.

— *australasie*, F.

All recently introduced species which have apparently succeeded to some extent in establishing themselves in a few localities; have

BLATTIDÆ (*continued*)

occurred in *Liverpool, Manchester,* and some of the other large Lancashire towns

Stylopyga (Blatta) orientalis, L. The familiar 'blackbeetle' of our kitchens is only too abundant everywhere. There are also a few records of the occurrence of strictly exotic species from the *Liverpool* docks, such as *Blabera gigantea*, L., and species of the genera *Epilampra* and *Panchlora*, but these can in no sense be considered as part of the fauna of Lancashire

ACRIDIDÆ (*Grasshoppers*)

Stenobothus viridulus, L. } Generally distributed

— *bicolor*, Char. } tributed

— *parallelus*, Zett. *Southport district*

Gomphocerus maculatus, Thun. *Southport district*

Tettix bipunctatus, L. *Liverpool, Hightown, Southport*

Acridium ægyptium, L. Certainly introduced; is also recorded from *Southport*

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ACRIDIDÆ (*continued*)

Pachtylus cinerascens, L. *Manchester*
— *migratorius*, L. *Bolton*

GRYLLIDÆ (*Crickets*)

The only species recorded from the county is *Gryllus domesticus*, L., the common cricket of our houses, which is locally common, but hardly

generally abundant, the cockroach having in many places supplanted and even exterminated it

[The determination of several of the exotic species mentioned above is due to the kindness of Mr. Malcolm Burr, the well-known authority on the Orthoptera]

HYMENOPTERA

The only portion of this order of which detailed and trustworthy data are obtainable is the *Aculeata*, that is the ants, wasps, and bees. These have been studied by the late Benjamin Cooke of Southport, and the Rev. H. H. Higgins, formerly of Rainhill near Liverpool. The result of their observations, together with those of a few other local students of the order, has been incorporated in a paper on 'The Hymenoptera-Aculeata of Lancashire and Cheshire, with notes on the habits of the genera,' by Willoughby Gardner, F.L.S., reprinted from the *Transactions of the Liverpool Biological Society*, 1901. This list deals however only with the southern part of Lancashire. The centre and north of the county are still practically virgin ground to the Hymenopterist, and probably many species are to be found there which have no place in the list referred to.

As regards the remainder of the order—the ichneumons, saw-flies, gall-flies, etc.—a short list exists compiled by Benjamin Cooke which enumerates about 150 species as having been noticed by himself of the *Tentbredinidæ*, *Xiphydriidæ*, *Uroceridæ*, *Cynipidæ*, *Ichneumonidæ*, *Braconidæ*, *Bethylidæ*, and *Embolimidæ*, and also about 23 species of *Cbalcididæ* and *Cbrysididæ*. These are all from the immediate vicinity of Manchester. This list was published in the *Naturalist*,¹ vol. v. No. liii. Dec. 1879. It makes no pretension to be in any sense exhaustive, and is really not much more than a 'note' of species observed near Manchester. We have however no other accessible local information on this part of the order known to the writer.

Reverting to the *Aculeata*, it appears to be unnecessary to mention in detail species generally and everywhere abundant. The following records however seem worthy of attention as of species more or less rare and local. They are taken from the list of Mr. Gardner already mentioned.

HETEROGYNA

FORMICIDÆ

Ponera contracta, Lat. Near *Manchester*

FOSSORES

SAPYGDIDÆ

Sapyga 5-punctata, F. *Rainbill* near *Liverpool*

POMPILIDÆ

Pompilus rufipes, L.

— *plumbeus*, F.

— *niger*, F.

— *pectinipes*, V. de Lind.

Salius exaltatus, F. *Bowden* near *Manchester*

Ceropalpes maculata, F. *Southport*

} Recorded from
the coast sand-
hills

¹ B. Brown, Market Place, Huddersfield.

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SPHEGIDÆ

Astata stigma, Panz. One of the earliest records in Britain of this, till recently rare, species was made by B. Cooke (June 1879) from specimens taken by him at *Southport*. It is one of the most noteworthy of our local wasps

Trypoxylon figulus, L. *Bowden*

Ammophila hirsuta, Scop. } Occur on the
— *lutaria*, F. } sandhills

Diodontus minutus, F. *Manchester* district

Psen pallipes, Panz.

Gorytes mystaceus, L. "Generally" distributed, but not common

Oxybelus uniglumis, L. *Southport* and near *Manchester*

Crabro podagricus, V. d. Lind. *Hazle-grove* near *Manchester*

DIPLOPTERA

VESPIDÆ

Vespa crabro, L. One nest of this usually southern species is recorded from the county, found at *Hawkshead* near *Coniston*, and now in Owen's College Museum, *Manchester*

— *norvegica*, F. Not infrequent in pine woods throughout the county

EUMENIDÆ

Odynerus callosus, Thoms. *Rainbill*

— *pictus*, Curt. *Bolton*

— *trimarginatus*, Zett. Near *Manchester*

— *sinuatus*, F. " "

ANTHOPHILA

COLLETIDÆ

Colletes succinta, L. Among heather, on many of the mosses

— *fodiens*, Kirb. *Southport*

— *daviesana*, Sm. Banks of *Mersey*, *Bollin*, etc.

cunicularia, L. This species was first recorded as British from specimens taken at *Wallasey* in *Cheshire*. The first captor was the Rev. H. H. Higgins (May 1855), who however did not publish his discovery. In 1867 the bee was taken by N. Cooke of *Birkenhead*, and recorded by F. Smith (*E.M.M.* 1869), the locality being erroneously given as *Ventnor*. Since then it has occurred freely along the *Lancashire* coast from *Crosby* as far north as *Blackpool*, and it also seems to occur sporadically inland

Prosopis communis, Nyl. Fairly common

— *signata*, Panz. " "

— *confusa*, Nyl. " "

ANDRENIDÆ

Halictus lævigatus, Kirb. Near *Manchester*
— *villosulus*, Kirb.

— *atricornis*, Sm. Is another "local" bee of considerable interest. When first discovered by B. Cooke at *Hazle-grove* near *Manchester* it was not only new to *Britain*, but new to science (*Ent. An.* 1870, p. 26). The species has since been recorded from *Stretford* and from *Whalley* in *Lancashire* as well as from other localities, in the *Midlands*, but it still remains exclusively *British*

Other species of the genus recorded from *Lancashire* are :—

— *minutissimus*, Kirb.

— *tumulorum*, L.

— *morio*, F.

Sphecodes pilifrons, Thoms. *Hazle-grove*
Southport

Andrena fulvicrus, Kirb. Is only recorded from *Rainbill* near *Liverpool*. The following species, together with others of general distribution, have been recorded from the *Manchester* or *Southport* districts

— *cineraria*, L.

— *angustior*, Kirb.

— *helveola*, L.

— *humilis*, Imb.

— *labialis*, Kirb.

— *minutula*, Kirb.

— *nana*, Kirb.

— *wilkella*, Kirb.

Dasypoda hirtipes, Lat. Occurs on the sandhills and also inland near *Manchester*

Nomada. The following of the less common species of the genus have been recorded, principally from near *Manchester* :—

— *jacobææ*, Panz.

— *lathburiana*, Kirb.

— *lateralis*, Panz.

— *ochostroma*, Kirb.

— *ferruginata*, Kirb.

— *fabriciana*, L.

APIDÆ

Epeolus productus, Thoms. Near *Manchester*

Chelostoma florisomne, L. *Rainbill*

Cœlixys quadridentata, L. } Occur on sand-
— *elongata*, Lep. } hills

Megachile maritima, Kirb. } Occur not in-
— *willughbiella*, Kirb. } frequently

— *circumcincta*, Lep. }

Osmia fulviventris, Panz. *Crosby*

Anthidium manicatum, L. Near *Manchester*, *Rainbill*

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APIDÆ (continued)

Anthophora retusa, L. } Recorded from
 — pilipes, F. } near Manchester
 Bombus. Besides the generally abundant
 species. *B. lapponicus*, F., occurs on
 the moors and hills on the borders
 of the county between *Rochdale* and

APIDÆ (continued)

Marsden, and also on some of the
 mosses of the south-west
Psithyrus vestalis, Fourc. } Occur not infre-
 — *barbutellus*, Kirb. } quently
 — *campestris*, Panz }

COLEOPTERA

(Beetles)

The first recorded notice of this order as it occurs in Lancashire appears to have been two papers on the *Geodephaga* and *Hydradephaga* of the district communicated to the Historic Society of Lancashire and Cheshire (*Trans.* 1861 and 1862) by C. H. Gregson of Liverpool. Gregson was more of a Lepidopterist than Coleopterist, and these lists can only be taken as approximately correct. At a somewhat later date F. Archer of Liverpool contributed to the 'Liverpool Naturalists Scrapbook' (a MS. serial having a limited circulation among Liverpool naturalists) a short paper on the Coleoptera of the district (pp. 167-9). It is however to Dr. Ellis of Liverpool that we owe anything like a complete account of the local distribution of this order. This list, originally communicated to the Liverpool Biological Society, 13 April 1888, was subsequently published in book form in 1889.

To Dr. Ellis's own exertions are due the greater part of these records, but associated in their compilation were Gregson, Archer, B. Cooke, Chappell, Wilding, Smedley, and Willoughby Gardner, all local students of the order. Unfortunately the district embraced in this list is only a circle of a fifteen mile radius from the Liverpool Town Hall. Hence a large number of the records belong to Cheshire, and only the fauna of the extreme south-east of Lancashire is included in it.

The 'Handbooks' of the British Association meeting at Manchester in 1886, and at Liverpool in 1896, both contain short papers on the Coleoptera of the respective districts.

Much more copious and informing is the excellent article contributed by Dr. Chaster and Mr. Burgess Sopp to the Handbook of the Southport meeting of the Association in 1903.

To it and to Dr. Ellis's Liverpool list the writer is greatly indebted in the compilation of the following notes, which are not intended to be in any sense exhaustive. His thanks are also due and hereby accorded to the following gentlemen for their kind and valuable assistance—

Dr. J. Harold Bailey, Port Erin, Isle of Man (sometime of Pendleton, Manchester), who has assiduously collected in the Manchester district, and re-discovered many species recorded by the older collectors.

Dr. G. H. Chaster and Mr. Burgess Sopp of Southport, who have most exhaustively explored that part of the county.

Mr. J. F. Dutton of Helsby, Cheshire, to whom most of the Warrington records are due.

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Mr. E. C. Stott of Swinton, Manchester, the only explorer of the Coleoptera of Bolton.

Mr. R. Wilding of Liverpool, who has collected in the Liverpool and Preston districts.

Mr. J. R. le B. Tomlin of Chester, who has collected more especially along the coast north of Liverpool.

Mr. A. Reston, Stretford, Manchester, an assiduous collector of thirty years ago, whose name will be familiar to readers of the localities given in Canon Fowler's *British Coleoptera*.

Mr. G. Dunlop of Mossley Hill, Liverpool, who has discovered several species near Liverpool new to the district.

Use has also been made of records by Chappell, Sidebotham, T. Morley, Eddleston and Kidson Taylor, all of Manchester, who collected in that district fifty to thirty years ago; of F. Archer and Constantine, former collectors of the Liverpool district Coleoptera; and of Father C. Redman, sometime of Stoneyhurst, Lancashire.

The nomenclature and arrangement here adopted is that of the *British Coleoptera* of Canon Fowler, published in 1887.

ADEPHAGA

CICINDELIDÆ

- Cicindela campestris*, L. Generally distributed but not common
 — *hybrida*, L. *Formby* and *Freshfield* sandhills, abundant in certain years; *Birkdale*, occasional

CARABIDÆ

- Cychrus rostratus*, L. Generally but sparingly distributed
Carabus catenulatus, Scop. Common
 — *violaceus*, L. Common
 — *monilis*, F. *West Derby*
 — *nemoralis*, Müll. *Rainhill, Withington, Southport, Bolton*
 — *granulatus*, L. *Chat Moss, Parbold*
 — *arvensis*, F. *Moors near Bolton*
 — *glabratus*, Payk. Probably occurs on the mountains of the north-east of the county, and one specimen, undoubtedly an importation, was taken by Dr. Chaster at *Birkdale*
 — *nitens*, L. *Chat and Risley Mosses* (formerly), *Knowsley, Freshfield* sandhills
Notiophilus aquaticus, L. } Generally dis-
 — *palustris*, Duft. } tributed, and
 more frequent in dry, heathery localities than, as their names would imply, in damp and marshy ones
 — *substriatus*, Wat. Coast, under seaweed, etc.
Leistus. All the species with the exception of *L. montanus*, Steph., have been recorded. *L. ferrugineus*, L., and *L.*

CARABIDÆ (continued)

- rufescens*, F., sometimes occur in great abundance
Nebria brevicollis, F. Common everywhere
 — *gyllenhalii*, Sch. Under stones in dry bed of stream, *Lostock* near *Bolton, Withington, Ringley Wood* near *Manchester*
Blethisa multipunctata, L., has been recorded by Gregson from *Crosby*
Elaphrus cupreus, Duft. } Generally
 — *riparius*, L. } distributed
Loricera pilicornis, F. Abundant everywhere
Clivina fossor, L. Common
 — *collaris*, Herbst. Banks of *Alt, Mersey, Irwell* and *Douglas*
Dyschirius thoracicus, Rossi. } All occur on
 — *impunctipennis*, Daws. } the coast
 — *nitidus*, Dej. } between
 — *politus*, Dej. } *Crosby* and
 — *salinus*, Sch. } *Southport*
 — *globosus*, Herbst. In wet ditches; abundantly distributed
Miscodera arctica, Payk. Recorded from *Longridge Fell* near *Ribchester*, June 1884, by C. Redman, *Stoneyhurst*
Brosicus cephalotes, L. Common on the shore
Badister bipustulatus, F. Generally distributed, but not common anywhere
Chlœnius nigricornis, F. Recorded from *Knowsley* near *Liverpool*, and *Mere Mere* near *Manchester*

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CARABIDÆ (continued)

- Stenolopus vespertinus, Panz. *Southport district*
- Acupalpus dorsalis, F. One specimen recorded from *Crosby shore*
- meridianus, L. Occasional; *Chat and Carrington Mosses*
- Bradycellus cognatus, Gyll. } Common on
— verbasci, Duft. } the moors
— similis, Dej. } and mosses
— distinctis, Dej. } Not uncommon in
— harpalinus, Dej. } damp places
— collaris, Payk. Also probably occurs in the north, as it is taken on the *Westmorland mountains*
- Harpalus. Of this genus, besides the universally common species, the following have been noted:—
- rupicola, Sturm. *Hightown*
- latus, L. *Manchester, Southport, etc.*
- neglectus, Dej. *Birkdale sandhills, not common*
- tardus, Panz. *Southport, scarce*
- anxius, Duft. Common on coast sandhills
- Dichirotrichus pubescens, Payk. Common on the shore
- Anisodactylus binotatus, F. *Hightown, Chat and Hoole Mosses, Birkdale, Bolton*
- Stomis pumicatus, Panz. Occasional on the mosses, but not common
- Pterostichus. Besides the quite common species—
- cupreus, L. *Crosby, Lostock, Withington, etc.*
- versicolor, Sturm. *Hoole and Lostock Mosses, Southport district*
- picimanus, Duft. One specimen, margin of pond, *Rainhill*
- æthiops, Panz. Moors near *Stoneyburst*
- minor, Gyll. *Southport district*
- vernalis, Gyll. *Northenden, Birkdale*
- Amara fulva, De G. *Mersey shore, Crosby, Birkdale, etc.*
- apricaria, Payk. *Withington, Kearsley, and Kersal Moors, Southport*
- consularis, Duft. Banks of *Douglas near Preston*
- aulica, Panz. Generally distributed
- rufocincta, Dej. *Lydiate near Liverpool, Crosby*
- livida, F. *Crosby, Birkdale*
- ovata, F. *Southport and Bolton districts*
- similata, Gyll. *Southport, not common*
- tibialis, Payk. Generally common on the sandhills
- lunicollis, Schiod. Generally distributed, but not common
- trivialis, Gyll. Abundant everywhere

CARABIDÆ (continued)

- Amara familiaris, Duft. Abundant everywhere
- lucida, Duft. Not rare on the sandhills
- plebeia, Gyll. *Southport district, Lancaster; scarce*
- Calathus. All our species except *C. fuscus*, F., and *C. micropterus*, Duft., have been recorded as common, and *C. micropterus* almost certainly occurs on the high moors of the north and north-east
- Taphria nivalis, Panz. *West Derby, Kearsley Moor, Southport*
- Pristonychus terricola, Herbst. Occurs generally in cellars and outhouses, and occasionally in the open, throughout the county
- Lemosthenus complanatus, Dej. One specimen taken in warehouse in *Liverpool*. This species has only recently been added to the British list, but doubtless occurs frequently, and is probably mixed with the previous species in most collections
- Sphodrus leucophthalmus, L. In cellars; seems to live in drains, and is but rarely seen, but occurs in most large towns of the county
- Anchomenus dorsalis, Müll. Abundant
- albipes, F. ”
- marginatus, L. ”
- parumpunctatus, F. ”
- fuliginosus, Panz. ”
- angusticollis, F. Generally distributed under loose bark and in damp places
- ericeti, Panz. *Simonswood, Chat Moss*
- viduus, Panz. *Southport, occasional*
var. *mæstus*, Leuft. ” ”
- gracilis, Gyll. *Hightown, Rivington, near Manchester*
- puellus, Deg. Almost certainly occurs among reeds, although it has not been recorded, and is difficult to distinguish from *A. fuliginosus*
- Olisthopus rotundatus, Payk. Frequent on the high moors among heather
- Tachys parvulus, Deg. The first British specimen of this insect was taken in September 1884 by Mr. J. H. Smedley of Liverpool on the *Wal-lasey sandhills*. This locality is of course not within the county, but it is probable that the insect may also occur on the sandhills to the north of the Mersey estuary. The discovery of the species since that date near *Plymouth* and in the *New Forest* rather discredits the suggestion,

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CARABIDÆ (continued)

- which had been made, that Mr. Smedley's specimen had been imported in ballast.
- Tachys bistriatus*, Duf. Recorded from *Lostock* near *Bolton*, on daffodils
- Cillenus lateralis*, Sam. Banks of *Alt* and *Mersey* at *Aigburth*
- Bembidium*. Of this large genus the following are abundant and widely distributed :—
- *obtusum*, Sturm. Generally common
 - *guttula*, F. " "
 - *lampros*, Herbst. " "
 - *littorale*, Ol. " "
 - *biguttatum*, F. } Generally but
 - *concinnum*, Steph. } sparingly distri-
 - *minimum*, F. } buted
 - *rufescens*, Guér.

- The following appear to be more local and rare :—
- *quinquestriatum*, Gyll. *West Derby*, *Southport*, near *Preston*
 - *clarki*, Daws. In moss, *Birkdale* sand-hills; rare
 - *quadrinaculatum*, L. *Northenden*, *Crossens*
 - *quadriguttatum*, F. *Wavertree*, *Hightown*
 - *bipunctatum*, L. Banks of *Alt*, *Birkdale*
 - *nitidulum*, Marsh. Banks of *Douglas*, *Hoole*, near *Manchester*
 - *femoratum*, Sturm. *West Derby*, *Aigburth*, near *Manchester*
 - *saxatile*, Gyll. Shore near *Garston*
 - *bruxellense*, Wesm. Moors near *Bolton*
 - *lunatum*, Duft. *Aigburth* shore, *Altmouth*, *Crossens*, *Witbington*
 - *stomoides*, Deg. Banks of *Alt* and *Ribble*
 - *pallidipenne*, Ill. Abundant on the shore between *Crosby* and *Southport*
 - *flammatum*, Clair. Banks of *Alt*
 - *obliquum*, Sturm. 'Clifton near *Manchester*' (T. Morley), quoted in Fowler's *Coleoptera*, i. 121
 - *paludosum*, Panz. Banks of *Bollin*, abundant
 - *tibiale*, Duft. *Clitheroe*
 - *atroceruleum*, Steph. "
 - *decorum*, Panz. "
 - *Tachypus flavipes*, L. *Birkdale*, banks of *Mersey* and *Irwell*, *Bolton*
 - *Perileptus areolatus*, Crantz. *Duddon* sands (Fowler's *Coleoptera*, i. 124)
 - *Trechus discus*, F. Banks of *Alt*, *Liverpool*, *Northenaen*
 - *micros*, Herbst. Banks of *Mersey*

CARABIDÆ (continued)

- *Trechus secalis*, Payk. *Bolton*
- *longicornis*, Sturm. First British specimens were taken on the *Duddon* sands near *Broughton*, *Lancashire* (Fowler's *Coleoptera*, i. 127)
- *minutus*, F. Abundant everywhere
- *Patrobus excavatus*, Payk. *Hoole*, *Preston*, *Manchester* district
- *Pogonus chalceus*, Marsh. Frequent on the foreshore
- *Cymindis vaporarium*, L. Undoubtedly occurs on the moors, as it has been taken both in *Cheshire* and *Yorkshire*, although it does not appear to have been noticed in *Lancashire*
- *Demetrias linearis*, Ol. Abundant
- *quadrinaculatus*, L. "
- *melanocephalus*, Deg. "
- *meridionalis*, Deg. } Less common but
- *quadrinotatus*, } generally distributed
- Panz. }
- *Metabletus foveola*, Gyll. Generally common

HALIPLIDÆ

- *Brychius elevatus*, Panz. Near *Warrington*, *Bolton*
- *Haliplus flavicollis*, Sturm. } Generally
- *ruficollis*, De G. } abundant
- *lineatocollis*, Marsh. }
- *obliquus*, F. *Birkdale*
- *confinis*, Steph. "
- *fulvus*, F. *Hightown*, *Ormskirk*
- *fluviatilis*. Near *Liverpool*, *Southport*

DYTISCIDÆ

- *Noterus sparsus*, Marsh. *Southport*
- *Laccophilus interruptus*, Panz. *Clifton* near *Manchester*
- *obscurus*, Panz. *Southport*
- *Hyphidrus ovatus*, L. Generally abundant
- *Cœlambus versicolor*, Sch. Common
- *inæqualis*, F. "
- *Deronectes assimilis*, Payk. } Generally dis-
- *depressus*, F. } tributed if
- *duodecim-pustulatus*, F. } not common
- *Hydroporus*. Besides the universally abundant species of this large genus the following have been recorded :—
- *lepidus*, Ol. *Bolton* and generally in ditches near the coast
- *rivalis*, Gyll. *Bolton*
- *halensis*, F. "
- *tristis*, Payk. *Simonswood Moss*
- *umbrosus*, Gyll. Near *Warrington*, *Birkdale*
- *gyllenhalii*, Schiö. *Simonswood Moss*, *Southport*
- *morio*, Deg. *Simonswood*, *Bolton*
- *memnonius*, Nic. *Birkdale*
- *obscurus*, Sturm. Probably occurs on

INSECTS

DYTISCIDÆ (continued)

- the mosses, as it is taken at *Lindow* and *Delamere* in *Cheshire*
- Hydroporus nigrita*, F. *Kirkdale*
 — *lituratus*, F. *Southport*
 — *obsoletus*, Aubé. Recorded by Chappell from *Chat Moss* and from *Northenden* by Dr. Bailey
- Agabus bipustulatus*, L. } Everywhere
 — *sturmii*, Schrön. } abundant
 — *guttatus*, Payk. Common under stones in brooks
 — *biguttatus*, Ol. *Ribble* near *Preston*
 — *paludosus*, F. *Bolton* and near *Manchester*
 — *unguicularis*, L. One specimen, *Birch Fields, Manchester*
 — *nebulosus*, Forst. *Southport*
 — *chalconatus*, Panz. *Bolton* and *River Douglas* near *Preston*
- Platambus maculatus*, L. Generally distributed in running water
- Ilybius fuliginosus*, F. Common
 — *ater*, De G. " "
 — *fenestratus*, F. *Wavertree* near *Liverpool*
 — *obscurus*, Marsh. *Southport*
 — *guttiger*, Gyll. *Prestwich*
- Colymbetes fuscus*, L. Common generally
- Rhantus bistriatus*, Berg. *Prestwich*
 — *exoletus*, Forst. *Hightown* near *Formby*
- Dytiscus marginalis*, L. } Recorded and
 — *punctulatus*, F. } fairly common

GYRINIDÆ

- Gyrinus bicolor*, Payk. Near *Southport*
 — *elongatus*, Aubé. " "
 — *marinus*, Gyll. " "
 — *natator*, Scop. Abundant everywhere
- Oreochtilus villosus*, Müll. *Winwick* near *Warrington*, near *Manchester*

CLAVICORNIA

HYDROPHILIDÆ

- Hydrocharis caraboides*, L. A single specimen captured at *Southport* when flying at night
- Hydrobius fuscipes*, L. Common
- Philhydrus testaceus*, F. } All occur more
 — *nigricans*, Zett. } or less frequently
 — *melanocephalus*, Ol. }
 — *coarctatus*, Gredl. }
- Cymbiodyta ovalis*, Thoms. Common
- Enochrus bicolor*, Gyll. Near *Liverpool, Formby*
- Laccobius*. All the four British species or forms occur near *Southport* and elsewhere
- Berosus affinis*, Brullé. *Wavertree, Kirkdale* near *Liverpool*
- Limnebius truncatellus*, Thoms. Common
 — *nitidus*, Marsh. *Southport*

HYDROPHILIDÆ (continued)

- Anacena*. All our species occur
- Chætarthra seminulum*, Herbst. *Birkdale*
- Helophorus tuberculatus*, Gyll. This exceedingly rare species was taken some years ago in the *Manchester* district by J. Chappell and named by E. C. Rye (*E.M.M.* October 1874)
- *aquaticus*, L. Generally abundant
 — *brevipalpis*, Bedel. " "
 — *nubilus*, F. "
 — *intermedius*, Muls. } Recorded from
 — *dorsalis*, Marsh. } the *Southport* district, but are not
 — *arvernicus*, Muls. } common
 — *ænipennis*, Thoms. }

Hydrochus angustatus, Germ. *Southport*; rare

- Octhebius pygmaeus*, F. Common
 — *bicolon*, Germ. " "
 — *marinus*, Payk. One specimen, *Southport*
 — *rufomarginatus*, Steph. Recorded by T. Morley from *Stretford* near *Manchester* in flood refuse

Hydroena riparia, Kug. Generally distributed

- *nigrita*, Germ. } *Fairy Glen, Appleby*
 — *gracilis*, Germ. } *Bridge*

All species of *Cyclonotum* and *Sphæridium* occur not uncommonly

Cercyon. With the exceptions of *C. aquaticus*, Muls., *C. depressus*, Steph., and *C. minutus*, Muls., the whole of our British species have been recorded. The two species also of *Megasternum* and *Cryptopleurum* are abundant

SILPHIDÆ

- Clambus*. Our three British species have all been taken near *Southport*
- Agathidium nigripenne*, Kug. Under bark, *Agecroft, Manchester*
 — *marginatum*, Sturm. Rare, *Birkdale* sandhills
- Liodes humeralis*, Kug. Generally distributed
 — *orbicularis*, Herbst. One specimen in *Lycoperdon*. *Prestwich* near *Manchester*
- Anisotoma dubia*, Kug., is the only species at all common, but *A. picea*, Ill., *A. rugosa*, Steph., *A. furva*, Er., *A. ciliaris*, Schm., and *A. ovalis*, Schm., all species generally considered rare or very rare, have been taken by Dr. Chaster and Mr. Sopp on the *Southport* coast, also by the former one specimen of *A. punctulata*, Gyll.
- Hydnobius punctatus*, Sturm. Recorded by Archer (1864) from *Hightown* near *Crosby*

A HISTORY OF LANCASHIRE

SILPHIDÆ (continued)

Hydrotus punctatissimus, Steph. Not uncommon by evening sweeping on the sandhills

Necrophorus humator, F. } Generally common
— *ruspator*, Er. } mon

— *vespillo*, L. So on the sandhills only

— *mortuorum*, F. Scarce

Necrodes littoralis, L. Shore at *Aigburth*, *Birkdale*

Silpha rugosa, L. Generally common

— *sinuata*, F.

— *opaca*, L. Single specimens, *Birkdale*, *Bolton*

— *tristis*, Ill. *Bolton*

— *obscura*, L. *Blackpool*

— *atrata*, L. *Crosby*

Choleva morio, F. } Are the commonest

— *nigrita*, Er. } species

— *tristis*, Payk.

— *watsoni*, Spence

— *spadicea*, Sturm. Recorded by Broadbent from *Drinkwater Park* near *Manchester*

— *fusca*, Panz. *Southport*

— *grandicollis*, Er., and *C. kirbyi*, Spence (if these forms are really of specific value), have both been recorded

— *chrysomeloides*, } Generally distributed
— *velox*, Spence } Panz.

— *colonioides*, Kraatz. Recorded by Chappell from 'near *Manchester*' (*E.M.M.* xii. 62)

— *nigricans*, Spence. *Bolton*

Ptomophagus sericeus, F. Generally common

SCYDMÆNIDÆ

Eumicrus tarsatus, Müll., and *Scydmaenus collaris*, Müll., are the only species recorded as common

— *exilis*, Er. *Southport*; very rare

PSELAPHIDÆ

The only species of the genera *Pselaphus*, *Tychus*, *Bythinus*, *Rybaxis*, or *Bryaxis* recorded is *Tychus niger*, Payk., from *Southport*, although undoubtedly many more occur within the county. The genus *Euplectus* has been specially studied by Dr. Chaster, who records *E. signatus*, Reich., *E. sanguineus*, Denny, *E. karsteni*, Reich., and *E. piceus*, Mots., all from the *Southport* district

TRICHOPTERYGIDÆ

The small size, the difficulty of setting, and the still greater difficulty of naming the members of this family have occasioned the general neglect of this group by collectors, and the

TRICHOPTERYGIDÆ (continued)

few records, in some cases of doubtful authenticity, which exist afford no criterion of the distribution of the family in Lancashire

CORYLOPHIDÆ

No records have been found

SPHÆRIIDÆ

No records have been found

PHALACRIDÆ

Olibrus æneus, F. *Southport*

COCCINELLIDÆ

Hippodamia variegata, Goeze. Common on the sandhills

Coccinella hieroglyphica, L. Not rare on the mosses

Halyzia 18-guttata, L. }

— *14-guttata*, L. } Abundant in all

Myria oblongoguttata, L. } pine woods in

Anatis ocellata, L. } the county

Scymnus frontalis, F. Common on the sandhills

— *suturalis*, Thunb. Among fir trees

— *redtenbacheri*, Muls. *Birkdale*, sandhills

— *nigrinus*, Kug. Recorded by Kidson Taylor from 'near *Manchester*'

Chilocorus bipustulatus, L. Common on the sandhills

ENDOMYCHIDÆ

Mycetæa hirta, Marsh. Generally distributed

COLYDIDÆ

Orthocerus muticus, L. Sometimes common on the sandhills

Cerylon ferrugineum, Steph. *Parbold*

HISTERIDÆ

Hister unicolor, L. }

— *cadaverinus*, Hoff. } All occur principally on the sand-

— *bissexstriatus*, F. } hills

— *purpurascens*,

Herbst.

— *bimaculatus*, L. }

— *12-striatus*, Sch. }

— *carbonarius*, } Also almost certainly

Ill. } occur more inland, as

— *succicola*, } they are common in

Thoms. } Cheshire

Gnathoncus nannetensis, Mars. *Birkdale* sandhills; rare

Saprinus nitidulus, Payk. Abundant

— *æneus*, F. }

— *quadristriatus*, Hoff. } More rarely on

— *maritimus*, Steph. } the coast

Acritus minutus, Herbst. *Southport* district, common

Oonthophilus striatus, F. Generally distributed

MICROPEPLIDÆ

Micropeplus porcatus, Payk. *Hightown*, *Southport*

INSECTS

MICROPEPLIDÆ (continued)

- Micropeplus margaritæ*, Duv. Generally distributed
 — *tesserula*, Curt. One specimen reported from *Grange*, 1863, by R. S. Edleston (*E.M.M.* i. 259)

NETTULIDULÆ

- Brachypterus gravidus*, Ill. On *Linaria vulgaris*, *Southport*
 — *pubescens*, Er. Generally abundant
 — *urticæ*, Kug. " "
Carpophilus hemipterus, L. In a *Liverpool* warehouse; perhaps imported
 — *mutilatus*, Er. This species owes its position on the British list to Mr. T. Ray Hardy of Manchester, who recorded it from *Manchester* (Fowler's *Coleoptera*, iii. 224), and it has not been since taken by any one in this country

Cercus. All our three species have been recorded

Epurea decemguttata, F.

- *diffusa*, Bris.
 — *melina*, Er.
 — *oblonga*, Herbst.
 — *florea*, Er.
 — *parvula*, Sturm.
 — *angustula*, Er.

}

All recorded from the *Manchester* district by the old collectors

Nettula bipustula, L. Is the only species recorded, and that is not uncommon
Soronia grisea, L. *Trafford Park* near *Manchester*, *Southport*

— *punctatissima*, Ill. *Southport*
Omosita colon, L. Generally common

— *discoidea*, F. " "
Meligethes. Besides the generally common species the following have been recorded by Chappell:—

- *symphyti*, Heer. *Bowden*
 — *ovatus*, Sturm. } On flowers of *Gali-*
 — *viduatus*, Sturm. } *opsis*, *Chat Moss*
 — *flavipes*, Sturm. On broom, *Lancaster*
 — *memonnius*, Er. *Chat Moss*

By Ellis:—
 — *brunnicornis*, Sturm. 'Occasional'
 — *lugubris*, Sturm. 'Two on *Mentha*, *Hightown*'

- *viridescens*, F. *Southport*
Rhizophagus depressus, F. *Chat Moss*
 — *cribratus*, Gyll. *Manchester*
 — *parallelcolis*, Er. *Southport*
 — *perforatus*, Er. *Liverpool*
 — *dispar*, Gyll. Generally distributed
 — *bipustulatus*, F. " "
 — *politus*, Hellw. *Manchester* district
 — *cœruleipennis*, Sahl. One specimen taken from a decayed log at the *Crasby* sandhills 'many years ago' by Mr. Kidson Taylor of *Manchester*

TROGOSITIDÆ

Tenebrioides mauritanica, L. Under matting on the shore, and in shops and warehouses

MONOTOMIDÆ

Monotoma picipes, Herbst. Generally common
 — *quadricollis*, Aubé. *Southport*
 — *rufa*, Red. " "
 — *longicollis*, Gyll. " "

LATHRIDIIDÆ

Of the genera *Lathridius*, *Coninomus* and *Enicmus* only the quite common species have been recorded

Cartodere ruficollis, Marsh. Abundant in haystack refuse at *Birkdale*

Corticaria pubescens, Gyll. } Not infrequent in
 — *crenulata*, Gyll. } haystack debris
 — *denticulata*, Gyll. } generally
 — *elongata*, Gyll.

Melanophthalma gibosa, Herbst. Abundant everywhere
 — *fuscula*, Man. Abundant everywhere

CUCUJIDÆ

Silvanus surinamensis, L. Common in grain warehouses

— *bidentatus*, Steph. Near *Manchester*
Lemophlæus ferrugineus, Steph. In grain warehouses
 — *pusillus*, Schön. In grain warehouses

BYTURIDÆ

Byturus tomentosus, F. Common throughout the district

CRYPTOPHAGIDÆ

Telmophilus caricis, Ol. Generally common

Antherophagus nigricornis, F. *Southport*, not common
 — *silaceus*, Herbst. *Southport*, not common
 — *pallens*, Gyll. *Ringley Wood*, *Manchester*

Cryptophagus pubescens, Sturm. Generally distributed

— *lycooperdi*, Herbst. Generally distributed
 — *setulosus*, Sturm. " "
 — *saginat*, Sturm. " "
 — *scanicus*, L. " "
 — *cellaris*, Scop. " "
 — *acutangulus*, Gyll. " "
 — *distinguendus*, Sturm. *Southport*
 — *bicolor*, Sturm. "
 — *punctipennis*, Bris. "
 — *umbratus*, Er. "
 — *ruficornis*, Steph. Rare; has been recorded by Chappell and recently taken by Mr. Kidson Taylor in fungus on *Chat Moss*

Micrambe vini, Panz. Generally distributed

A HISTORY OF LANCASHIRE

CRYPTOPHAGIDÆ (continued)

Henoticus serratus, Gyll. A single specimen recorded from under birch bark near *Manchester*, also by Mr. Kidson Taylor

Atomaria fimitarii, Herbst. Occasionally abundant in fungus, *Birkdale*, and — *nigripennis*, Payk. In a cellar in *Manchester*, are the only two except the universally common species recorded

Ephistemus. Both species are common

SCAPHIDIDÆ

Scaphisoma agaricinum, L. *Worsley* near *Manchester*

— *boleti*, Panz. *Southport*

MYCETOPHAGIDÆ

Mycetophagus piceus, F. *Trafford Park*, *Manchester*

DERMESTIDÆ

Dermestes vulpinus, F. } Common in car-
— *murinus*, L. } rion on the shore
— *lardarius*, L. Generally distributed

BYRRHIDÆ

Syncalyptra hirsuta, Sharp. *Southport* sand-
hills

Byrrhus pilula, L. Common

Cytilus varius, F. Common on the sand-
hills

Simplocaria semistriata, F. Generally dis-
tributed

GEORYSSIDÆ

Georyssus pygmæus, F. Banks of *Bollin*
and *Alt* sandhills; not uncommon

PARNIDÆ

Limnius tuberculatus, Müll. *Scarisbrick*,
near *Warrington*

Elmis æneus, Müll. *Halsall*, *Scarisbrick*

Parnus prolifericornis, F. Abundant on
the sandhills

— *auriculatus*, Panz. On the sandhills

— *nitidulus*, Heer. Very rare; on the
sandhills

HETERO CERIDÆ

Heterocerus marginatus, F. Common,
banks of *Bollin* and at *Southport*

— *fuscus*, Kies. One specimen of this
rare and hitherto quite southern
species was taken by Dr. Chaster as
Birkdale

STAPHYLINIDÆ OR BRACHELYTRA

ALEOCHARINÆ

Aleochara. Besides the more abundant
species:—

— *bipunctata*, Ol. Occurs at *Formby*

— *obs curella*, Grav. Common under
seaweed on the shore

Microglossa suturalis, Man. *Birkdale*

ALEOCHARINÆ (continued)

Oxyroda lividipennis, Man. Generally
distributed

— *opaca*, Grav. Generally distributed

— *longiuscula*, Er. " "

— *umbrata*, Grav. *Southport* "

— *exigua*, Er. " "

— *exoleta*, Er. " "

— *hæmorrhœa*, Man. " "

— *waterhousi*, Rye. " "

— *alternans*, Grav. Not uncommon in
fungi

Ocyusa maura, Er. Near *Manchester*

Phlœopora. Both our species occur under
bark

Chilopora longitarsis, Er. *Hightown*

Myrmedonia limbata, Payk. *Fallowfield*
near *Manchester*, *Birkdale* sandhills;
scarce

Astilbus canaliculatus, F. Generally dis-
tributed

Homalota. Of this large genus the fol-
lowing are recorded:—

— *insecta*, Thoms. *Hightown*, *Man-*
chester

— *luridipennis*, Man. Common

— *elongatula*, Grav. " "

— *volans*, Scriba. " "

— *gregaria*, Er. " "

— *vestita*, Grav. " "

— *gyllenhali*, Thoms. *Southport*

— *silvicola*, Fuss. *Stretford* near *Man-*
chester

— *vicina*, Steph. *Simonswood*

— *crassicornis*, Sharp. Usually con-
sidered a rare and mountain species;
recorded from *Drinkwater Park*
(1870) by Morley

— *halobrectha*, Sharp. } Beneath seaweed
— *algæ*, Hardy. } on shore

— *occulata*, Er. Generally distributed

— *angustula*, Grav. " "

— *circellaris*, Grav. " "

— *cuspidata*, Er. " "

— *analis*, Grav. " "

— *exilis*, Er. " "

— *cavifrons*, Sharp. Hitherto only taken
in Scotland. *Parbold* near *Southport*,
one specimen
(Chaster)

— *depressa*, Gyll. *Birkdale* sandhills;
rare

— *hepatica*, Er. 'Near *Manchester*'
(Chappell)

— *aquatica*, Thoms. Generally distributed

— *trinotata*, Kr. " "

— *triangulum*, Kr. " "

— *fungicola*, Thoms. " "

— *coriaria*, Kr. " "

— *palustris*, Kies. One specimen, *Birk-*
dale

INSECTS

ALEOCHARINÆ (continued)

- Homalota nigra, Kr. Common
 — atramentaria, Gyll. "
 — germana, Sharp. *Birkdale*
 — orbata, Er. "
 — pilosiventris, Thoms. "
 — villosula, Kr. Near *Manchester*
 — setigera, Sharp. "
 — sordida, Marsh. " Abundant
 — longicornis, Grav. "
 — fungi, Grav. "
 — pygmæa, Grav. *Birkdale*
 — subsinuata, Er. "
 — sericea, Muls. "
 — fungi var. clientula, Er. *Birkdale*
 Gnypteta labilis, Er. Common on banks of streams, etc.

Tachyusa constricta, Er. } All occur on the
 — scitula, Er. } sandy banks of
 — flavitarsis, Sahlb. } the *Mersey*,
Irwell and *Bollen*, and probably
 other rivers

Falagria sulcata, Payk. Generally distributed
 — obscura, Grav. " "

Autalia. All our three species occur, but
 not commonly

Epipeda plana, Gyll. Under bark, *Bootle*

Leptusa fumida, Er. *Chat Moss*, *Birkdale*

Sipalia ruficollis, Er. In cut grass, *Birk-*
dale

Bolitochara bella, Maerk. } Occur, but are
 — obliqua, Er. } not common

Phytosus balticus, Kr. } Are not uncom-
 — nigriventris, Chev. } mon on the
 shore in carrion and beneath egg
 capsules of the whelk

Diglossa submarina, Fair. *Hightown* shore
 (*E.M.M.* x. 290)

Oligota inflata, Man. Very common

— atomaria, Er. Also occurs

— punctulata, Heer. " "

Myllæna gracilis, Mat. *Birkdale*

— infuscata, Mat. "

— brevicornis, Mat. *Ringley Wood* near
Manchester, *Birkdale*

Gymnusa brevicollis, Payk. *Chat Moss*

— variegata, Kies. Near *Manchester*

TACHYPORINÆ

Hypocypus longicornis, Payk. Common

— ovulum, Heer. *Ainsdale*, *Drinkwater*
Park

Conosoma pubescens, Grav. } Occur fairly
 — lividum, Er. } commonly

Tachyporus. All the common species are
 abundant generally

Cilea silphoides, L. Not uncommon

Tachinus. Of the less common species—

— flavipes, F. *Crosby*

— subterraneus var. bicolor, Grav. *South-*
port

TACHYPORINÆ (continued)

Megaconus analis, F. Not rare

— inclinans, Grav. *Drinkwater Park* near
Manchester

Bolitobius lunulatus, L. Although not
 recorded doubtless occurs, although
 perhaps not commonly

— trinitatus, Er. Abundant in fungi

— pygmæus, F. "

Mycetoporus splendidus, Grav. " Common
 on the sandhills

— lucidus, Er. "

— longulus, Mann. } Have also occurred

— lepidus, Grav. } but are not com-

— nanus, Er. } mon

The rare mountain species, *M. angularis*,
 Rey., and also *M. clavicornis*, Steph.,
 have both occurred at *Birkdale*

Habrocerus capillaricornis, Grav. *Scaris-*
brick

STAPHYLININÆ

Heterothops dissimilis, Grav. Probably
 occurs

— binotata. Common on the sandhills

Quedius fulgidus, F. Generally distributed

— mesomelinus, Marsh. " "

— cruentus, Ol. " "

— cinctus, Payk. " "

— molochinus, Grav. " "

— tristis, Grav. " "

— fuliginosus, Grav. " "

— maurorufus, Grav. " "

— rufipes, Grav. " "

— semiæneus, Steph. " "

— obliteratus, Er. " "

— boops, Grav. " "

— puncticollis, Thoms. } Rare on the sand-

— scintillans, Grav. } hills
 — fumatus, Steph. Has occurred at *Aig-*
burth

Creophilus maxillosus, L. Abundant

Leistotrophus murinus, L. One specimen,
Crosby

Staphylinus pubescens, De G. Generally
 common

— stercorarius, Ol. Occasional on the
 sandhills

— cæsaricus, Ceder. *Simonswood*, *Coniston*

Ocypus. Except *O. cyaneus*, Payk., *O.*
similis, F., and *O. pedator*, Grav.,
 all our species occur not infrequently

Philonthus. Of this large genus, besides
 the generally common species, the
 following have been recorded:—

— umbratilis, Grav. *West Derby*, *South-*
port

— fumigatus, Er. *Formby* near *War-*
rington

— longicornis, Steph. *Lynn*, near *War-*
rington

A HISTORY OF LANCASHIRE

STAPHYLININÆ (continued)

- Philonthus debilis*, Grav. *Birkdale*
 — *vernalis*, Grav. *Hightown*
 — *micans*, Grav. Sandhills
 — *puella*, Nord. *Trafford Park, Manchester*
Cafius fucicola, Curt. } Both occur on the
 — *xantholema*, Grav. } shore
Actobius signaticornis, Rey. } *Birkdalesand-*
 — *procerulus*, Grav. } hills
Xantholinus. All our species except *X.*
glaber, Nord., *X. distans*, Kr., and
X. fulgidus, F., occur
Leptacinus. All except *L. formicetorum*,
 Maerk., are recorded
Baptolinus alternans, Grav. *Trafford Park,*
Manchester
Othius fulvipennis, F. Common
 — *melanocephalus*, Grav. "
 — *læviusculus*, Steph. Occasional on the
 sandhills

PCEDERINÆ

- Lathrobium*. Besides the common species,
L. multipunctatum, Grav., *L.*
quadratum, Payk., and *L. longu-*
lum, Grav., occur rarely on the
Southport sandhills, where also *Cryp-*
tobium glaberrimum, Herbst, has
 been taken
Stilicus rufipes, Germ. *Southport*; not
 common
 — *affinis*, Er. Generally distributed
 — *orbiculatus*, Er. " "
Medon obsoletus, Nord. *Southport*
 — *melanocephalus*, F. *Litherland*
Lithocharis ochracea, Grav. Common
Pœderus riparius, L. *Southport*

EVÆSTHETINÆ

- Evæsthetus ruficapillus*, Lac. *Barton*
Moss near Manchester

STENINÆ

- Stenus*. Of this extensive genus, the fol-
 lowing are generally distributed :—
 — *biguttatus*, L.
 — *bimaculatus*, Gyll.
 — *guttula*, Müll.
 — *juno*, F.
 — *bupthalmus*, Grav.
 — *canaliculatus*, Gyll.
 — *speculator*, Lac.
 — *declaratus*, Er.
 — *crassus*, Steph.
 — *brunnipes*, Steph.
 — *impessus*, Germ.
 — *bifoveolatus*, Gyll.
 — *picipes*, Steph.
 — *nitidiusculus*, Steph.
 — *cicindeloides*, Grav.
 — *similis*, Herbst
 — *tarsalis*, Ljungh.

STENINÆ (continued)

- Stenus paganus*, Er.
 — *latifrons*, Er.
 Rarer species are—
 — *ater*, Man. *Southport* district
 — *binotatus*, Ljungh. " "
 — *melanopus*, Marsh. " "
 — *pusillus*, Er. " "
 — *exiguus*, Er. " "
 — *ossium*, Steph. " "
 — *subcœneus*, Er., *Crosby, Aigburth*; and
 probably other members of the
 genus occur, although so far un-
 recorded

OXYPORINÆ

- Oxyporus rufus*, L. *Mossley Hill near*
Liverpool

OXYTELINÆ

- Bledius*. Of this genus, the following
 occur in wet places among the sand-
 hills :—
 — *spectabilis*, Kr.
 — *fuscipes*, Rye
 — *fracticornis*, Payk.
 — *opacus*, Block.
 — *longulus*, Er.
 — *arenarius*, Payk. On the shore; very
 abundant
 — *subterraneus*, Er. *Bollin Valley*
 — *longulus*, Er. " "
 — *palipes*, Grav. " "
Platystethus arenarius, Fourc. Abundant
 — *cornutus*, Gyll. *Hightown*
Oxytelus insecatus, Grav. *Liverpool* district
 — *inustus*, Grav. *Birkdale*; rare
 — *maritimus*, Thoms. Not uncommon
 under seaweed, etc., on the shore
 — *rugosus*, F. Generally abundant
 — *sculptus*, Grav. " "
 — *laqueatus*, Marsh. " "
 — *sculpturatus*, Grav. " "
 — *nitidulus*, Grav. " "
 — *tetracarينات*, Block. " "
Ancyrophorus omalinus, Er. Recorded
 from *Clifton* near *Manchester* by
 Morley

- Trogophloeus spinicollis*, Rye. The only
 specimen of this insect ever taken in
 this country was captured by Mr.
 Kidson Taylor under refuse banks
 of *River Mersey*, 9 August 1868
 — *bilineatus*, Steph. *Southport* district
 — *rivularis*, Mots. " "
 — *corticinus*, Grav. " "
 — *pusillus*, Grav. " "
 — *tenellus*, Grav. " "

Thinobius brevipennis, Kies. Two speci-
 mens of this rare beetle, hitherto
 only taken in the fens of Cambridge-
 shire, are recorded from flood refuse,

INSECTS

OXYTELINÆ (continued)

Birkdale sandhills, May 1902, by Dr. Chaster

Syntomium æneum, Müll. Near *Southport*
Coprophilus striatulus, F. *Fazackerly* near *Liverpool*, *Manchester* district

Deleaster dichrous var. *Leachii*, Curt.
Taken by *Reston* on the wing near the *Mersey* at *Stretford*

HOMALIINÆ

Anthophagus testaceus, Grav. '*Southport*'
(*Fowler's Col.* ii. 399)

Geodromicus nigrita, Müll. This subalpine species is recorded by *Morley* from *Clifton* near *Manchester*

Lesteva longelytrata, Gœze. } Generally
— *sicula*, Er. } common
— *sharpi*, Rye. Probably occurs, as it is recorded from *Delamere* in *Cheshire*

Acidota cruentata, Man. Near *Manchester* (*Broadbent*)

Olophrum picium, Gyll. Generally common

Deliphrum tectum, Payk. *Rudd Heath* near *Manchester*

Lathrimæum. Both our species occur not uncommonly

Homalium rugulipenne, Rye. Very local; common under seaweed, carrion, etc., on the shore from the *Mersey* to *Southport*

— *rivulare*, Payk. Abundant
— *læviusculum*, Gyll. } Occasional on the
— *riparium*, Thoms. } shore
— *allardi*, Fairn. *Drinkwater Park* (*Broadbent*)

— *oxycantha*, Grav. }
— *excavatum*, Steph. }
— *cæsum*, Grav. }
— *concinnum*, Marsh. } All occur more or
— *deplanatum*, Gyll. } less frequently
— *vile*, Er. }
— *rufipes*, Fourc. }
— *striatum*, Grav. }

Anthobium minutum, F. Banks of *Bollin*
— *ophthalmicum*, Payk. } Generally dis-
— *torquatum*, Marsh. } tributed

PROTEININÆ

Proteinus ovalis, Steph. Abundant
— *macropterus*, Gyll. } Rare on the *South-*
— *brachypterus*, F. } *port* sandhills

Megarthus denticollis, Beck. Recorded
— *depressus*, Payk. " "
— *affinis*, Müll. " "

PHLŒOBILINÆ

Phlæobium clypeatum, Müll. *Hesketh* near *Southport*

PHLŒOCHARINÆ

Pseudopsis sulcata, Newm. In garden refuse, *Southport*

LAMELLICORNIA

LUCANIDÆ

Sinodendron cylindricum, L. *Childwall* near *Liverpool*

SCARABÆIDÆ

Onthophagus fracticornis, Preys. Is the only species recorded; coast sandhills

The genus *Aphodius* is well represented:—
Aphodius fossor, R. More or less common

— *hæmorrhoidalis*, L. " "

— *scybalarius*, F. " "

— *foetens*, F. " "

— *fimitarius*, L. " "

— *ater*, De G. " "

— var. *terrenus*, Kirby. " "

— *granarius*, L. " "

— *rufescens*, F. " "

— *nitidulus*, F. " "

— *plagiatus*, L. " "

— *inquinatus*, F. " "

— *conspurcatus*, L. " "

— *pusillus*, Herbst. " "

— *merdarius*, F. " "

— *prodromus*, Brahm. " "

— *punctato-sulcatus*, Sturm. " "

— *contaminatus*, Herbst. " "

— *rufipes*, L. " "

— *luridus*, F. " "

— *depressus*, Kug. " "

— *foetidus*, F. *Staleybrushes*

— *scrofa*, F. Very rare; recorded from *Southport* (*E.M.M.* v. 44)

— *lapponum*, Gyll. Probably occurs on the mountains of the north

[— *melanosticticus*, Schm. Had a place in the British list introduced by *Rye* from specimens from the *Manchester* district. These appear however to have been merely forms of *A. inquinatus*, and the species probably does not occur in Britain]

Heptalaucus villosus, Gyll. Three specimens taken by Dr. Chaster at *Birkdale*

Oxyomus porcatus, F. *Crosby, Southport*
Ammoecius brevis, Er. First taken in Britain by Mr. Haward in May 1859 at *Southport*, and occurs there more or less abundantly every year

Psammobius sulcicollis, Ill. *Didsbury, Manchester, Southport*

Ægialia sabuleti, Payk. Banks of *Mersey, Irwell* and *Bollin*

— *rufa*, F. So far has only been taken in Britain on the coast sandhills, between the mouths of the *Dee* and the *Ribble*. Here it occasionally appears in abundance as in June 1862, 1885, 1886 and 1902 (see *Ent. Record*, xiv. 243)

A HISTORY OF LANCASHIRE

SCARABÆIDÆ (continued)

- Ægialia arenaria*, F. Abundant
Geotrupes stercorarius, L. Recorded
 — *spiniger*, Marsh. " "
 — *sylicatus*, Panz. " "
Hoplia philanthus, Füss. *Cbat Moss, Bollin Valley*
Serica brunnea, L. Generally distributed but not common
Rhizotrogus solstitialis, L. *Bolton*
Melolontha vulgaris, F. Occurs generally, but not commonly anywhere
Phylopertha horticola, L. Occasional and very uncertain in appearance
Anmola frischii, F. Common on the sandhills
Oxythera stictica, L. This very doubtfully British species has been recorded by Sidebotham from the 'Lancashire coast,' June 1862 (*E.M.M.* i. 235), and also by Reston from a garden at *Whalley Range* near *Manchester*

SERRICORNIA

THROSCIDÆ

- Throscus dermestoides*, L. *Rixton Moss* near *Warrington*
 — *carinifrons*, Bouv. One specimen *Churchtown* near *Southport*

ELATERIDÆ

- Lacon murinus*, L. Coast sandhills; not uncommon
Cryptohypnus riparius, F. Generally distributed
 — *quadripustulatus*, F. Near *Warrington*
Elater balteatus, L. Abundant on the mosses and also at *Southport* under peat
Melanotus rufipes, Herbst. *Mossley Hill, Liverpool*
Athous hæmorrhoidalis, F. } More or less
 — *niger*, L. } common
 — *vittatus*, F. }
Limonium cylindricus, Payk. Common on the sandhills
Sericosomus brunneus, L. *Cbat Moss, Simonswood*
Adrastus limbatus, F. Common
Agriotes sputator, L. " "
 — *lineatus*, L. " "
 — *obscurus*, L. " "
 — *pallidulus*, Ill. " "
Dolopius marginatus, L. Abundant
Corymbites pectinicornis, L. Damp meadows near the *Bollin*
 — *cupreus*, F. *Bolton*
 var. *æruuginosus*, F. *Bolton*
 — *quercus*, Gyll. } *Agecroft,*
 var. *ochropterus*, Steph. } *Ringley Wood*
 — *æneus*, L. Almost certainly occurs on

ELATERIDÆ (continued)

- the moors, although it does not appear to have been recorded
Campylus linearis, L. Frequent on the mosses

DASCILLIDÆ

Helodes minuta, L. Common
 — *marginata*, F. *Ringley Wood*
Microcara livida, F. Abundant
Cyphon coarctatus, Payk. } Generally
 — *variabilis*, Thumb. } common
 — *pallidulus*, Boh. }
 — *padi*, L. In fir woods; abundant

LAMPYRIDÆ

- Lampyris noctiluca*, L. Does not appear to have been recorded from the county, although it certainly must occur

TELEPHORIDÆ

- Podabrus alpinus*, Payk. *Bollin Valley*
Ancistrioncha abdominalis, F. On moors near *Bolton*
Telephorus. All our species have been recorded except *T. oralis*, Germ., *T. figuratus*, Man., and *T. obscurus*, L. The latter however probably occurs in the northern part of the county. The most interesting record is that of *T. darwinianus*, Sharp., from the *Southport* shore
 — *paludosus*, Fall. Is recorded from *Ringley Wood, Mere Clough, Bolton*
Rhagonycha unicolor, Curt. *Ringley Wood*, one specimen
 All our other species except *R. elongata*, Fall., occur commonly
Malthinus punctatus, Fourc. Generally common
Malthodes marginatus, Lat. *Southport*
 — *dispar*, Germ. *Bollin Valley*
 — *minimum*, L. Abundant
 — *misellus*, Kies. 'Clifton near Manchester'
 — *atomus*, Thoms. 'Barton Moss' (see *E.M.M.* vii. 107)

MELYRIDÆ

- Malachius bipustulatus*, L. Very occasional, but generally distributed
Haploenemus nigricornis, Fab. Recorded by Chappell near *Manchester*

CLERIDÆ

- Thanasimus formicarius*, L. One specimen *Mossley Hill, Liverpool*
Necrobia ruficollis, F. Not uncommon
 — *violacea*, L. " "
 — *rufipes*, De G. " "

LIMEXYLONIDÆ

- Hylecætus dermestoides*, L. } Recorded by
Limexylon navale, L. } Reston from
 Stratford near *Manchester* 'many years ago,' and there is reason to

INSECTS

LIMEXYLONIDÆ (continued)

suppose that both species may have been imported to that locality in timber

PTINIDÆ

Niptus hololeucus, Fald. Generally distributed

— *crenatus*, F. Near *Manchester*

Trigonogenius globulum. This species has been recently introduced to the British list by Mr. Tomlin on specimens occurring in a granary at *Oldbam*

ANOBIIDÆ

Anobium domesticum, Fourc. } Generally
— *paniceum*, L. } distributed

Ptilinus pectinicornis, L. } *Southport, Stockton Heath, Warrington*

Dorcatoma chrysomelina, Sturm. } In rotten
Anitys rubens, Hoff. } oak,
Trafford Park, Manchester

CISSIDÆ

Cis boleti, Scop. Is the only member of the genus at all abundant, but the following have also been recorded:—

— *villosulus*, Marsh. *Childwall* near *Liverpool*

— *bidentatus*, Ol. *Bolton*

— *festivus*, Panz. Near *Manchester*

— *vestitus*, Mell. " "

Octotemnus glabriculus, Gyll. Generally distributed

LONGICORNIA

CERAMBYCIDÆ

Aromia moschata, L. Not uncommon on willows about *Southport* and near *Warrington*

Clytus arictis, L. Generally distributed but not common

Rhagium inquisitor, F. Not uncommon
— *bifasciatum*, F. " "

Strangalia armata, Herbst. Frequent

Grammoptera ruficornis, F. Common

LAMIIDÆ

Acanthocinus ædilis, L. Has often been taken in *South Lancashire*; probably imported from *Scandinavia* in pit props

Leipos nebulosus, L. Not uncommon in oak woods

Saperda scalaris, L. Formerly taken in some abundance by the old collectors in the 'cloughs' round *Manchester*

Stenostola ferrea, Schrank. *Manchester* district

Owing to the presence in *South Lancashire* of large quantities of foreign timber, principally pine and larch imported in the bark, and used extensively

LAMIIDÆ (continued)

in the colliery districts for pit props—the occurrence of many rare British and European wood feeding Coleoptera is not unusual. Such records are of course difficult to dissociate from those of the indigenous fauna, and the possibility of such involuntary immigrants becoming temporarily established in the natural timber of the district adds to the ambiguity of many of these recorded occurrences

PHYTOPHAGA

BRUCHIDÆ

Bruchus pisi, L. }
— *rufimanus*, Boh. } Have all occurred
— *villosus*, F. } in warehouses

EUPODA

Donacia crassipes, F. *Windermere, Warrington*

— *versicoloreæ*, Brahm. *Bolton, Southport, Clifton* near *Manchester*

— *sparganii*, Ahr. *Bolton Canal* at *Clifton*

— *dentipes*, F. }

— *limbata*, Panz. } Recorded from near
— *bicolora*, Zsch. } *Manchester*

— *obscura*, Gyll. Recorded by Chappell from 'Castle Mill,' *Bollin Valley*

— *simplex*, F. *Bolton, Clifton*

— *vulgaris*, Zsch. *Ince Blundell* and near *Manchester*

— *sericea*, L. Generally distributed

Zeugophora subspinosa, F. *Ormskirk*, on white poplar

Lema lichenis, Væ. Generally distributed
— *melanopa*, L. " "

CAMPTOSOMATA

Cryptocephalus labiatus, L. Common on birch on all the mosses

— *fulvus*, Goetz. Generally distributed

— *biguttatus*, Scop. Recorded by Chappell from *Cbat Moss*, August 1865 (*E.M.M.* ii. 85). Other species probably occur in the county, but they do not appear to have been recorded.

CYCLICA

Chrysomela staphylea, L. } Generally com-
— *polita* } mon

— *orichalcea*, Müll. } Recorded from
var. *hobsoni*, Steph. } near *Manchester*

Timarcha tenebricosa, F. *Bolton*

Phytodecta olivacea, Forst. and its varieties not uncommon on broom

Gastroidea. Both our species occur not uncommonly

Phædon tumidulus, Germ. } Generally dis-
— *armoraciae*, L. } tributed
— *cochleariæ*, F. }

A HISTORY OF LANCASHIRE

CYCLICA (continued)

- Phyllocteta vulgatissima, L. *Scarisbrick*
 — vitellinæ, L. Generally abundant
 Hydrothassa marginella, L. } Occur com-
 Prasocuris phellandrii, L. } monly
 — junci, Brahm. *Chat Moss, Southport*
 Luperus rufipes, Scop. Commonly
 — flavipes, L. Less frequently on birch
 on the mosses
 Lochmæa capræ, L. *Ainsdale*
 — suturalis, Thoms. Abundant on hea-
 ther
 Galereucella nymphæa, L. Common
 — calmariensis, L. " "
 Sermyla halensis, L. Abundant on Galium
 on the sandhills

HALTICÆ

- Longitarsus. Of this large genus, difficult
 as its members are to determine,
 probably many more occur than have
 been recorded, viz. :—
 — luridus, Scop. *Chat Moss*; frequent
 — suturellus, Duft. " "
 — melanocephalus, De G. " "
 — suturalis, Marsh. " "
 — pusillus, Gyll. " "
 — jacobææ, Wat. " "
 — ochroleucus, Marsh. " "
 — lævis, Duft. " "
 Haltica ereceti, All. " "
 Phyllotreta atra, F. *Birkdale*
 — exclamations, Thunb. " "
 — undulata, Kuts. Common
 — nemorum, L. " "
 Aphona nonstriata, Goeze. Common on
 iris

- Sphæroderma. Both species common
 Apteropeda orbiculata, Marsh. *Bollin*
Valley

- Mantura rustica, L. Generally distri-
 buted
 — obtusata, Gyll. *Chat Moss*
 — chrysanthemum, Koch. Near *Southport*,
Chat Moss

- Crepidodera transversa, Marsh. Generally
 abundant
 — ferruginea, Scop. Generally abundant
 — aurata, Marsh. " "
 — helxines, L. *Churchtown, Southport*
 — chloris, Foud. One specimen, *South-*
port

- Hippuriphila modeeri, L. Generally dis-
 tributed

- Chætocnema hortensis, Fourc. *Southport*
 Psylliodes chrysocephala, L. Not uncom-
 mon

- affinis, Payk. Generally distributed
 — picina, Marsh. *Southport* district
 — marcida, Ill. " "
 — cuprea, Koch. " "

CRYPTOSOMATA

- Cassida viridis, F. Common
 — flaveola, Thunb. Occasional
 — vibex, F. *Hightown*
 — sanguinolenta, F. One specimen taken
 near *Birkdale*

HETEROMERA

TENEBRIONIDÆ

- Blaps mucronata, Latr. Generally abun-
 dant in cellars
 — mortisaga, L. Recorded from *Liver-*
pool
 Heliopathes gibbus, F. } Abundant on the
 Microzoum tibiale, Redt. } coast sandhills
 Phaleria cadaverina, Latr. Not uncommon
 under refuse on the shore

Most of the 'grain warehouse'
 species of the genera Tenebrio, Alphi-
 tobium, Gnathocerus, Palorus, Tribolium
 and Latheticus occur frequently
 in the towns of *South Lancashire*, but
 as such species as have become estab-
 lished here, as well as others which
 appear incapable of the adaptation
 necessary to ensure permanent resi-
 dence, must be constantly recruited
 by immigration through such ports
 as Liverpool and Manchester, it be-
 comes impossible to decide whether
 any particular record of such species
 refers to indigenous or imported
 specimens

- Helops striatus, Fourc. Abundant
 — pallidus, Curt. Probably occurs on
 the sandhills, as it has been taken at
New Brighton on the Cheshire side
 of the Mersey estuary

CISTELIDÆ

- Cistela marina, L. Common in flowers of
 the dwarf rose which flourishes on
 the sandhills

LAGRIIDÆ

- Lagria hirta. Also frequent on the sand-
 hills

MELANDRYIDÆ

- Tetratoma. The rare species T. desma-
 resti, Latr., and T. ancora, F., have
 both been recorded from near *Man-*
chester by Chappell
 Abdera quadrifasciata, Steph. Recorded
 by Edleston from *Dunham Park*
 Melandrya caraboides, L. *Crasby* near
Liverpool
 Phlæotrya rufipes, Gyll. *Simonswood Moss*

PYTHIDÆ

- Salpingus castaneus, Gyll. *Simonswood Moss*
 Lissodema cursor, Gyll. Reported from
 near *Manchester* by Chappell and
 Reston

INSECTS

PYTHIDÆ (continued)

Rhinosimus. All the British species occur not uncommonly

CEDEMERIDÆ

Oncomera femorata, F. *Silverdale, N. Lanc.*

Nacerdes melanura, Schm. Common in *Liverpool* and other towns

MORDELLIDÆ

Anaspis. Only the universally distributed species have been recorded

RHIPIDOPHORIDÆ

Metæcus paradoxus, L. Not uncommon in wasps' nests

ANTHICIDÆ

Notoxus monocerus, L. Common on the coast

Anthicus floralis, L. Abundant

— bimaculatus, Ill. Occurs not uncommonly in carrion on the coast. Until Mr. Tomlin discovered this species in Glamorganshire in 1898 it had only been recorded in Great Britain from Wallasea in Cheshire and the *Formby* coast in Lancashire

MELOIDÆ

Meloë proscarabæus, L. The only species recorded

RHYNCOPHORA

PLATYRRHINIDÆ

Choragus sheppardi, Kirby. 'Near *Manchester*,' Chappell (*E.M.M.* xi. 15)

CURCULIONIDÆ

Rhynchites minutus, Herbst. Generally distributed

— nanus, Payk. Abundant on birch on the mosses

— uncinatus, Thoms. *Birkdale*; very common

Deporatis megalacephalus, Germ. } Occur not uncommonly on birch

Apion. Besides the universally distributed members of this large genus the following have been recorded in the county:—

— rubens, Steph. *Southport* district

— vicia, Payk. " "

— confluent, Kirb. " "

— æthiops, Herbst. " "

— spencei, Kirb. " "

— unicolor, Kirb. " "

— tenue, Kirb. " "

— pubescens, Kirb. " "

— marchicum, Herbst. " "

Otiorrhynchus atroapterus, De G. Very occasional on the coast sandhills

— maurus, Gyll. Recorded from near *Staleybridge* by Chappell

CURCULIONIDÆ (continued)

Otiorrhynchus rugifrons. *Agcroft, Manchester*

— muscorum, Bris. *Hightown* near *Crosby*

— scabrosus, Marsh. Generally common

— ligneus, Ol. " "

— picipes, F. " "

— sulcatus, F. " "

— ovatus, L. " "

Strophosomus. All our species except *S. fulvicornis*, Walt., have been recorded

Brachysomus echinatus, Bond. One specimen, *Aigburth*

Sciaphilus muricatus, F. Common

Tropiphorus tomentosus, Marsh. *Anfield Liverpool, Northenden, Agcroft*

— carinatus, Müll. Recorded from *Chorlton* near *Manchester* by Mr. *Kidson Taylor*

Liophilæus nubilus, F. Generally distributed

Polydrusus pterygomalis, Boh. *Bollin Valley*

— confluent, Steph. Occasional

— cervinus, L. Abundant

Phyllobius. All the British species have been recorded more or less commonly

Philopodon geminatus, F. Abundant on sandhills and occasionally inland

Barynotus obscurus, F. } Occur not infrequently

— schönherri, Zett. } quently

Alophus triguttatus, F. Generally distributed

Sitones griseus, F. Common on the sandhills

— flavescens, Marsh. } Are all recorded from the *Southport* district, but are not common

— suturalis, Steph. }

— cambricus, Steph. }

— humeralis, Steph. }

— sulcifrons, Thumb. }

— tibialis, Herbst. }

— regensteini, Herbst. } Abundant everywhere

— lineatus, L. }

— puncticollis, Steph. }

— hispidulus, F. }

Hypera punctata, F. }

— rumicis, L. }

— plantaginis, De G. } All occur more or less frequently, principally on the coast

— polygoni, L. }

— variabilis, Herbst. }

— nigrirostris, F. }

— trilineata, Marsh. }

— suspiciosa, Herbst. Represented on the sandhills by a very elongate varietal form which has been (in other localities) erroneously referred to *H. elongata*, Payk. The type form occurs near *Manchester*

A HISTORY OF LANCASHIRE

CURCULIONIDÆ (continued)

- Cleonus sulcirostris, L. Common on this-
tles on the sandhills
- Liosoma ovatum, Clairv. Generally dis-
tributed
- Hylobius abietis, L. Common in fir
woods
- Pissodes notatus, Germ. *Chat Moss*, on
moribund fir trees
- Orchestes salicis, L. The only gene-
rally abundant species
- stigma, Germ. On birch on the mosses
- rusci, Herbst. " "
- ilicis, F. Occasional " "
- fagi, L. " "
- quercus, L. " "
- avellanæ, Don. " "
- saliceti, Payk. Very rare; *Birkdale*
- Rhampus flavicornis, Clair. Not uncom-
mon on willow on the sandhills
- Orthocætes setiger, Beck. *Birkdale* sand-
hills; not common
- Grypidius equiseti, F. Generally dis-
tributed
- Erirrhinus scirpi, F. Not uncommon
- bimaculatus, F. " "
- acridulus, L. " "
- Thryogenes nereis, Payk. *Southport*
- Dorytomus vorax, F. Generally distributed
- maculatus, Marsh. " "
- pectoralis, Gyll. " "
- Tanysphyrus lemnae, F. Common
- Bagous alismatis, Marsh. Common wher-
ever *Alisma plantago* occurs
- limosus, Gyll. *Birkdale*, among water
weeds
- Anoplus plantaris, Naez. Generally dis-
tributed
- Tychius squamulatus, Gyll. One speci-
men, *Birkdale* sandhills
- Miccetrogus picrostris, F. *Southport*
- Gymnetron beccabungæ, L., with its var.
veronicae, Germ. Recorded by Mr.
Kidson Taylor from the *Bollin*
Valley
- collinus, Gyll., and *G. linariae*, Panz.
On *Linaria vulgaris* near *Southport*; the
former rare, the latter very local
- Mecinus pyrastrer, Herbst. Generally dis-
tributed
- Anthonomus ulmi, De G. *Bollin Valley*,
Scarisbrick
- pedicularius, L. Generally common
- pomorum, L. " "
- rubi, Herbst. " "
- rosinae, Des Goz. *Southport*, on poplar
- Nanophys lythri, F. Common on *Lyth-*
rum
- Cionus scopularia, L. Recorded
- pulchellus, Herbst. "

CURCULIONIDÆ (continued)

- Orobitis cyaneus, L. On *Viola* on the
sandhills
- Cæliodes rubicundus, Herbst. *Chat Moss*,
Southport
- cardui, Herbst. Not uncommon
- quadrimaculatus, L. Abundant
- Ceuthorrhynchus. Besides the generally
abundant species the following
occur:—
- ericæ, Gyll. Commonly on heather
- viduatus, Gyll. Recorded by Chappell
on *Lamium purpureum* at *Fallowfield*,
Manchester
- asperifoliarum, Gyll. *Southport*
- arcuatus, Herbst. *Chat Moss* (Kidson
Taylor and Reston)
- euphorbiae, Bris. *Southport*; rare
- punctiger, Gyll. " "
- Ceuthorrhynchidius floralis, " "
- pyrrhorhynchus, Marsh. } Generally
— troglodytes, F. } common
- terminatus, Herbst. Recorded from
Chat Moss
- dawsoni, Bris. One specimen re-
corded from the foreshore at *South-*
port
- Rhinonchus. Except *R. bruchoides*, Herbst.
and *R. denticollis*, Gyll., all our
British species have been recorded as
more or less common
- Litodactylus leucogaster, Marsh. *Southport*
- Phytobius comari. Occasional
- quadratuberculatus, F. Rare at *South-*
port
- Limnobaris T-album, L. Generally dis-
tributed
- Balaninus salicivorus, Payk. Generally
common
- pyrrhocerae, Marsh. Local and rare
- Calandra. Both our species occur com-
monly in rice and flour mills, etc.
- Rhyncolus gracilis, Ros. A large number
of this rare species was taken by
Chappell at *Greenheys, Manchester*, in
a piece of old timber

SCOLYTTIDÆ

- Hylastes palliatus, Gyll. *Chat Moss*
- Myelophilus piniperda, L. "
- Hylesinus crenatus, Gyll. *Liverpool*, *Swin-*
ton near *Manchester*
- Cryphalus binodulus, Ratz. *Drinkwater*
Park, Manchester
- Dryocætes villosus, F. Not uncommon
- alni, Georg. *Drinkwater Park, South-*
port
- Tomnicus typographus, L., *T. nigratus*,
Gyll., and *T. acuminatus*, Gyll.,
are all recorded by Chappell from

INSECTS

CURCULIONIDÆ (continued)

near *Manchester*; and *T. laricus*, F., from *Crasby*. All however may easily have been introduced in fir logs grown elsewhere than in Lancashire

CURCULIONIDÆ (continued)

Pityogenes bidentatus, Herbst. *Chat Moss*
Trypodendron domesticum, L. *Agcroft, Manchester*

LEPIDOPTERA

Butterflies and Moths

The order Lepidoptera is undoubtedly better known and more widely studied than any other order of the Insecta. This has been especially the case in Lancashire, and our Lancashire records consequently amount to a much larger proportion of the total of known British species than do those of any other order. Nearly all the Lancashire entomologists have been firstly lepidopterists, and their united efforts have left a very large mass of accumulated information in regard to the local distribution of the order, so that it seems probable that very few species occur which have not been put on record by some of them.

Among those to whom we are more especially indebted for our knowledge of the Lancashire Lepidoptera may be mentioned N. Greening of Warrington, Chappell of Manchester, Threlfall and Hodgkinson of Preston, Gregson and the Brothers Cooke of Liverpool, all of whom, with the exception of Mr. Threlfall, are now dead. Present students of the order are to be found in all the larger towns, and are indeed too numerous to mention individually.

Some excellent private collections of British Lepidoptera exist in the county, that of Mr. S. J. Capper of Huyton near Liverpool being one of the most complete in the country. In all the public museums also the Lepidoptera are without exception the largest and most complete of the entomological collections.

The first list of Lancashire Lepidoptera, as of Coleoptera, was compiled by C. S. Gregson of Liverpool, and published by the Historic Society of Lancashire and Cheshire (*Trans.* 1855-85). About the same time, 1856, Isaac Byerley, F.L.S., published his *Fauna of Liverpool*. A fairly full list of the Lepidoptera of the district is given in this work, but the records relate more to the Wirral peninsula than to Lancashire, and there are none outside the immediate vicinity of Liverpool. The preface acknowledges the assistance rendered by Messrs. Brockholes, Warrington, Diggles and Almond (mostly Cheshire collectors) in the compilation of the Lepidoptera section of the *Fauna*.

After an interval of several years these lists were followed by the publication by Dr. Ellis of Liverpool of his very complete *Lepidopterous Fauna of Lancashire and Cheshire*, first published in the pages of the *Naturalist*, and afterwards in book form in 1890. This list incorporates the observations and records of all the local lepidopterists, and from it principally is drawn the substance of the somewhat condensed list which follows, few additions having been made since its publication.

The writer however has pleasure in acknowledging the assistance

A HISTORY OF LANCASHIRE

rendered in its compilation by the following gentlemen: The Rev. A. M. Miles Moss of Norwich (formerly of Windermere); the Rev. R. Freeman of Repham, Norfolk (formerly of St. Helens); Mr. J. R. Charnley of Preston; Mr. C. E. Stott of Manchester (formerly of Bolton).

The arrangement and nomenclature of *South's List* of 1884 has with some hesitation been adopted in the notes which follow, as probably more familiar to the majority of readers than the possibly more severely scientific systems which have been published since that date.

RHOPALOCERA

Of the 63 or 64 species of butterflies which are recognized as British about 45 have been recorded from Lancashire. In the case however of three of these, *Colias edusa*, F., *C. byale*, D., and *Vanessa cardui*, L., the county has only shared with the rest of England in special visitations caused by the quasi-migratory movements of these insects which occur during certain years, and the two first of these cannot be considered as in any sense indigenous.

PIERIDÆ

- The three common species of Pieris are abundant
Euchoë cardamines, L. Generally distributed, but hardly common
Leucophasia sinapis, L. Occurs at *Grange* and *Witberslack* in *North Lancashire*, but apparently not so abundantly as formerly. The two species of *Colias* have occurred sporadically during their years of migratory abundance, but neither species seems to succeed in perpetuating itself beyond the second generation
Gonopteryx rhamni, L. Generally rare, but not uncommon at *Grange* and some of the northern mooses

NYMPHALIDÆ

- Argynnis selene*, Schiff. *Grange, Silverdale*
 — *euphrosyne*, L. " "
 — *adippe*, L. " "
 — *aglaia*, L. On the coast sandhills and near *Windermere*
Melitæa aurinia, Rott. Very local and scarce, and apparently much less common than formerly
Vanessa. The records of *V. polychloros*, L., are somewhat doubtful, and *V. antiopa*, L., has only been taken in its 'years.' All our other species occur, *V. c-album*, L., however very rarely

SATYRIDÆ

- Erebia*. Both *E. epiphron*, Knoch., and *E. æthiops*, Esp., occur in the extreme

SATYRIDÆ (continued)

- north of the county on mountains and moorlands
Pararge cegeria, L. Occasional and much less common than formerly
 — *megæra*, L. Generally distributed
Satyrus semele, L. Abundant on all the coast sandhills and on many of the moors and mooses
 All our species of *Epinephile* and *Cænonympha* occur; *E. hyperanthus*, L., however is distinctly local, and of *C. typhon*, Rott. = *davus*, F., only the var. *Rothliebi*, Stgr. = *philoxenus*, Esp., seems to occur, but rather frequently on the mooses

LYCÆNIDÆ

- Thecla betulæ*, L., and *T. quercus*, L., are recorded from *Grange*, the latter more commonly
 — *rubi*, L. Local, but not uncommon
Polyommatus phœas, L. Abundant
Lycæna. The quite southern forms usually associated with the chalk
 — *minima*, Fues., and *L. corydon*, F., have both been taken on the limestone district around *Grange*, and there is a record of the former from *Birkdale*
 — *argiolus*, L. Locally not uncommon
 — *ægon*, Schiff. " "
 — *astrarche*, Bgstr. " "
 — *icarus*, Rott. Generally abundant

ERYCINIDÆ

- Nemeobius lucina*, L. *Grange, Silverdale*

INSECTS

HESPERIIDÆ

- Syrichthus malvæ*, L. Has been recorded from *Silverdale*
Nisoniades tages, L. Not uncommon

HESPERIIDÆ (continued)

- Hesperia sylvanus*, Espr. *Chat Moss*, *Simonswood*, *Grange*, etc.
 — *thauamas*, Huf. *Silverdale* only

HETEROCERA

Of the 2,014 species of Heterocera or moths recorded in South's list, rather more than 1,300 have been recorded from Lancashire.

SPHINGIDÆ

Acherontia atropos, L. Generally distributed and sometimes common in potato districts

Sphinx convolvuli, L. Generally distributed but very irregular in appearance; one specimen of *S. ligustri*, L., has been recorded from near *Chorley*

Deilephila galii, Schiff. Has appeared in some numbers on the sandhills during certain years. The last of these was 1888. Previous years were 1870, 1859 and 1834. A few larvæ were taken by Rev. A. M. Moss also in 1897. For these apparently irregular manifestations an explanation has been sought in a theory of continental immigration, which however seems hardly adequate to support the facts of the case. More probably this moth persists in small numbers from year to year in suitable localities, and its years of abundance are caused by a concatenation of particularly favourable phenological conditions extending probably over more than one year. (The subject is discussed more in detail in a paper by the present author contributed to the Liverpool Biological Society. See *Trans.* vol. vii. 'Occasional Abundance of Insects')

— *livornica*, Espr. Some half-dozen stray captures are reported since 1846

Chærocampa. All our three British species are recorded

— *porcellus*, L. Most commonly from the mosses and the sandhill zone

— *nerii*. Two records from near *Manchester* (1885 and 1847)

Smerinthus populi, L. Abundant

— *ocellatus*, L. "

Macroglossa stellatorum, L. Frequent and generally distributed

— *bombylififormis*, Och. Not uncommon on the moors of the northern part of the county

SESIIDÆ

Trochilium crabroniformis, Lewin. Generally distributed

Sesia sphegiformis, F. *Chat Moss* formerly — *culiciformis*, L.

— *myopceformis*, Bord. "Doubtfully" recorded from near *Grange*

— *tipuliformis*, Clerck. Generally distributed

ZYGÆNIDÆ

Ino statices, L. *Chat Moss*, *Crosby*, *War-rington*

— *geryon*, Hb. Occasional on the mosses and at *Witherslack*

Zygæna filipendulæ, L. Is the only member of the genus at all common

NYCTEOLIDÆ

Sarothripus undulatus, Hb. *Grange*

Hylophila prasinana, L. Local on the moors; *Silverdale* and near *Bolton*

NOLIDÆ

Nola cucullatella, L. Generally common — *confusalis*, H.S. Recorded from *Grange* by Hodgkinson

LITHOSIIDÆ

Nudaria mundana, L. Generally distributed but not common

Lithosia mesomella, L. } Found on most of the mosses of

— *sericea*, Greg. } the south-west

— *lurideola*, Zinn. Generally distributed

EUCHELIDÆ

Gnophria quadra, L. Recorded from *Birkdale* and *Magbull*

Euchelia jacobææ, L. Always frequent, and sometimes in profusion on the sandhills and mosses

CHELONIIDÆ

Nemophila russula, L. } Occur on the mosses — *plantaginis*, L. } and moors

Arctia caia, L. Generally common

Spilosoma lubricipeda, Esp. Abundant

— *menthastri*, Esp. "

— *mendica*, Clerck. Occasional

— *fuliginosa*, L. Common on the sandhills and mosses

HEPIALIDÆ

All our British species of *Hepialus* occur more or less commonly

A HISTORY OF LANCASHIRE

COSSIDÆ

Cossus ligniperda, F. Generally distributed and fairly common

LIPARIDÆ

Porthesia chrysothæa, L. Formerly at *Crosby*, but not seen there recently

— *similis*, Fues. Abundant everywhere

Leucoma salicis, L. Abundant among

sallows near the coast

Ocneria dispar, L. A male in the collection of Mr. Hodgkinson, 'taken near *Warrington* some fifty years ago'

Dasychira fascelina, L. Common on the sandhills

— *pubundata*, L. Occasional on the mosses

Orgyia antiqua, L. Abundant everywhere

BOMBYCIDÆ

Trichiura cratægi, L. Recorded by Stainton (*Manual*, p. 155) from the *Preston* district, but there are no records of recent captures

Pæliocampa populi, L. Generally distributed, but not common, except in the north

Eriogaster lanestris, L. Not uncommon in the extreme north of the county

Bombyx neustria, L. Rare. Chappell records it (probably introduced on fruit trees) from *Blackpool*

— *rubi*, L. Common

— *quercus*, L. "

var. *callunæ*, Palmer. Common

— *trifolii*, Esp. Formerly common on the coast sandhills and still occasional there

Odonestris potatoria, L. Very abundant

SATURNIIDÆ

Saturnia pavonia, L. Is common on all the mosses and moorlands

DREPANULIDÆ

Drepana lacertinaria, } Common among
L. } birch on the

— *falcataria*, L. } mosses

Cilex glaucata, Scop. Generally abundant

DICRANULIDÆ

Dicranura. All our British species occur; the rare *D. bicuspis*, Bork., however is only recorded from the *Preston* district

NOTODONTIDÆ

Pterostoma palpina, L. *Furness* district

Lophopteryx camelina, L. Generally distributed

Notodonta dictæa, L., and *N. dictæoides*, Esp., are not uncommon, the latter more especially on the mosses

— *dromedarius*, L. Rather common on all the mosses

— *ziczac*, L. Generally distributed

PYGÆRIDÆ

Phalera bucephala, L. Generally abundant

Pygæa pigra, Huf. Has been recorded by Gregson from *Kirkby*

CYMATOPHORIDÆ

Thyatira. Both our species are generally distributed throughout the county

Cymatophora or, F. Occasional near *Preston*

— *duplaris*, L. Rare, but appears to be generally distributed

Asphalia diluta, F. Recorded from near *Manchester*, *Bury*, *Kendal*

— *flavicornis*, Haw. Common on all the mosses

— *ridens*, F. Recorded by Hodgkinson from near *Windermere*, and by Chappell from *Staleybrusbes*

BRYOPHILIDÆ

Bryophila perla, F. The only species which occurs; common

BOMBYCOIDÆ

Demas coryli, L. Very occasional

Acronycta psi, L. Common

— *rumicis*, L. "

— *ligustri*, F. "

— *megalacephala*, F. "

— *leporina*, L. Not rare on the mosses

— *menyanthisis*, View. Not rare on the moors

— *alni*, L. Very occasional

— *aceris*, L. Has been recorded from *Ashton-on-Mersey* by Chappell

Diloba cæruleocephala, L. Generally distributed

LEUCANIIDÆ

— *pallens*, L. }

— *impura*, Hb. } Common, more especially near the

— *comma*, L. } coast

— *lithargyria*, Esp. }

— *littoralis*, Curt. Confined exclusively to the sandhill zone

— *conigera*, F. Rather rare, but widely distributed

Calamia lutosa, Hb. } Found not un-

Tapinostola fulva, Hb. } commonly in

Nonagria arundinis, F. } marshy districts

APAMEIDÆ

Gortyna ochracea, Hb. Generally common

Hydræcia nictitans, Bork. " "

— *micæa*, Esp. " "

— *petasitis*, Dbl. Generally associated with the beds of *Petasitis vulgaris*, which grows in abundance on most of the river banks of the southern part of the county

Axylia putris, L. Abundant

Xylophasia rurea, F. "

— *lithoxylea*, F. "

— *monoglypha*, Huf. "

INSECTS

APAMEIDÆ (continued)

- Xylophasia hepatica*, L. Not rare
 — *scolopacina*, Esp. Recorded from *Agecroft* near *Manchester* and *Preston*
Dipterygia scabriuscula, L. Near *Manchester*
Charæas graminis, L. Generally common, and sometimes in immense abundance, as when the larvæ appeared on the moors near *Clitheroe* in 1881 in such numbers as to attract public attention to their profusion
Laphygma exigua, Hb. A single specimen is recorded as having been taken at *Crosby* by the late Mr. G. A. Harker of *Liverpool*
Neuronia popularis, F. Common
Cerigo matura, Huf. " "
Luperina testacea, Hb. " "
 — *cæspitis*, F. Local; *Carnforth*, *Preston*, *Crosby*
Mamestra abjecta, Hb. } Recorded from
 — *sordida*, Bork. } *Preston*
 — *albicolon*, Hb. Common on the sandhills
 — *brassicæ*, L. Only too abundant everywhere
 — *persicariæ*, L. Generally common
Apamea basilinea, F. " "
 — *gemina*, H. " "
 — *didyma*, Esp. " "
 — *unanimis*, Tr. Occasional
Miana. All our species occur fairly commonly
Phothedes captiuncula, Tr. Recorded from the extreme north on the *Westmorland* border
Celena haworthii, Curt. Not rare in most of the moorlands and mosses

CARADRINIDÆ

- Grammesia trigrammica*, Hf. Generally distributed
Stilba anomala, Haw. Rare; recorded from *Ribchester*, *Silverdale*, *Staleybrushes*
Charadrina morpheus, Huf. } Generally
 — *quadripunctata*, F. } common
 — *alsines*, Brab. Rare; *Preston*, etc.
 — *taraxaci*, Hb. " "
Rusina tenebrosa, Hb. Occasional

NOCTUIDÆ

- Agrotis suffusa*, Hb. Generally abundant
 — *segetum*, Schiff. " "
 — *exclamationis*, L. " "
 — *saucia*, Hb. Occasional
 — *corticea*, Hb. " "
 — *vestigalis*, Hf. " "
 — *cursoria*, Bork. }
 — *nigricans*, L. } More or less common
 — *tritici*, L. } on the sandhills
 — *aquilina*, Hb. }
 — *præcox*, L. }

NOCTUIDÆ (continued)

- Agrotis agathina*, Dup. } More or less com-
 — *strigula*, Thumb. } mon on the heaths
 — *cinerea*, Hb. Recorded from near
 Grange
 — *ripæ*, Hb. *Runcorn*
 — *obelisca*, Hb. *Crosby*
 — *obscura*, Brab. Near *Manchester*
 — *simulans*, Hf. *Lytbam* near *Liverpool*
 — *lucernea*, L. Near *Bolton*, *Grange*
Noctua augur, F. More or less common
 — *pecta*, L. " " "
 — *c-nigrum*, L. " " "
 — *brunnea*, F. " " "
 — *festiva*, Hb. " " "
 — *rubi*, View. " " "
 — *baja*, F. " " "
 — *xanthographa*, F. " " "
 — *glareosa*, Esp. Occasional
 — *triangulum*, Huf. "
 — *umbrosa*, Hb. "
 — *depuncta*, L. *Staleybrushes*
 — *dahlia*, Hb. *Windermere*, *Woolton* near
 Liverpool
Triphæna orbona, Huf. } Abundant every-
 — *pronuba*, L. } where
 — *ianthina*, Esp., T. *interjecta*, Hb., and
 T. *fimbria*, L. Generally distributed,
 but not at all common, except locally
 the latter, which is frequent near
 Windermere

AMPHIPYRIDÆ

- Amphipyra tragopogonis*, L. Generally abundant. Both species of *Mania* are common and widely distributed

ORTHOSEIDÆ

- Panolis piniperda*, Panz. Common in all fir plantations
Pachnobia leucographa, Hb. *Preston*, *Windermere*
 — *rubricosa*, F. *Preston*, *Chat Moss*; rather more common than the preceding
Orthosia lota, Clerck. Not very common
 — *macilenta*, Hb. " "
 — *suspecta*, H. Recorded rarely from the *Manchester* district
 — *ypsilon*, Bork. *Preston*, and the north
Tæniocampa. Of this genus all the British species occur more or less commonly
 — *opima*, H. Almost exclusively restricted to the coast
Anthocelis pistacina, F. Generally common
 — *litura*, L. " "
 — *rufina*, L. *Crosby*
Cerastis vaccinii, L. Generally distributed
 — *spadicea*, Hb. " "
Scopelosoma satellitia, L. " "
Xanthia cerago, Tr. Fairly common

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ORTHOSSIDÆ (continued)

- Xanthia ferruginea*, Esp. Fairly common
 — *flavago*, F. " "
 — *citrago*, L. Rare; near *Liverpool*, *Preston*, *Windermere*, *Manchester*
 — *aurago*, W.V. Recorded from *Lydiate* near *Liverpool* by Gregson
Cirrhædia xerampelina, H. Recorded only from *Clitheroe* and near *Manchester*

COSMIIDÆ

- Tethea*. Both species occur, but neither are at all common
Calymnia trapezina, L. Generally common
 — *affinis*, L. One record by Gregson from near *Liverpool*

HADENIDÆ

- Dianthecia nana*, Roth. A few records
 — *capsincola*, Hb. Generally distributed
 — *cucubali*, Fues. " "
 — *carpophaga*, Bork. Not infrequent at *Crosby*, *Formby*, *Morcambe*, and *Grange*
Hecatera serena, F. Not uncommon, especially on the sandhills
Polia flavicincta, F. Recorded by Gregson from near *Liverpool*, but the record seems doubtful
 — *chi*, L. Generally distributed
Dasypolia templi, Thumb. Has occurred at *Crosby*, *Windermere*, near *Preston*
Epunda lichenea, Hb. Confined to the coast, where however it is not common
Aporophyla nigra, Haw. *Windermere*, *Chat Moss*
 — *lutulenta*, Bork. Occasional
Cleoceris viminalis, F. Recorded from near *Bolton*, *Windermere*, and by Gregson from near *Liverpool*
Miselia oxycanthæ, L. Generally abundant
Aplecta occulta, L. Occasional
 — *prasina*, F. " "
 — *nebulosa*, Huf. Common
 — *advena*, F. Recorded on two occasions from near *Liverpool* by Gregson, but require confirmation
 — *tincta*, Brahm. From *Grange* by Hodgkinson
Agriopis aprilina, L. *Preston*, *Manchester*, and more commonly at *Windermere*
Euplexia lucipara, L. Generally abundant
Phlogophora meticulosa, L. Generally abundant
Hadena adusta, Esp. More or less common
 — *protea*, Bork. " "
 — *dentina*, Esp. " "
 — *oleracea*, L. " "
 — *pisi*, L. " "
 — *thalassina*, Rott. " "

HADENIDÆ (continued)

- Hadena porphyrea*, Esp. } Local on the moors
 — *glauca*, H. } and mosses
 — *dissimilis*, Knoch. } Very occasional
 — *contigua*, Vill. Only from *Barlow Moor* by Chappell
 — *rectilinea*, Esp. From the extreme north only

XYLINIDÆ

- Xylocampa areola*, Esp. Generally distributed
Calocampa. All our three species occur but not commonly
Xylina ornithopus, Rott. *Chat Moss*, *Manchester* district; very occasional
 — *socia*, Rott. One specimen recorded from the *Dingle* near *Liverpool*
Asteroscopus sphinx, Huf. Hodgkinson records a specimen bred from a larva found near *Preston*
Cucullia asteris, Schiff. The larvæ are not uncommon near *Grange* and *Windermere*
 — *chamomillæ*, Schiff. Not uncommon
 — *umbratica*, L. " "

GONOPTERIDÆ

- Gonoptera libatrix*, L. Generally abundant

PLUSIIDÆ

- Habrostola*. Both species are generally distributed but not common
Plusia chryson, Esp. One specimen taken near *Preston* by Hodgkinson
 — *chrysitis*, L. Generally distributed
 — *bractea*, F. *Manchester*, *Preston*, *Bolton*; occasional
 — *festuæ*, L. Not uncommon but local
 — *iota*, L. " "
 — *pulchra*, Haw. " "
 — *gamma*, L. Abundant everywhere
 — *interrogationis*, L. Not uncommon at heather near *Windermere*

HELIOTHIDÆ

- Anarta myrtilli*, L. Abundant on all the heaths and mosses
Heliodes tenebrata, Scop. Local but not uncommon
Heliothis armigera, Hb. First recorded as British from a specimen taken near *Salford* in 1840 by Mr. Jno. Thomas. The species has also been recorded from *Windermere*, *Huyton*, *Linacre* near *Liverpool*, and from *Staleybridge*
 — *peltigera*, Schiff. Very rare, but has been noted from *Blackpool* and *Lytham*
Chariclea umbra, Huf. Not uncommon at *Crosby*, but not recorded from elsewhere

POAPHILIDÆ

- Phytometra viridaria*, Clerck. Generally distributed on the mosses

INSECTS

EUCLIDIIDÆ

- Euclidia mi*, Clerck. Locally common
 — *glyphica*, L. Recorded from *Speke*
 near *Liverpool* by Gregson

CATOCALIDÆ

- Catocala fraxini*, L. Captures have been
 recorded at *Bolton* and *Chorley*, and
 three or four from near *Manchester*

HERMINIIDÆ

- Rivula sericealis*, Scop. Scarce and local
Zanclognatha grisalis, Hb. Not common
 — *tarsipennis*, Tr. „

HYPENIDÆ

- Hypena proboscidalis*, L. Generally abun-
 dant
Hypenodes costæstrigalis, St. *Windermere*
Tholomiges turfosalis, W. R. *Pilling Moss*
Brephos parthenias, L. Recorded by
 Gregson from a birch wood at *Wool-*
ton near *Liverpool* and from *Windermere*

UROPTERYGIDÆ

- Uropteryx sambucata*, L. Generally com-
 mon

EUNOMIDÆ

- Epione apiciaria*, Schiff. Generally dis-
 tributed but not common
Rumia luteolata, L. Abundant
Venilia macularia, L. *Grange* and *Silver-*
dale only
Metrocampa margaritaria, L. Generally
 distributed
Ellopia prosoparia, L. Common in most
 of the fir woods
Eurymene dolobraria, L. Recorded only
 from *Grange* and rarely there
Pericallia syringaria, L. Very occasional
Selenia bilunaria, Esp. Widely distributed
 and fairly common
 — *lunaria*, Schiff. Recorded from only a
 few localities as *Chat Moss*, near
Kendal, *Preston*, *Pendlebury*
Odontopora bidentata, Clerck. Common
Crocallis elinguaria, L. „
Eugonia alniaria, L. Widely distributed
 but not common
 — *quercinaria*, Huf. Very rare
 — *erosaria*, Bork. „
 — *fuscantaria*, Haw. „
Himera pennaria, L. Generally distributed
 but not common, except in the
Windermere district

AMPHIDASYDÆ

- Phigalia pediaia*, F. Common
Nyssia zonaria, Schiff. Abundant on the
 sandhills at *Crosby* and *Hightown*
Amphidasys strataria, Huf. Generally
 distributed
 — *betularia*, L. Rather common on the
 mosses in *South Lancashire*. The

AMPHIDASYDÆ (continued)

- black form (*doubledayaria*, Mill.) of
 late years has been much more com-
 mon than the type form

BOARMIDÆ

- Hemerophila abruptaria*, Thunb. Rare ;
 recorded only by Gregson from near
Liverpool and near *Kendal*
Cleora lichinaria, Huf. *Preston*
Boarmia repandata, L. Common
 — *gemmaria*, Brahm. „
Tephrosia consonaria, } Recorded, perhaps
 Hb. } rather doubtfully,
 — *luridata*, Bork. } from *Windermere*
 — *crepuscularia*, Hb. *Chat Moss*, *Hale*,
Langridge
 — *biundularia*, Bork. Near *Manchester* ;
 occasional
 — *punctularia*, Hb. *Chat Moss*, *Knowsley*,
Preston, *Silverdale*
Gnophos obscurata, Hb. Not uncommon
 on the heaths

GEOMETRIDÆ

- Pseudoterpna pruinata*, Hut. *Morcombe*
 and *Silverdale* only
Geometra papilionaria, L. Occasional but
 not at all common
Iodis lactearia, L. Common
Hemithea strigata, Müll. Local but not
 uncommon

EPHYRIDÆ

- Zonosoma punctaria*, L. Recorded from
Hale near *Liverpool* only
 — *linearia*, Hb. *Silverdale*

ACIDALIIDÆ

- Hyria muricata*, Huf. Occasional on the
 mosses
Asthena luteata, Schiff. } Generally distri-
 — *candidata*, Schiff. } buted but not
 — *sylvata*, Hb. } common
 — *blomeri*, Curt. Only recorded from
 near *Preston*
Venusia cambrica, Curt. Scarce ; northern
 part of county, and recorded from
Bury and *Bolton*

- Acidalia dimidiata*, Huf. More or less
 common

- *bisetata*, Huf. More or less common
 — *remutata*, Hb. „ „
 — *imitaria*, Hb. „ „
 — *adversata*, L. „ „
 — *virgularia*, Hb. „ „
 — *ornata*, Scop. On the mosses only
 — *fumata*, St. „ „
 — *inornata*, Haw. „ „
 — *immutata*, L. „ „
 — *dilutaria*, Hb. *Barlow Moor*, banks of
Wyre
 — *subsericeata*, Haw. Local ; near *Man-*
chester, *Grange*

A HISTORY OF LANCASHIRE

ACIDALIIDÆ (continued)

- Acidalia rubiginata*, Huf. *Ashton-on-Mersey*;
 recorded by Chappell
 — *trigeminata*, Haw. } Very local on some
 — *emarginata*, L. } of the mosses
 — *marginipunctata*, Goeze. *Silverdale*
 only
 — *circillata*, Gn. Formerly on *Chat Moss*
 but now supposed to be extinct

CABERIDÆ

- Cabera*. All our species occur not un-
 commonly
Bapta tenerata, Hb. Local
 — *bimaculata*, F. Only from *Grange*

MACARIIDÆ

- Macaria alternata*, Hb. Recorded from
Windermere only
 — *liturata*, Clerck. Generally distributed
Halia wavsaria, L. Not uncommon in
 kitchen gardens

FIDONIIDÆ

- Strenia clathrata*, L. Near *Carnforth*
Panagra petraria, Hb. *Silverdale*, *Chat*
Moss
Numeria pulveraria, L. Very occasional
Scodionia belgiaria, Hb. On most of the
 heaths and mosses
Selidosema ericetaria, Vill. Very local;
Pilling Moss, near *Preston*
Ematurga atomaria, L. Common on all
 the heaths and mosses
Bupalus piniaria, L. Common in fir
 woods, more especially on the
 mosses
Sterra sacraia, L. One specimen taken
 by Mr. S. J. Capper at *Huyton* near
Liverpool, and one in *Manchester*.
 The species formerly occurred ap-
 parently not uncommonly on the
 sandhills, but has not been taken
 there for many years
Aspilates strigillaria, Hb. Generally on
 the mosses

ZERENIDÆ

- Abraxas grossulariata*, L. Abundant every-
 where. This was a favourite subject
 for variety breeding by C. S. Gregson,
 and in his collection (now in the
 possession of Mr. Sydney Webb of
Dover) some extraordinary aberrations
 are to be found
 — *sylvata*, Scop. Local, but generally
 distributed
Ligdia adustata, Schiff. *Grange* district
 only
Lomaspilis marginata, L. Generally abun-
 dant

HYBERNIIDÆ

- Hybernia*. All our species occur more or
 less commonly

HYBERNIIDÆ (continued)

- Anisopteryx æscularia*, Schiff. *Aigburth*,
Manchester and *Preston*

LARENTIIDÆ

- Chiematobia brumata*, L. Abundant
 — *boreata*, Hubn. Local; *Chat Moss*, etc.
Oporabia dilutata. Common
 — *filigrammaria*. Not uncommon on the
 moors
Larentia didymata, L. Generally common
 — *multistrigaria*, Haw. " "
 — *viridaria*, Fb. " "
 — *cæsiata*, Lang. } Occur not uncom-
 — *salicata*, Hüb. } monly on the
 — *olivata*, Bork. } moors
Emmelesia albutata, Schiff. Common
 — *decolorata*, Hb. " "
 — *affinitata*. Scarce and local
 — *alchemillata*, L. " "
 — *unifasciata*, Haw. " "
 — *tæniata*, St. Only occurs in the ex-
 treme north, *Windermere*, *Silverdale*,
 etc.

Eupithecia. Of this large genus the greater
 part occur in the county

- *oblongata*, Thunb. Common
 — *castigata*, Hb. " "
 — *virgaureata*, Crewe. " "
 — *nanata*, Hb. " "
 — *vulgata*, Haw. " "
 — *absinthiata*, Clrk. " "
 — *minutata*, Guen. " "
 — *abbreviata*, Steph. " "
 — *exiguata*, Hb. " "
 — *pumilata*, Hb. " "
 — *rectangulata*, L. " "
 — *pulchellata*, St. Generally rare or local
 — *succentauriata*, L. " "
 — *subvulgata*, Haw. " "
 — *venosata*, F. " "
 — *plumbeolata*, Haw. " "
 — *pygmæata*, Hb. " "
 — *satyrata*, Hb. " "
 — *fraxinata*, Crewe. " "
 — *pimpinellata*, Hb. " "
 — *subnotata*, Hb. " "
 — *albipunctata*, Haw. " "
 — *assimilata*, Dbl. " "
 — *tenuiata*, Hb. " "
 — *lariciata*, Frr. " "
 — *scabiosata*, Bork. " "
 — *isogrammaria*, H.S. } Recorded only
 — *helveticaria*, Bdv. } from quite
 — *trisinaria*, H.S. } the north,
 — *valerianata*, Hb. } principally
 — *constrictata*, Guen. } the *Grange*
 — *expallidata*, Guen. } district
 — *sobrinata*, Hb. " "
 — *innotata*, Huf. *Lytham*
 — *linariata*, W.V. *Astley Moss*

A HISTORY OF LANCASHIRE

PTEROPHORIDÆ (continued)

- Amblyptilia acanthodactyla, } Occur, but
 Hb. } are not
 — cosmodactyla, Hb. } common
 Oxyptilus parvidactylus, Haw. From
Grange is the only species of the
 genus recorded
 Mimæseoptilus zophodactylus, Dup. The
 first recorded British specimen was
 taken at *Southport* by Gregson,
 August 1857 (*Zoologist*, 1857, 5855).
 The other species, except *M. phæo-*
dactylus, all occur at *Grange*
 CEdematophorus lithodactylus, Tr. *Grange*
 Pterophorus monodactylus, L. "
 Lecioptilus tephradactylus, Hb. "
 — microdactylus, Hb. "
 Aciptilia tetradactyla, L. "
 — pentadactyla, L. Generally distributed
 Alucita hexadactyla, L. Local, but not
 uncommon

CHILIDÆ

- Schænobius forficellus, Thunb. Rare and local
 — mucronellus, Schiff. " "
 Chilo phragmitellus, Hb. " "

CRAMBIDÆ

- Crambus. The majority of this large genus
 has been recorded, the exceptions
 being *C. alpinellus*, Hb., *C. ericellus*,
 Hb., *C. verellus*, Zinck., *C. sylvellus*,
 Hb., *C. uliginosellus*, Zell., *C. fasceli-*
nellus, Hb., *C. chrysonuchellus*, Scop.,
 and *C. craterellus*, Scop.
 — furcatellus, Zett. Has only been re-
 corded from *Coniston Old Man*; the
 others are all fairly common or local

PHYCIDÆ

- Anerastia lotella, Hb. *Lytbam* sandhills
 (Hodgkinson)
 Homæosoma nimbella, Zell. *Morcambe*
Ephestia. All the species occur in mills or
 warehouses more or less commonly
 Cryptoblabes bistriga, Haw. Single speci-
 mens are recorded from near *Preston*
 and near *Liverpool*
 Plodia interpunctella, Hb. *Liverpool* ware-
 houses
 Phycis betulæ, Gøze. } Occur on the
 — fusca, Haw. } heaths and
 Dioryctria abietella, Zinck. } mosses
 Pempelia palumbella, F. }
 Phycis adornatella, Tr. From *Prescot* only
 Rhodophea consociella, } Very rare on
 Hb. } some of the
 — tumidella, Zinck. } mosses
 — advenella, Zinck. Banks of the *Wyre*

GALLERIDÆ

- Aphomia sociella, L. Banks of *Wyre*
 Achroa grisella, F. Not uncommon about
 beehives

TORTRICIDÆ

- Tortrix podana, Scop. }
 — xylosteara, L. }
 — rosana, L. }
 — heperana, Schiff. } Common and
 — ribeana, Hb. } generally distri-
 — unifasciana, Dup. } buted
 — costana, F. }
 — viridana, L. }
 — ministrana, L. }
 — forsterana, F. }
 — corylana, F. Rather rare and local
 — viburniana, F. " "
 — pallæana, Hb. " "
 — sorbiana, Hb. Has only been taken
 near *Liverpool* and near *Preston*
 Dichelia grotiana, F. Recorded only from
 the mosses
 Amphisa. Both our species occur locally
 on the moors and mosses
 Leptogramma literana, L. *Liverpool*, *Win-*
dermere
 Peronea sponšana, F. }
 — comparana, Hb. } Generally distributed
 — schalleriana, L. } but not abundant
 — mixtana, Hb. }
 — ferrugana, Zr. }
 — variegana. Generally distributed; abun-
 dant
 — comariana, Zell. Local and scarce
 — hastiana, L. " "
 — caledoniana, Zeph. " "
 — aspersana, Hb. " "
 — perplexana, Bar. *Preston*
 — logiana, Schiff. *Windermere*
 — shepherdana, Steph. *Lytbam*
 — lipsiana, Schiff. *Grange*
 Racodia caudana, F. Not uncommon
 Teras contaminana, Hb. Generally abund-
 ant
 Dictyopteryx loeflingiana. Very local on
 some of the mosses
 — holmiana, L. }
 — bergmanniana, L. } Generally
 — forskaleara, L. } distributed
 Argyrotoza conwayana, Fb. }
 Ptycholoma lecheana, L. }

PENTHINIDÆ

- Diluta semifasciana, Haw. *Fleetwood*, *Crosby*
 Penthina pruniana, Hb. Generally common
 — ochroleucana, Hb. " "
 — variegana, Hb. " "
 — corticana, Hb. Local on the mosses
 — betulæana, Haw. " "
 — sororculana, Zett. " "
 — dimidiana, Zr. " "
 — sauciana, Hb. " "
 — marginana, Haw. " "
 — sellana, Hb. *Windermere* only
 — postremana, Zell. " "

INSECTS

PENTHINIDÆ (*continued*)

Antithesia salicella, L. Local and not common

SPILONOTIDÆ

Hedya ocellana, Fb. More or less common

— *pauperana*, Dup. " " "

— *dealbana*, Fröhl. " " "

— *neglectana*, Dup. " " "

— *aceriana*, Dup. *St. Anne's*

Spilonota trimaculana, Haw. Not uncommon

— *rosæcolana*, Dbl. " " "

— *roborana*, Tr. " " "

— *incarnatana*, Hb. *Grange*

Pardia tripunctata, Fb. Abundant

SERICORIDÆ

Aspis udmanniana, L. Common

Sericoris rivulana, Scop. " "

— *urticana*, Hb. " "

— *lacunana*, Dup. " "

— *bifasciana*, Haw. Rare and local

— *cespitana*, Hb. " "

— *littoralis*, Curt. " "

— *micana*, Fröhl. *Pilling Moss* only

Mixodia schulziana, F. Common on the mosses

Roxana arcuana, Clerck. *Windermere*

Euchromia mygindana, Schiff. } Local on some of the moors

— *rufana*, Scop. }

Orthotænia antiquana, Hb. Scarce and local

— *striana*, Schiff. " "

— *ericetana*, West. " "

SCIAPHILIDÆ

Eriopsela fractifasciana, Haw. *Halewood* near *Liverpool*, *Grange*

— *quadrana*, Hb. *Windermere*

Cnephasia politana, Haw. } Occur not un-

— *musculana*, Hb. } commonly

Sciaphila subjectana, Gn. Generally common

— *virgaureana*, Tr. " "

— *hybridana*, Hb. " "

— *chysantheana*, Dup. Scarce

— *octomaculana*, Haw. " "

— *abrasana*, Dup. *Preston*, *Grange*

— *pascuana*, Hb. " "

— *conspersana*, Doug. " "

— *sinuana*, St. *Windermere*

Sphaleroptera ictericana, Haw. Generally distributed

Capua favillaceana, Hb. Scarce; *Windermere*, *Hale*

Clepsis rusticana, Tr. Scarce on the mosses

GRAPHOLITHIDÆ

Bactra lanceolata, Hb. Not uncommon where rushes grow

Phoxopteryx lundana, F. Abundant

— *siculana*, Hb. Local

— *unguicella*, L. " "

— *biarcuana*, St. " "

GRAPHOLITHIDÆ (*continua*)

Phoxopteryx mitterbacheriana, Schiff. Local

— *myrtilana*, Tr. Common on the mosses

— *uncana*, Hb. } Rare; *Grange*,

— *diminutana*, Haw. } *Windermere*

Grapholitha trimaculana, Don. Common

— *noevana*, Hb. " "

— *nigromaculana*, Haw. Scarce and local

— *subocellana*, Don. " "

— *geminana*, St. " "

— *cinerana*, H. *Preston* district

— *penkleriana*, F. " "

— *nisella*, Clerck. " "

— *ramella*, L. *Windermere*

— *minutana*, Hb. *Pendleton* near *Manchester*

— *obtusana*, Haw. *Grange*

Phlæodes tetraquetana, } Local and no-

Haw. } where common

— *immundana*, Fisch. } Locally abundant; *Crosby*, *Lytham*, etc.

Hypermeia angustana, Hb. Locally abundant; *Crosby*, *Lytham*, etc.

Batodes angustiorana, Haw. Rather common

Pædisca bilunana, Haw. Common

— *corticana*, Hb. " "

— *ophthalmicana*, Hb. Local

— *solandriana*, L. " "

— *occultana*, Doug. " "

— *semifuscana*, St. } Rare; *North Lancashire*

— *sordidana*, Hb. }

— *profundana*, F. }

Ephippiphora pflugiana, Haw. Common

— *brunnichiana*, Fröhl. " "

— *similana*, Hb. More or less local

— *circiana*, Zell. " " "

— *turbidana*, Tr. " " "

— *trigeminana*, St. " " "

— *tetragonana*, St. " " "

— *populana*, F. " " "

— *inopiana*, Haw. *North Lancashire*

— *nigricostana*, Haw. " "

— *signatana*, Dougl. " "

Olindia ulmana, Hb. Near *Preston*, *Windermere*

Semasia janthinana, Dup. } Rare; *North*

— *rufillana*, Wilk. } *Lancashire*

The only record of *S. Wæberiana* is by Gregson from his own garden in *Liverpool*

Coccyx tædella, Clerck. Local

— *splendidulana*, Gn. " "

— *argyrana*, H. " "

— *ustomaculana*, Cur. " "

— *vacciniana*, Fisch. " "

— *scopariana*, H.S. } Rare; *North Lancashire*

— *nanana*, Tr. }

Heusimene fimbriana, Haw. Not uncommon

A HISTORY OF LANCASHIRE

GRAPHOLITHIDÆ (continued)

- Retinea buoliana, Schiff. } Common in fir
 — pinivorana, Zell. } woods
 — turionana, H. Recorded by Eddleston
 from *Rudd Heath*
 Carpocapsa pomonella, L. Not uncommon
 Opadia funebrana, Tr. *Preston* district
 Eudopsis nigricana, St. *Wyre* district
 Stigmonota confierana, Ratz. } Local and
 — regiana, Zell. } not com-
 — roseticolana, Zell. } mon
 — nitidana, F. *Preston*
 Dicrorampha petiverella, L. Common
 — consortana, St. *Grange*
 — acuminatana, Zell. " "
 — plumbana, Scop. " "
 — plumbagana, Tr. " "
 — alpinana, Tr. " "
 — simpliciana, Haw. *Craxath* near *Liver-*
 pool

- Pyrodes rheediella, Clerck. Very local
 Catoptria ulicetana, Haw. Common
 — hypericana, Hb. Scarce and local
 — scopoliانا, Haw. " "
 — juliana, Curt. *Grange* " "
 — aspidiscana, Hb. " "
 — expallidana, Haw. " "
 — citrana, Hb. Very rare; *Lytham*
 Trycheris aurana, F. *Agecroft, Withington*
 near *Manchester*

PYRALOIDIDÆ

- Choreutes myllerana, F. Very local
 Symoethis oxyacanthella, L. Abundant

CONCHYLIDÆ

- Eupœcilia atricapitana, St. Scarce and local
 — maculosana, Haw. " "
 — affinitana, Doug. " "
 — rupicola, Curt. " "
 — ciliella, Hb. " "
 — nana, Haw. } Not uncommon on
 — angustana, Hb. } the mosses
 — vectisana, West. *Fleetwood*
 — notulana, Zell. *Martinmere* near *Preston*
 — griscana, Haw. " "
 Xanthosetia zoegana, L. } Generally dis-
 — hamana, L. } tributed
 Lobesia reliquana, Hb. *Grange, Windermere*
 Argyrolepia hartmanniana, } Scarce and
 Clerck. } local
 — badiana, Hb. }
 Conchylis straminea, Haw. Local but not
 uncommon
 — francillana, Fb. *Lytham*
 — dilucidana, St. " "
 — smeathmaniana, F. Recorded only by
 Gregson from *Liverpool* district

APHELIIDÆ

- Aphelia osseana, Scop. Local on the mosses
 Tortricodes hyemana, Hb. Common in
 oak woods

EPIGRAPHIIDÆ

- Lemnatoiphia phryganella, Hb. *Grange*
 Dasystoma salicella, Hb. Very rare;
 Huyton (*Gregson*)
 Exapate congelatella, Hb. *Rainhill* near
 Liverpool
 Diurna fagella, F. Common in oak woods
 Epigraphia steinkellneriana, Schiff. *Grange*

PSYCHIDÆ

- The only members of this family re-
 corded are:—
 Fumea nitidella, Hb. Near *Preston*
 — roboricolella, Brd. From some of the
 mosses
 Solenobia inconspicuella. Very local
 — triquetrella, Fisch. " "

TINEIDÆ

- Diplodoma marginepunctella, St. Local on
 the mosses
 Ochsenheimeria birdella, Curt. } Occur, but
 — bisontella, Zell. } are very
 — vaculella, Fisch. } local
 Scardia corticella, Curt. Abundant
 — granella, L. " "
 — picarella, Clerck. Local and not common
 — cloacella, Haw. " " "
 — arcella, F. " " "
 Blabophanes rusticella, Hb. Abundant
 — ferruginella, Hb. Very local
 — imella, Hb. Rare; *Linacre* near *Liverpool*
 Tinea tapetzella, F. Generally abundant
 — pelliönella, L. " "
 — fuscipunctella, Haw. " "
 — fulvimitrella, Sodof. " "
 — albibunctella, Haw. } Local and more
 — misella, Zell. } or less rare
 — lapella, Hb. }
 — semivulvella, Haw. }
 — argentimaculella, St. *Bowden* near
 Manchester
 — confusella, H.S. *Morcambe*
 — merdella, Zell. In wool warehouses.
 This species was first recorded as
 British by N. Cooke of *Liverpool*
 Phylloporia bistrigella, Haw. Near *Liver-*
 pool, Grange
 Tineola biselliella, Hml. Too abundant
 everywhere
 Lampronia quadripunctella, F. Common
 — rubiella, Bjerk. " "
 — luzella, Hb. Local and rare
 — prælatella, Schiff. " "
 Incurvaria muscalella, F. Common
 — pectinea, Haw. Local and not common
 — oehlmanniella, Hb. " " "
 — tenuicornis, St. *Preston* " "
 — canariella, St. *Grange*
 — capitella, Clerck. Recorded in *Stain-*
 ton's Manual (ii. 297) from *Man-*
 chester district

INSECTS

TINEIDÆ (continued)

- Micropteryx calthella, L. Not uncommon
 — seppella, F. More or less rare and local
 — aureatella, Scop. " " "
 — thumbergella, F. " " "
 — subpurpurella, St. " " "
 — purpurella, Haw. " " "
 — semipurpurella, St. } Occur rather locally on the mosses
 — unimaculella, Zett. }
 — sparmannella, Bosc. }
 — mansuetella, Zell. Recorded by Stainton (*Manual*, ii. 303) from the *Manchester* district
- Nemophora. All our four species occur locally, principally from *North Lancashire*, *Grange*, *Windermere*, *Preston*

ADELIDÆ

- Adela fibulella, F. Local and rare
 — rufimitrella, Scop. " "
 — crœsella, Scop. " "
 — degeerella, L. " "
 — viridella, L. Not uncommon
- Nematois cupriacellus, Hb. Recorded by Stainton (*Man.* ii. 301) from near *Manchester*
 — minimellus, Zell. *Preston* district

HYPONOMEUTIDÆ

- Swammerdamia pyrella, Vill. Common
 — combinella, Hb. }
 — griseocapitella, Sta. } Occur, but only very locally
 — oxyanthella, Dup. }
 — combinella, Hb. }
 Scythropia cratægella, L. *Stretford* near *Manchester*
 Hyponomeuta padellus, L. Not uncommon
 — evonymellus, L. " "
 — plumbellus, Schiff. *Grange*
 — cagnagellus, Hb. " "
 Prays curtisellus, Don. Generally distributed

PLUTELLIDÆ

- Eidophasia messingiella, Fisch. Very local
 Plutella cruciferarum, Zell. Common
 — porrectella, L. Very local
 — annulata, Curt. *Morcambe*
 Cerostoma vittella, L. }
 — radiatella, Don. } Occur, but are all very local
 — costella, F. }
 — lucella, F. }
 Harpipteryx xylostella, L. Generally abundant
 — scabrella, L. Local; *Preston*, *Grange*
 — nemorella, L. " " "

GELECHIDÆ

- Orthotelia sparganella, Thunb. Recorded from *Pendleton* only
 Of the large genus *Depressaria*, only *D. costosa*, Haw.; *D. flavella*, Hb.; *D. ocellana*, F.; and *D. appalana*, F., are common

GELECHIDÆ (continued)

The following are local and more or less rare :—

- Depressaria pallorella*, Zell.
 — *umbellana*, St.
 — *atomella*, Hb.
 — *arenella*, Schiff.
 — *liturella*, Hb.
 — *conterminella*, Zell.
 — *angelicella*, Hb.
 — *ciliella*, St.
 — *pimpinellæ*, Zell.
 — *weirella*, St.
 — *chærophylli*, Zell.
 — *nervosa*, Haw.
 — *badiella*, Hb.
 — *heracleana*, De G.

The following are confined to the sea coast and taken principally at *Lytham* :—

- *nanatella*, St.
 — *propinquella*, L.
 — *subpropinquella*, St.
 — *rhodochrella*, H.S.
 — *alstræmeriana*, Clerck
 — *purpurea*, Haw.
 — *yeatiana*, F.
 — *albipunctella*, Hb.
 — *douglasella*, St.
 — *capreolella*, Zell. *Grange*, *Preston* district
 — *carduella*, Hb.
 — *discipunctella*, H.S. " " "
 — *pulcherrimella*, St. " " "
Gelechia ericetella, Hb. Not uncommon
 — *mulinella*, Zell. " "
 — *malvella*, Hb. } Recorded from *Manchester* district on the authority of Stainton's *Manual*
 — *velocella*, Dup. }
 — *pelella*, Tr. }
 — *sorocruella*, Hb. } Are not rare on the moors and mosses
 — *longicornis*, Curt. }
 — *diffinis*. }
 — *rhombella*, Schiff. *Cbeetham*, *Grange*
 — *distinctella*, Zell. *Lytham*
Brachmia mouffetella, Schiff. Local; *Cleleys* on the coast, and near *Manchester*
Bryotropha terrella, Hb. Generally distributed
 — *domestica*, Haw. Rather local
 — *desertella*, Doug.
 — *senectella*, Zell. } Local; confined principally to the coast sandhills
 — *mundella*, Doug. }
 — *affinis*, Doug. }
 — *umbrosella*, Zell.
Lita maculea, Haw. } Local and not common
 — *tricolorella*, Haw. }
 — *instabilella*, Doug.
 — *acuminatella*, Sircom. Coast
 — *artemisiella*, Tr. "
 — *viscariella*, Staint. "

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GELECHIIDÆ (continued)

- Lita maculiferella*, Doug. Coast
 — *marmorea*, Haw. " "
 — *costella*, West. One record by Gregson from near *Liverpool*
 — *junctella*, Doug. *Manchester* district
 — *hubneri*, Haw. " "
 (Staint. *Man.*)
 — *atriplicella*, Fisc. *Fleetwood*
Teleia vulgella, Hb. Not uncommon
 — *notatella*, Hb. Local and not common
 — *luculella*, Hb. " " "
 — *dodecella*, L. " " "
 — *humeralis*, Zell. *Grange* " "
 — *sequax*, Haw. " "
 — *triparella*, Zell. " "
 — *fugitivella*, Zell. *Croxteth* near *Liverpool*
Pœcilia nivea, Haw. Recorded only from *Grange*
Argyritis pictella, Zell. By Gregson at *Hightown* near *Crosby*
Nannodia stipella, Hb. *Grange*, and near *Liverpool*; very local
 — *hermannella*, F. *Lytham*
Sitotroga cerealella, Ol. Common in grain warehouses
Ptocheusa inopella, Zell. *Cleveleys* on the coast
 — *osseella*, Staint. *Grange*
Ergatis ericinella, Dup. Very local on the mosses
Doryphora lucidella, St. Recorded by Gregson from *Tue Brook* near *Liverpool*
Monochroa tenebrella, Hb. Local; *Lytham*, *Liverpool*
Lamprotes atrella, Haw. *Grange*, *Lytham*
Anacamptis sircomella, St. }
 — *immaculatella*, Doug. } All occur principally near
 — *anthyllidella*, Hb. } the coast and
 — *ligulella*, Zell. } are very local
 — *tœniolella*, Zell. }
Tachyptilia populella, Clerk. Generally abundant
 — *temerella*, Zell. *Lytham*, *Crosby*
Brachyrossata cinerella, Clerk. Very local
Ceratophora rufescens, Haw. " "
Parasia metzneriella, Staint. *Grange*, *Longridge*
Cleodora cytisella, Curt. *Manchester* (Staint. *Man.* ii. 349)
Chelaria hübnerella, Don. Occasional on the mosses
Anarsia spartiella, Sch. *Preston*
Hypsilophus marginellus, F. *Grange*
Sophronia parenthesesella, L. *Manchester* (according to Stainton's *Manual*, ii. 351)
Pleurota bicostella, Clerck. Common on the mosses

GELECHIIDÆ (continued)

- Harpella geoffrella*, L. Very local and rare; *Garston*, *Manchester*
Dasycera sulphurella, F. Common
Cecophora pseudospretella, St. Generally common
 — *flavifrontella*, Hb. } Local; *Grange*,
 — *fuscescens*, Haw. } *Windermere*, etc.
 — *tinctella*, Hb. }
 — *stipella*, L. } Recorded from near
 — *minutella*, L. } *Manchester*, *Preston*
 — *tripuncta*, Haw. }
 — *woodiella*, Curt. This species was taken in some numbers by Robert Cribb about 1840 on *Kersall Moor* near *Manchester*, and has never been taken since, either there or elsewhere. Of this capture three specimens alone are known to exist, one in the Curtis collection in Australia and two in the Owens College Museum at *Manchester*
Endrosis fenestrella, Scop. Generally abundant
Butalis grandipennis, Haw. Common
 — *fusco-ænea*, Haw. *Grange*
 — *senescens*, Staint. " "
 — *laminella*, H.S. " "
 — *fuscocuprea*, Haw. " "
Amphisbatis incongruella, Staint. Very local on some of the mosses
Pancalia leuvenhœkella, L. *Grange*, *Lytham*, *Silverdale*
 GLYPHIPTERYGIDÆ
Acrolepia granitella, Tr. Local and not common
 — *pygmæana*, Haw. *Grange*
Glyphypteryx fuscoviridella, Haw. }
 — *thrasionella*, Scop. } Local but not
 — *haworthana*, Steph. } uncommon
 — *fischeriella*, Zell. }
 — *equitella*, Scop. *North Lancashire*; rare
Perittia obscurepunctella, Staint. *Liverpool*, *Grange*
Heliozele sericiella, Haw. Local
 — *staneella*, F. *Manchester* (Staint. *Man.*)
 — *resplendella*, Staint. " " "

ARGYRESTHIDÆ

- Argyresthia*. The only abundant species is *A. nitidella*, F.
 — *conjugella*, Zell. } Local but not un-
 — *gædardella*, L. } common
 Local and rare, principally on the mosses and at *Grange*:—
 — *ephippella*, F.
 — *semitestacella*, Curt.
 — *albitria*, Haw.
 — *spiniella*, Zell.

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ARGYRESTHIDÆ (continued)

- Argyresthia semifusca, Haw.
 — mendica, Haw.
 — glaucinella, Zell.
 — retinella, Zell.
 — brochella, Hb.
 — dilectella, Zell.
 — andereggiella, Dup.
 — curvella, L.
 — sorbiella, Tr.
 — pygmæella, Hb.
 — arcuthina, Zell.
 — aurentellata, Staint.
 Cedestis farinatella, Dup. *Grange, Chat Moss*

- Ocnerosoma piniarella, Zell. Not uncommon among firs
 Zelleria hepariella, Mann. *Grange*
 — insignipennella, Staint. "

GRACILARIIDÆ

- Gracilaria alchimiella, Scop. } Generally abundant
 — syringella, F. }
 — stigmatella, F. }
 — elongella, Z. } Local and not common
 — tringipennella, Zell. }
 — phasianipennella, Hb. }
 — auroguttella, Steph. }
 — semifascia, Haw. *Grange*
 — populetorum, L. "

- Corisicum curculipennellum, Hb. Rare ; *Grange, Windermere*
 — sulphurellum, Haw. *Hale near Liverpool*

- Ornix avellanella, Staint. Very local
 — torquilella, Staint. " "
 — guttea, Haw. " "
 — betulæ, Staint. " "
 — loganella, Staint. } Recorded from the mosses principally in the north,
 — scutulatella, Staint. } *Grange, Windermere*
 — scoticella, Staint. }

COLEOPHORIDÆ

- Coleophora alcyonipennella, Koll. } Generally common
 — pyrrhulipennella, Zell. }
 — nigricella, Steph. }
 — fabriciella, Vill. Local and uncommon
 — discordella, Zell. " "
 — albicosta, Haw. " "
 — murinipennella, Zell. " "
 — cæspititiella, Zell. " "
 — anaticpennella, Hb. " "
 — laripenella, Zett. " "
 — juncicolella, Staint. " "
 — laricella, Hb. " "
 — fuscadinella, Zell. " "
 — gryphipennella, " "
 — Bouché
 — viminetella, Zell. " "

COLEOPHORIDÆ (continued)

- Coleophora lutipennella. Local and uncommon
 — fusco-cuprella, H.S. *Grange*
 — paripennella, Zell. "
 — virgaureæ, Staint. "
 — bicolorella, Scott. "
 — limosipennella, Fisch. "
 — wilkinsoni, Scott. "
 — niveicostella, Zell. *Manchester*
 — therinella, Tgstr. *Preston*
 — siccifolia, Staint. "
 — adjunctella, Hodg. "
 — salinella, Staint. *Fleetwood*
 — tripoliella, Hodg. "
 — deauratella, Lien. *Windermere*

ELACHISTIDÆ

- Batrachedra præangusta, Haw. Local ; *Chat Moss*, and the sandhills
 Ctenophila v-flava, Haw. *Ashton-on-Ribble*
 Chauliodus chærophylllellus, Goetz. Rare and local ; *Grange* district
 Laverna propinquella, Staint. Local
 — lacteella, Staint. "
 — ochraceella, Curt. "
 — atra, Haw. "
 — miscella, Schiff. *Grange*
 — rhanniella, Zell. "
 — decorella, Sta. "
 — hellerella, Dup. *Preston* district
 — vinolentella, H.S. " "
 Chrysoclysta aurifrontella, Hb. Common
 — schrankella, Hb. Local
 — bimaculella, Haw. *Grange, Windermere*
 — terminella, West. "
 Antispila pfeifferella, Hb. *Pendlebury* near *Manchester*

- Stephensia brunnichella, L. *Grange*
 Elachista albifrontella, Hb. Generally common
 — rufocinerea, Haw. Generally common
 — argentella, Clerck. " "
 — trapeziella, Staint. " "
 — apicipunctella, Staint. }
 — luticomella, Zell. } Local, but not uncommon
 — kilmunella, Staint. }
 — nigrella, Haw. }
 — megerlella, Zell. }
 — cerussella, Hb. }
 — gleichenella, F. *Grange*
 — atricomella, Staint. "
 — densicornella, Hodg. "
 — cinereoopunctella, Haw. "
 — subnigrella, Doug. "
 — bedellella, Sircom. "
 — adscitella, Staint. "
 — tæniatella, Staint. "
 — gangabella, Fisch. "
 — biatomella, Staint. "
 — pollinariella, Zell. "

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ELACHISTIDÆ (continued)

- Elachista dispunctella, Dup. *Grange*
 — perplexella, Staint. *Preston*
 — humilis, Zett. " "
 — obscurella, Staint. " "
 — zonariella, Tgstr. " "
 — serricornis, Logan. *Pilling Moss*
 — subalbidella, Schlg. " "
 — triatomea, Haw. *Morcambe*
 — rhynchosporella, Staint. Generally on the mosses
 Tischeria complanella, Hb. Generally common
 — marginea, Haw. Generally common
 — angusticolella, Z. *Manchester* (Staint. *Man.* ii. 413)
 — dodonæa, *Grange, Windermere*

LITHOCOLLETIDÆ

Lithocolletis. This extensive genus is, thanks principally to the labours of Mr. Threlfall of Preston, rather largely recorded from the county

- | | |
|--|--|
| <ul style="list-style-type: none"> — cramerella, F. — alnifoliella, Dup. — ulmifoliella, Hb. — pomifoliella, Zell. — spinicolella, Staint. — faginella, Mann. — quercifoliella, Zell. — corylifoliella, Haw. — tristrigella, Haw. — trifasciella, Haw. — spinolella, Dup. — viminitorum, Staint. — salicolella, Sircom. — coryli, Nic. — messaniella, Zell. — scopariella, Zisch. — ulicicolella, Vaugh. — viminiella, Sircom. — nicellii, Zell. — dunningiella, Staint. — frölichella, Zell. — stettinensis, Nic. — kleemanella, F. — schreberella, F. — emberizæpenella, Bouché.) — roboris, Zell. <i>Windermere</i> district — amyotella, Dup. " " — hortella, F. " " | <p>Fairly common and widely distributed</p> <p>Local and more or less rare</p> |
|--|--|

LITHOCOLLETIDÆ (continued)

- Lithocolletis tenella, Zell. *Windermere* district
 — heergeriella, Z. *Windermere* district
 — irradiella, Staint. " "
 — lautella, Zell. " "
 — caledoniella, Staint. " "
 — torminella, Frey. Recorded by Stainton from *Manchester*
 — vacciniella, Scott. Occurs on the mosses.
 — quinqueguttella. From the coast at *Lytbam*

LYONETIDÆ

- Lyonetia clerkella, L. *Grange, Liverpool, Bowdon* near *Manchester*
 Cemiostoma spartifoliella, Hb. } Local and not common
 — waillella, Staint. }
 — laburnella, Staint. }
 — scitella, Z. }
 Opostega saliciella, Tr. } Mosses in *Grange*
 — crepusculella, Z. } and *Preston* dists.
 Bucculatrix nigricomella, Zell. Near *Grange*
 — ulmella, Mann. " "
 — demaryella, Dup. " "
 — frangulella, Goetze. " "
 — thoracella, Thunb. " "
 — cristatella, Zell. " "
 — cidarella, Tisch. *Manchester*
 — maritima, Staint. *Fleetwood*

NEPTICULIDÆ

- Nepticula. The only species which can be called generally common are N. aurella, F., and N. floscatella, Haw. Otherwise nearly the whole of the genus has been recorded from either *Grange, Windermere, the Preston* district, or *Bowden* near *Manchester*. The following however as given in South's lists have not been noted :—
- basiguttella, Hein. *Preston*
 - headleyella, Staint. " "
 - quinquella, Bedell. " "
 - sericopeza, Zell. " "
 - acetosæ, Staint. " "
 - agrimonie, Heyd. " "
 - continuella, Staint. " "
 - Bohemannia quadrimaculella, Boh. *Preston*
 - Trifurcula pulverosella, Staint. *Grange*

HEMIPTERA HETEROPTERA

Plant bugs

This is an order which has been and is but little studied by local entomologists, and for the few species enumerated below the writer is indebted almost entirely to a list published in the *Naturalist* of 1882 by B. Cooke of the species taken by him near *Manchester*, and to notes

INSECTS

made by Dr. Chaster of Southport of occurrences of the order in that district.

There is no doubt that very many more species exist and will be recorded as the attention of local students is directed to this generally neglected order.

The nomenclature here followed is that of the *Hemiptera Heteroptera of the British Islands*, by E. Saunders, the most recent work on the order.

PENTATOMIDÆ

- Corimelæna scarabæoides, L. This distinctly southern species has been taken near *Southport* by Dr. Chaster
Piezodorus lituratus, F. *Manchester*

BERYTIDÆ

- Neides tipularius, L. On the coast sandhills
Berytus rusticus, H.S. " "
Metacanthus punctipes, Ger. " "

LYGÆIDÆ

- Nysius thymi, Wolff. *Southport*
Rhyparochromus chiragra, F. "
Stygnus rusticus, Fall. "
— pedestris, Fall. Generally distributed
— arenarius, Hahn. " "
Ischnorhynchus geminatus, Fieb. General on heather
Trapezonotus agrestis, Fall. } Generally
Drymus sylvaticus, F. } distributed
Scolopostethus neglectus, Ed. }

TINGIDIDÆ

- Serenthia læta, Fall. *Southport* district
Orthostira parvula, Fall. " "
Derephysia foliacea, Fall. " "
Monanthia cardui, L. " "

ARADIDÆ

- Aradus depressus, Fab. *Manchester*

HYDROMETRIDÆ

- Hydrometra stagnorum, Linn. } Generally
Velia currens, Fab. } distributed
Gerris lacustris, L. }
— thoracica, Schum. *Bolton* district
— costæ, H.S. " "
— odontogaster, Zett. " "

REDUVIIDÆ

- Reduvius personatus, L. *Warrington*
Nabis major, Cost. Common
— limbatus, Dahlb. "
— ferus, L. *Southport*
— rugosus, L. " "
Ploiaria vagabunda, L. *Manchester*

SALDIDÆ

- Salda pilosa, Fall. *Southport*
— saltatoria, L. "
— littoralis, L. "
— orthochila, Fieb. *Greenfield*
— scotica, Curt. Shores of *Windermere*

CIMICIDÆ

- Ceratocombus coleoptratus, Zett. *Southport*

CIMICIDÆ (continued)

- Lyctocoris campestris, F. } Generally dis-
Anthocoris nemoralis, F. } tributed
— sylvestris, L. }
Piezostethus galactinus, }
Fieb. } *Manchester*
Acomporis pygmæus, Fall. } district
Triphleps minutus, L. }
— majusculus, Reut. *Southport*
Microphysa elegantula, Baer. "

CAPSIDÆ

- Pithanus mærkeli, H.S. *Manchester*
Miris calcaratus, Fall. Generally common
— lævigatus, L. " "
Megalocera erraticæ, L. " "
— ruficornis, Fall. " "
Leptopterna ferrugata, Fall. " "
— dolabrata, L. Near *Manchester*
Phytocoris tiliæ, F. Not uncommon
— dimidiatus, Kbm. "
— ulmi, L. "
Calocoris sexguttatus, F. "
— fulvomaculatus, De G. "
— bipunctatus, F. "
Plesiocoris rugicollis, Fall. *Southport*
Lygus pratensis, F. Generally distributed
— viridis, Fall. " "
— pabulinus, L. " "
— pastinacæ, Fall. " "
Liocoris tripustulatus, F. " "
Pœcilocystus unifasciatus, F. *Southport*
Rhopalotomus ater, L. Common
Orthocephalus saltator, Hahn. *Southport*
Dichyphus epilobii, Reut. }
— pallidicornis, Fieb. } *Manchester*
Cyllocoris histrionicus, L. } district
Ætorhinus angulatus, Fall. }
Globriceps cruciatus, Reut. *Southport*
— dispar, Boh. " "
Mecomma ambulans, Fall. " "
Cyrtorrhinus caricus, Fall. " "
Heterotoma merioptera, Scop. " "
Macrotylus paykullii, Fall. " "
Conostethus salinus, Sahlb. " "
— roseus, Fall. " "
Amblytylus brevicollis, Fieb. " "
Phyllus pallicipes, Fieb. " "
Psallus ambiguus, Fall. " "
Plagiognathus arbustorum, F. " "
— viridulus, Fall. "

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CAPSIDÆ (continued)

- Plagiognathus roseri, H.S. *Southport*
 — bohemanii, Fall. " "
 — pulicarius, Fall. " "

NAUCORIDÆ

- Nepa cinerea, L. *Southport, Manchester, Bolton*
 Notonecta glauca, L. Generally common
 Corixa geoffroyi, Leach. " "
 — fossarum, Leach. " "
 — fallenii, Fieb. " "
 — atomaria, Illig. *Bolton district*

NAUCORIDÆ (continued)

- Corixa lugubris, Fieb. *Bolton district*
 — hieroglyphica, Duf. " "
 — sahlbergi, Fieb. " "
 — limitata, Fieb. " "
 — mæsta, Fieb. " "
 — fabricii, Fieb. " "
 — linnæi, Fieb. *Southport, Bolton*

[These records of Corixæ are due to Mr. Oscar Whittaker of Bolton, who has specially studied this genus.]

HEMIPTERA HOMOPTERA

Frog-boppers, etc.

The only information we have recorded as regards this section of the order is contained in the list of Ben Cooke published in the *Naturalist*, 1882, already referred to. The following is a summary of his observations, which are restricted to the district immediately round Manchester and Southport. As regards the remainder of the county no authentic information is available.

CIXIIDÆ

- Cixius nervosus, L. *Manchester district*
 — cunicularis, L. " "
 — pilosus, Ol. " "

DELPHACIDÆ

- Liburnia pellucida, F. *Manchester district*
 — discolor, Boh. " "
 — fairmairei, Perris. " "

CERCOPIDÆ

- Aphrophora alni, Fall. *Manchester district*
 Philænus spumarius, L. " "
 — lineatus, L. " "

BYTHOSCOPIDÆ

- Macropsis lanio, L. *Manchester*
 Bythoscopus flavicollis, L. " "
 Pediopsis nassatus, Germ. " "
 Idiocerus adustus, Schaff. " "
 — populi, L. " "
 Agallia puncticeps, Germ. " "
 Idiocerus adustus, Schaff. *Manchester, Rivington, Southport*

TETTIGONIDÆ

- Evacanthus interruptus, L. *Manchester*

ACOCEPHALIDÆ

- Strongylocephalus agrestis, Fall. }
 Acocephalus rusticus, F. } *Manchester, Southport*
 — bifasciatus, L. }
 — albifrons, L. }
 — flavostriatus, Don. }

TYPHLOCYBIDÆ

- Alebra albostriglia, Fall.
 Dicraneura variata, Hardy.
 Eupteryx tenellus, Fall.
 — urticae, F.
 — pictus, F.
 — stachydearum, Hardy.
 — pulchellus, Fall.
 Typhlocyba sexpunctata, Fall.
 — quercus, F.
 — ulmi, L.
 — geometrica, Schr.
 — rosæ, L.
 — blandula, Rossi.

} All recorded from *Manchester district* or from *Southport*

JASSIDÆ

- Athysanus subfuscus, Fall.
 — prasinus, Fall.
 Deltocephalus abdominalis, F.
 — sabulicola, Curt.
 — striatus, L.
 — socialis, Flor.
 — ocellaris, Fall.
 — pulicaris, Fall.

} *Manchester district*

PSYLLIDÆ

- Psylla forsteri, Flor.
 — alni, L.
 — salicicola, Först.
 — mali, Schbdg.
 Psyllopsis fraxinicola, Först.

} *Manchester, Southport*

TRIOZIDÆ

- Trioza urticae, L.

ARACHNIDA

As long ago as 1861 a 'List of Southport Spiders,' by the Rev. O. Pickard-Cambridge, was published in *A Handbook for Southport* by David McNicoll, M.D. 2nd edition, pp. 102-109. Additions have subsequently been made by Mr. C. Warburton, of Christ's College, Cambridge, and Dr. A. Randell Jackson, M.D., of Hexham, to the Southport list, whilst Mr. Linnæus Greening, F.L.S., of Warrington, the Rev. J. Harvey Bloom, and Mr. W. Falconer have contributed various species to the county list. The present author has also been able to add considerably to the number during rambles in the fell and valley districts of Duddon Vale and Coniston, as well as on the coast at Blackpool and Grange. The number of species of spiders recorded reaches two hundred and thirty-one (231); of Pseudo-scorpions one only, and of Harvestmen seven; the total number of spiders recorded as British being between five and six hundred; of Pseudoscorpions 22, of Harvestmen 24 species. The list of all these Arachnida might be greatly increased, for Lancashire affords an abundant variety of good localities with its fells and vales, its sand-dunes and southern sea-board. In the following list where no authority or collector is quoted the author takes responsibility.

ARANEÆ

ARACHNOMORPHÆ

DYSDERIDÆ

Spiders with six eyes and two pairs of stigmatic openings, situated close together on the genital rima; the anterior pair communicating with lung-books, the posterior with tracheal tubes. Tarsal claws, two in *Dysdera*, three in *Harpactes* and *Segestria*.

1. *Harpactes hombergii*, Scopoli.

Grange; Southport (A. R. J.).

Not common. Found under bark of trees and amongst moss. Recognizable by its linear ant-like form, black carapace, pale clay-yellow abdomen and three tarsal claws.

2. *Segestria senoculata*, Linnæus.

Grange, Broughton, Coniston; Warrington (L. G.); Southport (A. R. J.).

Not common. Under bark of trees, in the crevices of loose stone walls, and amongst detached rocks. Recognizable by its linear form and the black diamond-shaped blotches on the dorsal surface of the abdomen.

3. *Oonops pulcher*, Templeton.

Grange; Southport (A. R. J.).

Rare. A very small linear brick-red spider, found beneath stones and amongst dry grass. It possesses six large oval pearly-white eyes.

DRASSIDÆ

Spiders with eight eyes situated in two transverse rows. The tracheal openings lie immediately in front of the spinners. The tarsal claws are two in number, but the anterior pair of spinners are set wide apart at their base, and the maxillæ are more or less impressed across the middle. They are usually found beneath stones, logs, and bark of trees, amongst dry leaves in woods, and one species usually occurs in outbuildings. They are all nocturnal in their habits.

4. *Drassodes lapidosus*, Walckenaer.

Coniston, Lancaster, Duddon Vale, etc. etc.; Southport (A. R. J.).

Very common under stones all over the fells. The male dwells within a silken domicile together with the female, and becoming mature earlier awaits patiently the coming of age of the female. Known also as *Drassus lapidicolens*.

5. *Drassodes cupreus*, Blackwall.

Coniston, Duddon Vale, Southport (O. P.-C., A. R. J.).

Very common, and in similar situations to the last species. It is rather smaller, coppery red in colour with a black marginal band to the sternum. The mandibles differ also in their armature and the vulva is different to that of *D. lapidosus*. It may take rank as a sub-species. Known also as *Drassus cupreus*.

6. *Drassodes reticulatus*, Blackwall.

Lancaster, J. Blackwall.

The types of this species having been lost, it is difficult to say what it may be.

7. *Drassodes pubescens*, Thorell.

Garstang (L. G.).

A rare species, resembling a very small *D. lapidosus*, and can be recognized by a comparison of the genitalia in both sexes as well as by a different relative position of the eyes (O. P.-C.).

8. *Drassodes troglodytes*, C. L. Koch.

Southport (O. P.-C., A. R. J.); Coniston, Duddon Vale.

This species is common under stones on the fells. It is known also as *Drassus troglodytes* and *D. clavator*.

9. *Prosthesima nigrita*, Fabricius.

Southport (C. W.).

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10. *Prosthesima Latreillii*, C. L. Koch.
Southport (A. R. J.).
11. *Prosthesima electa*, C. L. Koch.
Southport (O. P.-C., A. R. J.).
A rare spider in England as a rule, but abundant on the sandhills of Southport and probably occurring all along the coast. Known also as *Drassus pumilus*, Blackwall.
12. *Scotophaeus blackwallii*, Thorell.
Garstang (L. G.); Southport (A. R. J.).
A dark elongate mouse-grey spider, often found wandering about the walls of dwelling and outhouses at night. Known also as *Drassus blackwallii* and *Drassus sericeus*, Blackwall.

CLUBIONIDÆ

- Spiders with eight eyes situated in two transverse rows. The tracheal openings lie immediately in front of the spinners; but the anterior pair of spinners are set close together at their base. The tarsal claws are two in number; the maxillæ are convex and not impressed across the middle. The spiders are found in a variety of situations, under bark of old trees or on palings, amongst dry grass or cut rushes, whilst many are to be beaten from the foliage of trees or may be found wandering at night on palings or the walls of outhouses.
13. *Micaria pulicaria*, Sundevall.
Barton Moss (L. G.); Southport (O. P.-C., A. R. J.); Coniston, Duddon Vale.
A brilliant little spider with iridescent scales on its body. Not uncommon running about in the hot sunshine. Known also as *Drassus nitens* and *D. micans*, Blackwall.
14. *Micariosoma festivum*, C. L. Koch.
Lancaster; Southport (A. R. J.).
Very similar in general appearance to the last species, but small and even more ant-like. Known also as *Phrurolithus festivus* and *Drassus propinquus*, Blackwall.
15. *Zora maculata*, Blackwall.
Grange; Southport (A. R. J.).
Common. Known also as *Hecarge maculata*, Bl., and *H. spinimana*, Bl.
16. *Agroeca brunnea*, Blackwall.
Southport, O. P.-C.; Lancaster; Grange.
Rarely found amongst dead leaves and at the roots of herbage in woods. Known also as *Agelena brunnea*.
17. *Agroeca proxima*, O. P.-Cambridge.
Southport (A. R. J.).
18. *Agroeca celans*, Blackwall.
Grange; (W. F.).
19. *Agroeca gracilipes*, Blackwall.
Southport (A. R. J.).
20. *Clubiona terrestris*, Westring.
Grange; Warrington (L. G.). Southport (O. P.-C.).
Sub. *Clubiona amarantia*.
Not uncommon on the foliage of trees and shrubs, or running about at night on palings or on the walls of outhouses. Known also as *Clubiona amarantia*, Blackwall.
21. *Clubiona lutescens*, Westring.
Southport (A. R. J.).
22. *Clubiona stagnatilis*, Kulczyński.
Grange; Lancaster; ¹Southport (O. P.-C., A. R. J.).
Not uncommon amongst sedge-grass on the river banks or in the mosses. Known also as *Clubiona grisea*, Thorell.
23. *Clubiona reclusa*, O. P.-Cambridge.
Grange; Warrington (L. G.).
A rather rare species, found amongst shrubs and bushes. The female spins together two bramble or other leaves and constructs therein an egg-cocoon. Previously the male and female may both be found together in the domicile.
24. *Clubiona phragmitis*, C. L. Koch.
Warrington (L. G.); Southport (A. R. J.).
A very common species amongst cut rushes near the banks of streams, marshes, and mosses. It can often be found also under the bark of posts or pollard-willows in similar situations. Known also as *Clubiona holosericea*, De Geer, and *Clubiona deimognatha*, O. P.-Cambridge.
25. *Clubiona neglecta*, O. P.-Cambridge.
Birkdale Park, Southport, W. Falconer (A. R. J.).
26. *Clubiona pallidula*, Clerck.
Warrington (L. G.); Southport (O. P.-C., A. R. J.).
A large species, usually fairly common amongst bramble bushes, where the female makes her egg-cocoon within the folded leaves. Known also as *Clubiona epimelas*, Blackwall.
27. *Clubiona trivialis*, L. Koch.
Warrington (L. G.); Coniston, Birkdale Park, Southport, W. Falconer (A. R. J.).
Rare amongst heather in the fell districts.
28. *Clubiona diversa*, O. P.-Cambridge.
Southport (A. R. J.).
29. *Clubiona subtilis*, L. Koch.
Lancaster (O. P.-C.).
A rare species. Known also as *Clubiona pallens*, Blackwall.
30. *Clubiona comta*, C. L. Koch.
Grange (A. R. J.).
A very pretty species, not uncommon amongst trees and bushes. The abdomen is striped diagonally on each side with red-brown.
31. *Chiracanthium erraticum*, Walkenaer.
Lancaster (O. P.-C.); Grange.
Not uncommon in the folded leaves of various species of brambles in the summer-time. The spider resembles a *Clubiona*, but has longer legs and a red stripe down the abdomen.

¹ There appears to have been some confusion in the author's mind here. The spider found by me at Southport, *Handbook for Southport*, 1861, p. 106 (and supposed to be *Clubiona stagnatilis*, Kulcz., by the author), was without a doubt *Clubiona holosericea*, Blackwall, and was so identified for me by Mr. Blackwall. This last species is identical with *Clubiona grisea*, L. Koch, of which I possess types from L. Koch, as well as the male type of Mr. Blackwall's *C. holosericea*. What Kulczyński's *C. stagnatilis* may be I do not know, as I have never seen a type of it. The spider, however (No. 22), intended is probably *Clubiona holosericea*, Blackwall, as recorded (*Handbook of Southport*)—O. P.-Cambridge.

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32. *Chiracanthium lapidicolens*, Simon.
Southport (A. R. J.).

THOMISIDÆ

Spiders with eight eyes, situated in two transverse rows, two tarsal claws, and anterior spinners situated close together at their base. Maxillæ not impressed. The crab-like shape and sidelong movements of these spiders are their chief characteristics, enabling them to be easily distinguished, as a rule, from the more elongate *Drassidæ* and *Clubionidæ*.

33. *Philodromus aureolus*, Clerck.
Grange, Southport (O. P.-C.); Warrington (L. G.).

A very abundant species, with usually a dull red-brown abdomen, with yellowish central pattern. It frequents the foliage of trees of all kinds, and especially in the immature condition will often outnumber all other species which fall into the umbrella beneath the beating-stick.

34. *Philodromus cespiticolis*, Walckenaer.
Grange.

This species is possibly only a variety of the last-named, and frequents similar situations. Known also as *P. cespiticoleus*, Blackwall.

35. *Philodromus fallax*, Sundevall
Southport.

A very pale species frequenting the sand-dunes along the coast, squatting quite flat on the sand, where, being precisely the same colour as its surroundings, it is scarcely visible until it moves. Known also as *Philodromus deletus*, O. P.-Cambridge.

36. *Tibellus oblongus*, Walckenaer.
Southport (O. P.-C.). Sub. *Philodromus oblongus*.

A long, very narrow, dull white or straw-coloured spider, often common amongst dry grass in many different localities. They attain, however, their largest size amongst the sedge grass and rushes in swamps and bogs. The elongate form assists in their concealment from foes as they lie close to the pale dry rush stems and slender blades.

37. *Tibanatus striatus*, C. L. Koch.
Kirkby, Rev. J. H. Bloom (O. P.-C.).

38. *Xysticus cristatus*, Clerck.
Southport (O. P.-C., A. R. J.); Warrington (L. G.).

It is by far the commonest of the 'Crab-spiders,' and is found abundantly on foliage or crouching on bare places in fields and commons. Known also as *Thomisus cristatus*.

39. *Xysticus Kochii*, Thorell.
Southport, Dr. A. R. Jackson (O. P.-C.).

40. *Xysticus pini*, Hahn.
Southport (O. P.-C.).

A rare species, found usually on the foliage of trees and shrubs. Known also as *Thomisus audax*, Blackwall.

41. *Xysticus erraticus*, Blackwall.
Southport (A. R. J.).

42. *Oxyptila atomaria*, Panzer.
Grange. Lake District, Dr. A. R. Jackson (O. P.-C.).

Not uncommon in marshes among long grass. Known also as *Thomisus versutus*, Blackwall.

43. *Oxyptila praticola*, C. L. Koch.
Southport (A. R. J.).

44. *Oxyptila irax*, Blackwall.
Southport, Dr. A. R. Jackson (O. P.-C.), and W. Falconer.

SALTICIDÆ

The spiders of this family may be recognized in a general way by their mode of progression, consisting of a succession of leaps, often many times their own length. More particularly they may be known by the square shape of the cephalic region and the fact that the eyes are arranged in three rows of 4, 2, 2, the centrals of the anterior row being much the largest and usually iridescent. Those of the second row are the smallest, while the posterior pair is placed well back and helps to give the quadrate character to the cephalothorax. Otherwise these spiders are simply specialized *Clubionidæ*, with two tarsal claws and other minor characters possessed in common with members of this latter family.

They can be beaten from foliage or found amongst herbage and under stones. The commonest, *Salticus scenicus*, will be well known to all observers, running and leaping on the walls of houses in the bright sunshine.

45. *Salticus scenicus*, Clerck.
Southport (O. P.-C., A. R. J.); Warrington (L. G.).

A black or grey species with white oblique lateral stripes. Known also as *Epiblemum scenicum* and *Calliethera scenica*.

46. *Salticus cingulatus*, Panz.
Warrington (L. G.).
Known also as *Epiblemum cingulatum* and *Calliethera cingulata*.

47. *Heliophanus cupreus*, Walckenaer.
Southport (O. P.-C.).
A shining black and coppery spider, found in some abundance on the coast. Known also as *Salticus cupreus*.

48. *Heliophanus flavipes*, Hahn.
Blackpool; Southport (A. R. J.).

A shiny black spider with yellow legs, not uncommon amongst the marram grass on the sand-dunes along the coast.

49. *Euophrys erratica*, Walckenaer.
Grange; Coniston; Duddon Vale. Lancaster.
Common under the coping stones of stone walls. Known also as *Salticus distinctus*, Blackwall.

50. *Euophrys frontalis*, Walckenaer.
Southport (O. P.-C., A. R. J.); Kirkby, Rev. J. H. Bloom (O. P.-C.).

Not uncommon amongst grass. Known also as *Salticus frontalis*.

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51. *Attus pubescens*, Fabricius.
Southport (O. P.-C.).
Known also as *Salix sparsus*, Blackwall.
52. *Attus salinator*, Simon.
Blackpool; Southport (O. P.-C., A. R. J.).
Described and recorded as *Salix floricola*.—Blackwall.
53. *Neon reticulatus*, Blackwall.
Duddon Vale; Kirkby, Rev. J. H. Bloom (O. P.-C.).
Known also as *Salix reticulatus*.
54. *Ergane falcata*, Clerck.
Grange; Southport (A. R. J.).
Not uncommon on bushes in August. Known also as *Hasarius falcatus* and *Salix coronatus*.
55. *Marpessa muscosa*, Clerck.
Lancaster.
A large species, elongate, compressed, yellowish-grey; found amongst the stones of walls or on old wooden palings. Known also as *Marpissa* or *Marpysa muscosa*.
56. *Marpessa pomatia*, Walkenaer.
Southport, Hamlet Clark (O. P.-C.).
Very similar in general appearance to the last species, but rarer. Known also as *Marpysa pomatia*, *Hytia prompta*, *Salix promptus*, Blackwall, and *Salix Blackwallii*, Clark.
57. *Hasarius Adansonii*, Savigny.
Seaton Mersey, Rev. J. H. Bloom (O. P.-C.).
In orchid house.

PISAURIDÆ

Spiders with eight eyes in three rows, and three tarsal claws. The first row of eyes consists of four small eyes which are sometimes in a straight line, sometimes recurved, and sometimes procurved. Those of the other two rows are situated in a rectangle of various proportions. *Pisaura* runs freely over the herbage, carrying its egg-sac beneath the sternum, while *Dolomedes* is a dweller in marshes and swamps.

58. *Pisaura mirabilis*, Clerck.
Duddon Vale; Grange.
Known also as *Dolomedes mirabilis*.

LYCOSIDÆ

Eyes and tarsal claws as in the *Pisauridæ*, with slight differences. The members of this family are to be found running freely over the ground and carrying the egg-sac attached to the spinners. Many of the larger species make a short burrow in the soil, and there keep guard over the egg-sac.

59. *Lycosa accentuata*, Latreille.
Coniston; Duddon Vale. Southport (O. P.-C., A. R. J.).
This fine species makes a short burrow in the ground, where it bestows its egg-sac and constructs a low wall of short interlaced grass stems, a sort of zareeba, round the mouth. Known also as *Tarentula* or *Lycosa andrenivora*.
60. *Lycosa pulverulenta*, Clerck.
Southport (O. P.-C., A. R. J.). Duddon Vale.
Known also as *Tarentula pulverulenta* or *Lycosa rapax*.
61. *Lycosa aculeata*, Clerck.
Coniston Fells.
This form is probably a large variety of *L. pulverulenta*. Known also as *Tarentula aculeata*.
62. *Lycosa miniata*, C. L. Koch.
Southport (O. P.-C., A. R. J.).
An abundant and small species, occurring on the sand-dunes along the coast. Known also as *Tarentula miniata* and *Lycosa nivalis*, O. P.-Cambridge.
63. *Lycosa perita*, Latreille.
Warrington (L. G.); Southport (O. P.-C., A. R. J.), Blackpool.
A beautiful spider found abundantly on sandhills and the gravelly spots in the heath districts. Known also as *Trochosa picta* and *Lycosa picta*, Hahn.
64. *Lycosa leopardus*, Sundevall.
Southport (O. P.-C.).
This species occurs but rarely in marshy places, and may be known by its black-banded legs. Known also as *Trochosa leopardus* and *Lycosa cambrica*, Blackwall.
65. *Lycosa ruricola*, De Geer.
Southport (O. P.-C., A. R. J.).
Known also as *Trochosa ruricola* and *Lycosa campestris*, Blackwall.
66. *Lycosa terricola*, Thorell.
Southport (O. P.-C., A. R. J.); Warrington (L. G.).
This spider very much resembles the last species, but is more orange-brown or ferruginous in colour, the other being of an olive-green tint. Known also as *Trochosa terricola* and *Lycosa agretica*, Blackwall.
67. *Pirata piraticus*, Clerck.
Southport (O. P.-C., A. R. J.); Warrington (L. G.).
The species of *Pirata* are marsh and swamp-loving spiders *par excellence*, with two rows of white spots on the abdomen, and carrying a vivid white egg-cocoon in the spinners. Known also as *Lycosa piratica*.
68. *Pirata latitans*, Blackwall.
Duddon Vale; Southport (A. R. J.).
The smallest of the genus and the most abundant, very similar in general appearance to the last. Known also as *Lycosa latitans*.
69. *Pardosa amentata*, Clerck.
Southport (O. P.-C., A. R. J.); Warrington (L. G.).
Very abundant on logs of wood or hatchways in meadows and by riversides. One of our largest *Pardosas*. Known also as *Lycosa amentata* and *Lycosa saccata*, Blackwall.
70. *Pardosa annulata*, Thorell.
Warrington (L. G.; Southport (A. R. J.).
Somewhat similar to, but smaller than, the last species. Known also as *Lycosa annulata*.
71. *Pardosa agricola*, Thorell.
Duddon Vale; Coniston.
A species confined to the mountainous districts, and quite abundant amongst the shingle fringes of the

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ivers and streams, or the sandy margins of the lakes in those regions. Known also as *Lycosa fluviatilis*, Blackwall.

72. *Pardosa nigriceps*, Thorell.

Coniston; Southport (A. R. J.).

Occurs commonly throughout the heather districts on the fells. Known also as *Lycosa nigriceps* and *Lycosa congener*, O. P.-Cambridge.

73. *Pardosa traillii*, O. P.-Cambridge.

Coniston.

Not uncommon among the 'screes' or loose stones lying beneath the hills at a natural angle. They dash away amongst the stones, and are exceedingly difficult to capture. Known also as *Lycosa traillii*.

74. *Pardosa pullata*, Clerck.

Duddon Vale (E. T. C.); Southport (O. P.-C., A. R. J.).

The commonest of all the species of this genus, with the exception, perhaps, of *P. amentata*. Known also as *Lycosa pullata* and *Lycosa obscura*, Blackwall.

75. *Pardosa lugubris*, Walckenaer.

Grange.

A very abundant spider in the spring, running rapidly over the dead leaves in the woods. Known also as *Lycosa lugubris*.

76. *Pardosa palustris*, Linnæus.

Southport (O. P.-C., A. R. J.); Duddon Vale.

A small species with a narrow yellow line down the carapace. Known also as *Lycosa palustris* and *Lycosa exigua*, Blackwall (ad partem).

77. *Pardosa monticola*, C. L. Koch.

Southport (O. P.-C., A. R. J.); Coniston; Warrington (L. G.).

Very similar to the last, rather larger, found on higher ground, with a dilatation of the central yellow stripe on the carapace, behind the eyes. Known also as *Lycosa monticola* and *Lycosa exigua*, Blackwall (ad partem).

78. *Pardosa Parbeckensis*, F. O. P.-Cambridge.

Birkdale; Southport, W. Falconer (O. P.-C., A. R. J.).

AGELENIDÆ

Spiders with eight eyes, situated in two transverse rows. Legs with three tarsal claws. The species of this family spin a large sheet-like web, and construct a tubular retreat at the back of it, which leads to some crevice amongst the rocks, or the herbage, or the chinks in the walls of outhouses, wherever the various species may happen to be found. The posterior pair of spinners is usually much longer than the other two pairs.

79. *Cryphæa silvicola*, C. L. Koch.

Duddon Vale; Coniston.

Not uncommon beneath stones on the fells. Known also as *Teegenaria silvicola* and *Habnia silvicola* and *Agelena byndmanii*, Templeton.

80. *Amaurobius atropos*, Walckenaer.

Duddon Vale; Coniston Fells; Southport (A. R. J.).

Abundant throughout the fell districts up to the altitude of 3,000 feet. It is found under logs of wood,

in stone walls, or beneath isolated stones, where a sheet of white webbing often betrays the presence of the spider. A long tube runs beneath the log or stone, and both male and female can be found living together at the end; while later the young spiders will be found spending the early days of their childhood with their mother. Known also as *Cæbetes saxatilis*, Blackwall, and *Cæbetes atropos*.

81. *Argyroseta aquatica*, Linnæus.

Warrington (L. G.); Southport (O. P.-C.).

This is the well-known *water-spider*, which makes a silken nest beneath the surface, and swims and dives freely, hatching out its young within the nest.

82. *Textrix denticulata*, Olivier.

Duddon Vale; Coniston Fells.

A very abundant swiftly-moving spider found under the loose coping-stones of walls throughout the fell districts. It may be recognized by the red dentate band on the abdomen, which is sometimes almost white. Known also as *Textrix lycosina*, Sundevall.

83. *Teegenaria atrica*, C. L. Koch.

Garstang (L. G.); Southport (A. R. J.).

A very large species, the male having much longer legs than the female; not uncommon in cellars and outhouses, and also in holes in banks and in rabbit-burrows on the sandhills.

84. *Teegenaria derhamii*, Scopoli.

Southport (O. P.-C., A. R. J.); Warrington (L. G.).

A smaller, paler spider, and more common than the last named; almost entirely confined to houses and outbuildings. Known also as *Teegenaria civilis*, Walckenaer.

85. *Teegenaria silestris*, L. Koch.

Duddon Vale.

A still smaller species, sometimes not uncommon amongst rockeries in greenhouses and gardens. Known also to English arachnologists as *Teegenaria campestris*, C. L. Koch.

86. *Agelena labyrinthica*, Clerck.

Warrington (L. G.); Southport (O. P.-C., A. R. J.).

A common spider, large, when full grown, and spinning a huge, sheet-like, white web over the herbage, with a funnel-shaped tubular retreat. Like others of the family, the posterior pair of spinners is formed of two distinct segments, the end one being very long and slender.

87. *Agelena longipes*, Carpenter.

Southport (A. R. J. and O. P.-C.).

The example recorded is as yet unique.

88. *Habnia montana*, Blackwall.

Coniston Fells; Southport (A. R. J.).

Common in the heath districts.

89. *Habnia nova*, Blackwall.

Southport (A. R. J.).

90. *Anistea elegans*, Blackwall.

Duddon Vale; Southport (A. R. J.).

Not uncommon amongst the roots of aquatic plants close to the surface of the water, especially in the 'Mosses.' Known also as *Habnia* and *Agelena elegans*, Blackwall.

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ARGYOPIDÆ

The spiders included in this family have eight eyes, situated in two rows, the lateral eyes of both rows being usually adjacent, if not in actual contact, while the central eyes form a quadrangle. The tarsal claws are three, often with other supernumerary claws. The web is either an orbicular (wheel-like) snare, or consists of a sheet of webbing, beneath which the spiders hang, and capture the prey as it falls upon the sheet. This immense family includes those usually separated under the names *Epeiridæ* and *Linyphiidæ*.

91. *Meta segmentata*, Clerck.

Duddon Vale; Southport (O. P.-C.), A. R. J.; Warrington (L. G.).

A very abundant spider in the summer and autumn amongst nettles and other herbage along hedgerows. The spiders vary very much in size, and spin an orbicular web having a clear space in the centre, as do others of the genus and also *Tetragnatha*, thus differing from the genus *Aranus* (*Epeira*). Known also as *Epeira segmentata*, *Epeira inclinata*, Blackwall, and *Epeira mengii*, Blackwall.

92. *Meta merianæ*, Scopoli.

Duddon Vale; Southport (A. R. J.).

A larger species, common in cellars and beneath the overhanging rocks and steep damp banks throughout the district. Known also as *Epeira antriada*, Walckenaer, and *Epeira celata*, Blackwall.

93. *Nesticus cellulanus*, Clerck.

Southport (A. R. J.).

94. *Singa pygmaea*, Sundevall.

Kirkby, Rev. J. H. Bloom (O. P.-C.).

95. *Tetragnatha extensa*, Linnæus.

Southport (O. P.-C.); Warrington (L. G.); Duddon Vale.

A very common species of elongate form, which sits in the centre of its web with legs stretched out in front and behind. Not so entirely confined to marshy localities as the next species, and easily recognized by the silvery white bands under the abdomen. The jaws in the males of this genus are very large and strongly toothed.

96. *Tetragnatha solandri*, Scopoli.

Grange; Duddon Vale; Southport (A. R. J.).

Very similar in appearance to the last species, but almost entirely confined to river banks and marshy swamps. Can be recognized by the dull white bands beneath the abdomen and the absence of any pale line on the sternum.

97. *Pachygnatha clerckii*, Sundevall.

Duddon Vale; Southport (O. P.-C., A. R. J.).

Resembles a *Tetragnatha* in the possession of very large mandibles, but is not elongate and spins no web to speak of. Found under leaves and at the roots of herbage, especially in marshy places.

98. *Pachygnatha lusteri*, Sundevall.

Warrington (L. G.); Southport (A. R. J.).

Very similar to the last two species, but of a dark claret-red tint. Found usually amongst dead leaves in woods.

99. *Zilla x-notata*, Clerck.

Warrington (L. G.); Duddon Vale; Southport (O. P.-C., A. R. J.).

A very common spider, usually spinning its web on or in the proximity of buildings. The web has usually a vacant wedge-shaped piece with a single free ray from the centre. Known also as *Epeira similis*, Blackwall.

100. *Zilla atrica*, C. L. Koch.

Duddon Vale; Southport (O. P.-C., A. R. J.); Warrington (L. G.).

Almost as common as the above, but more usually confined to the foliage of trees and bushes, though often found on the walls of the fell districts. The males have a very long palpus, while in *Z. x-notata* these are very short. Known also as *Epeira callophylla*, Blackwall.

101. *Aranus cucurbitinus*, Clerck.

Warrington (L. G.); Southport (O. P.-C., A. R. J.); Duddon Vale.

A beautiful green spider with bright red tip to the tail end, rendering it in appearance like the bud of a flower. Known also as *Epeira cucurbitina*.

102. *Aranus diadematus*, Clerck.

Warrington (L. G.); Southport (O. P.-C., A. R. J.); Coniston.

By far the commonest of our spiders, being usually known as the 'garden spider,' of large size, red-brown and black with white lozenge-shaped spots, spinning an orb-web. Known also as *Epeira diadema* or *diademata*.

103. *Aranus quadratus*, Clerck.

Southport (O. P.-C., A. R. J.); Warrington (L. G.).

A common spider in October on most heathy commons, where it spins a strong orb-web and makes a tent for concealment under the heather or gorse. Its food consists chiefly of the common honey-bees, and in colour it is warm pink with green shading and four large white spots on the back of the abdomen. Known also as *Epeira quadrata*.

104. *Aranus cornutus*, Clerck.

Duddon Vale; Manchester, Liverpool (L. G.); Southport (O. P.-C., A. R. J.).

Abundant in the rushes and grass-heads near streams or in swampy places. Known also as *Epeira cornuta* and *Epeira apoclis*, Blackwall.

105. *Aranus umbraticus*, Clerck.

Warrington (L. G.); Southport (A. R. J.).

A large species, nearly black and much flattened, for it lives under the bark of trees and posts, spinning a strong orb-web and venturing out of its lurking place only at nightfall. Known also as *Epeira umbratica*.

106. *Aranus redii*, Scopoli.

Southport (O. P.-C.).

Common in the heather districts in June and July. Known also as *Epeira solers*, Walckenaer, and *Epeira solers*, Blackwall.

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107. *Linyphia triangularis*, Clerck.

Duddon Vale. Southport (O. P.-C., A. R. J.);
Warrington (L. G.).

A very abundant species in autumn, whose sheet-like snares glistening with dew-drops form a conspicuous feature on the hedges and bushes in the early mornings. The mandibles in the male are very long, resembling those in *Tetragnatha*. Known also as *Linyphia montana*, Blackwall.

108. *Linyphia montana*, Clerck.

Southport (O. P.-C., A. R. J.); Warrington (L. G.).

A large species whose habits are very similar to those of *L. triangularis*. It is, however, often found in conservatories and outhouses. Known also as *L. marginata*, Blackwall.

109. *Linyphia hortensis*, Sundevall.

Southport (O. P.-C., A. R. J.); Warrington (L. G.).

Not a common species, somewhat similar to *L. pusilla* in general appearance and habits. Known also as *Linyphia pratensis*, Blackwall.

110. *Linyphia clathrata*, Sundevall.

Warrington (L. G. and A. R. J.).

Resembles *L. montana* but is smaller. Very common amongst herbage, chiefly in the immature condition. Known also as *Nerienne marginata*, Blackwall.

111. *Linyphia pusilla*, Sundevall.

Southport (O. P.-C., A. R. J.); Warrington (L. G.).

A smaller species than the last, with deep black ventral region. The palpus in the male sex has a long spiral spine. It spins its web near the ground amongst herbage. Known also as *Linyphia fuliginosa*, Blackwall.

112. *Linyphia peltata*, Wider.

Southport (O. P.-C., A. R. J.); Warrington (L. G.).

A very small and common species found amongst the foliage of trees and bushes in the summer time. A pale variety is known also as *Linyphia rubea*, Blackwall.

113. *Linyphia insignis*, Blackwall.

Warrington (L. G.); Southport (A. R. J.).

Very common amongst grass on the banks of streams and in other localities.

114. *Labulla thoracica*, Wider.

Duddon Vale; Coniston; Southport (A. R. J.).

Abundant under overhanging rocks and banks. The male is remarkable for the enormously long spiral spine on the palpal bulb. Known also as *Linyphia cauta*, Blackwall.

115. *Stemonyphantes lineatus*, Linnæus.

Southport (O. P.-C.); Warrington (L. G.).

Not an uncommon species. Known also as *Linyphia bucculenta*, Linn. and *Nerienne trilineata*, Blackwall.

116. *Drapetisca socialis*, Sundevall.

Duddon Vale.

Not uncommon, often abundant on fir trees and overhanging rocks on the margin of streams. It squats

close to the bark or stone on which it rests. Known also as *Linyphia socialis*.

117. *Bolyphantes busculentus*, Clerck.

Southport (A. R. J.).

118. *Bolyphantes aliteps*, Sundevall.

Southport (O. P.-C.); Blackpool.

Rare amongst the marram grass on the sand-dunes. Known also as *Linyphia aliteps*.

119. *Bolyphantes luteolus*, Blackwall.

Blackpool; Warrington (L. G.); Southport (A. R. J.).

Abundant among marram grass on the sand-dunes in September. Known also as *Linyphia luteola*.

120. *Tapinopa longidens*, Wider.

Duddon Vale; Coniston; Southport (A. R. J.).

Common under stones throughout the fell districts. Known also as *Linyphia longidens* and a variety is known as *Tapinopa unicolor*, O. P.-Cambridge.

121. *Lepthyphantes nebulosus*, Sundevall.

Grange; Warrington (L. G.); Manchester (O. P.-C.); Southport (A. R. J.).

Rare in outhouses. Known also as *Linyphia nebulosa* and *Linyphia vivax*, Blackwall.

122. *Lepthyphantes leprosus*, Ohlert.

Grange; Duddon Vale; Southport (A. R. J.).

A very common species in stables, hay-lofts, and outhouses. Known also as *Linyphia leprosa*.

123. *Lepthyphantes blackwallii*, Kułczyński.

Warrington (L. G.); Duddon Vale; Southport (O. P.-C., A. R. J.).

Often very common at the roots of herbage in September. Known also as *Linyphia tenebricola*, Wider and O. P.-Cambridge, and *Linyphia terricola*, Blackwall and O. P.-Cambridge.

124. *Lepthyphantes cristatus*, Menge.

Southport (A. R. J.).

125. *Lepthyphantes tenuis*, Blackwall.

Southport (O. P.-C., A. R. J.).

Very similar to the last species and found under the same conditions. Known also as *Linyphia tenebricola*, O. P.-Cambridge (ad partem).

126. *Lepthyphantes tenebricola*, Wider.

Southport (A. R. J.).

127. *Lepthyphantes minutus*, Blackwall.

Southport (O. P.-C. and A. R. J.).

A rather rare species under stones and rocks; often found also in greenhouses and other outbuildings. Known also as *Linyphia minuta*.

128. *Lepthyphantes flavipes*, Blackwall.

Warrington (L. G.).

Not uncommon at the roots of grass or beneath stones. Known also as *Linyphia flavipes*.

129. *Lepthyphantes ericaeus*, Blackwall.

Southport (O. P.-C., A. R. J.); Duddon Vale.

A fairly common species at the roots of grass and under stones in the fell districts; also amongst the marram grass on the sand-dunes. Known also as *Linyphia ericaea*.

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130. *Bathyphantes pullatus*, O. P.-Cambridge.
Duddon Vale ; Coniston.
Common in marshy swamps. Known also as *Linyphia pullata*; and probably is the *Linyphia tenella*, Blackwall O. P.-C. *Handbook of Southport* (1861), p. 108.
131. *Bathyphantes nigrinus*, Westring.
Duddon Vale ; Southport (O. P.-C., A. R. J.) ;
Warrington (L. G.) ; Blackpool.
Common in marshes and swamps. Known also as *Linyphia nigrina* and *Linyphia pulla*, Blackwall.
132. *Bathyphantes approximatus*, O. P.-Cambridge.
Southport (A. R. J.).
133. *Bathyphantes concolor*, Wider.
Duddon Vale ; Southport (O. P.-C., A. R. J.).
Very common at the roots of herbage and under stones and pieces of rock. Known also as *Linyphia concolor* and *Theridion filipes*, Blackwall.
134. *Bathyphantes gracilis*, Blackwall.
Crumpsall Hall, Manchester (Blackwall) ; Southport (A. R. J.).
A rare species found at the roots of herbage and beneath stones on the fells. Known also as *Linyphia circumspecta*.
135. *Bathyphantes parvulus*, Westring.
Southport (O. P.-C., A. R. J.).
Not uncommon at the roots of herbage in swamps and mosses. Known also as *Linyphia parvula*.
136. *Bathyphantes dorsalis*, Wider.
Warrington (L. G.) ; Southport (O. P.-C.).
Common on the foliage of trees and bushes in the summer time. Known also as *Linyphia dorsalis*, *Linyphia claytoniæ*, Blackwall, and *Linyphia anthracina*, Blackwall.
137. *Pæciloneta variegata*, Blackwall.
Southport (O. P.-C., A. R. J.) ; Coniston.
Sometimes abundant under stones in the fell district. Known also as *Linyphia variegata* and *Neriere variegata*.
138. *Porrhomma pygmæum*, Blackwall.
Warrington (L. G.) ; Southport (O. P.-C., A. R. J.).
Common running on railings in the sunshine. Known also as *Neriere pygmæa*.
139. *Hilaira uncata*, O. P.-Cambridge.
Southport (A. R. J.).
140. *Tmeticus Huthwaitii*, O. P.-Cambridge.
Southport (C. W., A. R. J.).
141. *Tmeticus sylvaticus*, Blackwall.
Southport (C. W., A. R. J.).
142. *Tmeticus reprobus*, O. P.-C.
Kirkby, Rev. J. H. Bloom (O. P. C.).
143. *Tmeticus Hardii*, Blackwall.
Southport (A. R. J.).
144. *Tmeticus scopiger*, Grube.
Southport (A. R. J.).
145. *Tmeticus expertus*, O. P.-Cambridge.
Southport (A. R. J.).
146. *Tmeticus prudens*, O. P.-Cambridge.
Southport (A. R. J.).
147. *Centromerus bicolor*, Blackwall.
Southport (O. P.-C., A. R. J.) ; Duddon Vale.
Abundant running on railings in the hot sunshine in September and October. Known also as *Linyphia bicolor* ; *Neriere bicolor* ; and *Tmeticus bicolor*.
148. *Centromerus concinnus*, Thorell.
Warrington (L. G.) ; Southport (A. R. J.).
A very similar species to the last named, but smaller and not so abundant, though found in similar situations. Known also as *Tmeticus concinnus*.
149. *Macrargus abnormis*, Blackwall.
Southport (O. P.-C., A. R. J.).
Not uncommon amongst dead leaves in woods in the summer months. Known also as *Linyphia abnormis* and *Tmeticus abnormis*.
150. *Mengea warburtonii*, O. P.-Cambridge.
Southport (C. W., A. R. J.).
A rare species found in marshy places. Known also as *Tmeticus warburtonii*.
151. *Micrometa conigera*, O. P.-Cambridge.
Southport, C. Warburton (O. P.-C., A. R. J.).
152. *Micrometa viaria*, Blackwall.
Grange ; Southport (A. R. J.).
Found in profusion in the springtime amongst dead leaves in woods. Known also as *Neriere viaria*.
153. *Micrometa saxatilis*, Blackwall.
Southport (W. F., A. R. J.).
154. *Micrometa decora*, O. P.-Cambridge.
Southport (O. P.-C.) ; Liverpool (O. P.-C.).
Known also as *Neriere decora*, O. P.-C., and *Neriere chypeata*, F. P.-C.
155. *Micrometa vrestrius*, C. L. Koch.
Southport, Dr. A. R. Jackson (O. P.-C.).
156. *Erigone dentipalpis*, Wider.
Duddon Vale ; Blackpool ; Southport (A. R. J.).
Known also *Neriere dentipalpis*.
157. *Erigone atra*, Blackwall.
Blackpool.
Known also as *Neriere atra* and *Neriere longipalpis*, Blackwall.
158. *Erigone longipalpis*, Sundevall.
Warrington (L. G.) ; Kirkby, Rev. J. H. Bloom (O. P.-C., A. R. J.).
Known also as *Neriere longipalpis*.
159. *Erigone promiscua*, O. P.-Cambridge.
Birkdale Park, Southport (W. F.).
160. *Dicymbium nigrum*, Blackwall.
Warrington (L. G.).
Known also as *Neriere nigra*.
161. *Lophomma punctatum*, Blackwall.
Southport (C. W., A. R. J.).
162. *Lophomma herbigradum*, Blackwall.
Southport (A. R. J.).

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163. *Stylothorax apicatus*, Blackwall.
Southport (O. P.-C.) ; Blackpool.
A very abundant species amongst the marram grass on the sandhills. Known also as *Neriere apicata*.
164. *Hypomma bituberculatum*, Wider.
Warrington (L. G.) ; Coniston ; Southport (A. R. J.)
A very abundant species amongst herbage in swamps and moss in the fell districts and elsewhere. The male may be recognized by two large oblong-oval tubercles on the caput, and the female by the lead-coloured abdomen and bright orange carapace. These distinctions are not, however, sufficient for scientific purposes. Known also as *Neriere bituberculata*.
165. *Hypomma cornuta*, Blackwall.
Southport (O. P.-C. and A. R. J.)
A smaller species than the last, and quite black and shiny ; rare on railings in the spring and early summer. Known also as *Neriere cornuta*.
166. *Kulczynskium fuscum*, Blackwall.
Southport (O. P.-C. and A. R. J.)
Known also as *Neriere fusca* and *Neriere agrestis*, Blackwall, ad partem.
167. *Kulczynskium agreste*, Blackwall.
Coniston.
Known also as *Neriere agrestis*.
168. *Kulczynskium retusum*, Westring.
Southport (O. P.-C. and A. R. J.)
Known also as *Neriere retusa* and *Neriere elevata*, O. P.-Cambridge.
169. *Gongylidium dentatum*, Wider.
Southport, Dr. A. R. Jackson (O. P.-C.).
170. *Gongylidium rufipes*, Sundevall.
Southport (A. R. J.).
171. *Gongylidium distinctum*, Simon.
Southport (A. R. J.).
172. *Gonatium rubens*, Blackwall.
Warrington (L. G.) ; Southport (O. P.-C.).
Not a rare species amongst herbage. Known also as *Neriere rubens*.
173. *Gonatium isabellinum*, C. L. Koch.
Warrington (L. G.) ; Southport (A. R. J.)
Very similar to the last species in general appearance, but quite distinct. Known also as *Neriere rubella*, Blackwall, and *Neriere isabellina*.
174. *Gongylidium vivum*, O. P.-Cambridge.
Southport (C. W., W. F., and A. R. J.).
175. *Tio vagans*, Blackwall.
Southport, C. Warburton (O. P.-C. and A. R. J.).
176. *Entelecara erythropus*, Westring.
Southport (A. R. J.).
177. *Entelecara flavipes*, Blackwall.
Southport (O. P.-C.).
Known also as *Walckenaera flavipes*, Blackwall.
178. *Entelecara tborellii*, Westring.
Southport (O. P.-C.).
Known also as *Walckenaera tborellii*, and *Walckenaera fastigata*, Blackwall.
179. *Lophocarenum parallelum*, Blackwall.
Southport (A. R. J.).
180. *Lophocarenum nemorale*, Blackwall.
Southport (A. R. J.).
181. *Savignia frontata*, Blackwall.
Southport (A. R. J.).
182. *Peponocranium ludicrum*, O. P.-Cambridge.
Southport (A. R. J.).
183. *Typhlocrestus dorsuosus*, O. P.-Cambridge.
Southport, Dr. A. R. Jackson (O. P.-C.).
184. *Araeoncus humilis*, Blackwall.
Southport (A. R. J.).
Known also as *Walckenaera humilis*.
185. *Pecadionemis pumilus*, Blackwall.
Southport (A. R. J.).
186. *Troxochrus scabriculus*, Westring.
Southport (O. P.-C. and A. R. J.).
Known also as *Walckenaera scabricula* and *Walckenaera aggeris*, O. P.-Cambridge.
187. *Troxochrus cirrifrons*, O. P.-Cambridge.
Southport (O. P.-C.).
Known also as *Walckenaera cirrifrons*.
188. *Tapinocyba praecox*, O. P.-Cambridge.
Southport, Dr. A. R. Jackson, (O. P.-C.).
189. *Tapinocyba subitanea*, O. P.-Cambridge.
Southport, Dr. A. R. Jackson, (O. P.-C.).
190. *Diplocephalus picinus*, Blackwall.
Southport (A. R. J.).
Known also as *Walckenaera picina*.
191. *Diplocephalus latifrons*, O. P.-Cambridge.
Southport, Dr. A. R. Jackson, (O. P.-C.).
192. *Diplocephalus cistalis*, Blackwall.
Southport (A. R. J.).
193. *Diplocephalus permixtus*, O. P.-Cambridge.
Southport (A. R. J.).
194. *Diplocephalus fuscipes*, Blackwell.
Southport (A. R. J.).
195. *Cnephalocotes pusillus*, Menge.
Southport, Dr. A. R. Jackson (O. P.-C.).
196. *Cnephalocotes curtus*, Simon.
Southport, Dr. A. R. Jackson (O. P.-C.).
197. *Cnephalocotes obscurus*, Blackwall.
Southport (A. R. J.).
198. *Peponocranium ludicrum*, O. P.-Cambridge.
Lancaster (W. F.) ; Southport (A. R. J.).
199. *Blackwallia acuminata*, Blackwall.
Warrington (L. G.) ; Southport (A. R. J.).
The male is one of the most remarkable spiders we possess, its eyes being carried up on a slender turret far above the general level of the caput ; the female to a less extent. Known also as *Walckenaera acuminata*.
200. *Cornicularia vigilax*, Blackwall.
Southport (O. P.-C., A. R. J., and C. W.).
201. *Cornicularia unicornis*, O. P.-Cambridge.
Southport (A. R. J., O. P.-C.) ; Morecambe (W. F.).

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202. *Arrecherus monoceros*, Wider.
Southport (O. P.-C. and A. R. J.).
Known also as *Walckenaera monoceros*.
203. *Wideria antica*, Wider.
Southport (A. R. J.).
204. *Sintula cornigera*, Blackwall.
Grange (W. F.).
205. *Mao Sundevallii*, Westring.
Kirky, Rev. J. H. Bloom (O. P.-C.); Lancaster, Morecambe, Grange (W. F.).
206. *Walckenaera nudipalpis*, Westring.
Southport (A. R. J.).
207. *Walckenaera turgida*, Blackwall.
Crumpsall Hall, Manchester (Blackwall).
This species is not at present known, no type being in existence, but may be found at some future time and identified.
208. *Ceratinella brevipes*, Westring.
Southport, Dr. A. R. Jackson (O. P.-C.).
209. *Neriere lapidicola*, Thorell.
Crumpsall Hall, Manchester (Blackwall).
Found on railings and under stones, but the species is not known at present. Known also as *Neriere rufipes*, Blackwall.
210. *Neriere dubia*, Blackwall.
Manchester (Blackwall).
Not at present identified. Type lost.
211. *Neriere lugubris*, Blackwall.
Manchester (Blackwall).
Not at present identified. Type lost.

MIMETIDÆ

Spiders of this family are similar in general respects to the *Theridiidæ*, having eight eyes and three tarsal claws, but the anterior pairs of legs bear long spines in a series on the *tibiae* and *protarsi*. The species of *Ero* construct a small brown pear-shaped or cylindrical egg-cocoon suspended on a fine silken stalk.

212. *Ero furcata*, Villers.
Warrington (L. G.).
Known also as *Ero thoracica* and *Theridion variegatum*, Blackwall.

THERIDIIDÆ

The members of this family have eight eyes situated very much like those of the *Argyropidæ*, but the mandibles are really weak, the maxillæ are inclined over the labium, and the posterior legs have a comb of stiff curved spines beneath the tarsi. The web consists of a tangle of crossing lines, and the spider often constructs a tent-like retreat wherein the egg-sac is hung up.

213. *Episinus truncatus*, Walckenaer.
Duddon Vale; Coniston.
Not very common, but found amongst dry grass or on sunny banks. Known also as *Theridion angulatum*, Blackwall.
214. *Steatoda bipunctata*, Linnæus.
Warrington (L. G.); Southport (O. P.-C. and A. R. J.).
A dark brown, shiny, rather flattened globular spider, living in chinks of walls, angles of windows, and crevices in the partitions of old stables, etc., emerging usually at nightfall. The males are remarkable for their very large palpi and also for the possession of a stridulating organ, formed by a series of chitinous ridges in a hollow at the anterior part of the abdomen, which move over some cusps on the conical posterior portion of the carapace. Known also as *Steatoda bipunctata* and *Theridion quadripunctatum*, Blackwall.
215. *Pedanoesthetus lividus*, Blackwall.
Warrington (L. G.); Southport (A. R. J.).
A common species under stones on the fells and in many other localities. Known also as *Neriere livida*, Blackwall.
216. *Theridion ovatum*, Clerck.
Warrington (L. G.); Southport (O. P.-C. and A. R. J.).
A very common species. The female lives in the folded leaf of a bramble, or that of some other shrub, spinning the edges together. Within this domicile she constructs a round sea-green egg-sac about as large as a very small pea. The spider has a pale yellow abdomen with a broad pink central dorsal band, or two pink bands one on each side. Another variety has no pink bands, but a row of black spots on each side. The male and female can often be found together within their leafy domicile. This spider is also known under the name *Phyllonethis lineata* and *Theridion lineatum*.
217. *Theridion vittatum*, C. L. Koch.
Southport (A. R. J.).
218. *Steatoda sisyphium* (Clerck).
Southport (O. P.-C. and A. R. J.); Warrington (L. G.).
Very common on gorse and holly bushes, where they construct a tent-like domicile and spin up within its shelter the small greenish egg-sacs. The young when hatched pass their earlier days within the tent, but on the death of the mother spider they scatter, taking up positions for themselves amongst the neighbouring foliage. Known also as *Theridion sisyphium* and *Theridion nervosum*, Blackwall.
219. *Steatoda picta*, Walckenaer.
Warrington (L. G.); Southport (O. P.-C. and A. R. J.).
A very beautiful species, resembling a large example of *T. varians*, with a bright red and white dentated band on the dorsal side of the abdomen, found, often abundantly, on holly and other bushes, where they construct a large and very perfectly formed thimble-shaped domicile, covered with dry chips of leaves and twigs, often decorated with the wings, legs, wing-cases and other debris of the victims which have served them for food. Known also as *Theridion pictum*.
220. *Steatoda varians*, Hahn.
Warrington (L. G.); Southport (O. P.-C. and A. R. J.).
A very much smaller species, varying considerably in colour, found abundantly in greenhouses and also

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amongst shrubs in the open garden. This species makes no tent-like retreat, but sits close to the one or more pale rounded egg-sacs usually spun up against a beam or window-sill. Known also as *Theridion varians*.

221. *Steatoda denticulata*, Walckenaer.

Warrington (L. G.); Duddon Vale; Southport (A. R. J.).

Also a very small and abundant species, occurring on the outside of windows and outhouses and also on walls and palings. It makes no tent-like retreat, and the habits are very similar to those of the last species. Known also as *Theridion denticulatum*.

222. *Steatoda bimaculata*, Linnæus.

Southport (O. P.-C. and A. R. J.).

The males can be recognized by the sharp spur on the coxa of the fourth pair of legs. Known also as *Theridion bimaculatum* and *Theridion carolinum*, Blackwall.

223. *Steatoda pallens*, Blackwall.

Warrington (L. G., O. P.-C. and A. R. J.).

This minute spider, pale yellow in colour, often with a dark or paler dorsal spot on the abdomen, lives beneath the leaves of shrubs and trees—laurel, elm, lime, etc.—where it spins its minute pear-shaped pure white egg-sac, which rests on its larger end and has several small cusps towards the sharp-pointed end. Known also as *Theridion pallens*.

224. *Steatoda tepidariorum*, C. L. Koch.

Warrington (L. G.).

This large species is one of our commonest spiders in conservatories and greenhouses, where the curious triangular-shaped female may be seen hanging with legs closely gathered to the body in the middle of the tangled web. Sometimes, but not often, a few chips of dry leaf fallen into the web may be utilized as a sort of apology for a tent-like retreat, constructed in the case of *T. formosum* with elaborate skill. When prey of any kind falls into the toils, the spider hurries down and with the tarsal comb on the fourth pair of legs commences kicking out from the spinners a silken fluid, often quite moist like treacle, which strikes against and hardens on the victim. In this way very large spiders, beetles, and wood-lice are ensnared and converted into food. With a rapid and irritable movement of the forelegs also, small tufts of fine silk are gathered and flung promiscuously over the web. The male, a much smaller-spider, may be also seen hanging near at hand in the web, and the one or more brown pear-shaped egg-sacs also hang in the upper part of the toil. Sometimes these spiders are found outside the houses, but rarely amongst the shrubs in the open garden. Known also as *Theridion tepidariorum*.

225. *Pholcomma gibbum*, Westring.

Lancaster (W. F.); Southport (A. R. J.).

DICTYNIDÆ

The spiders belonging to this family possess three tarsal claws, and the eyes, eight in number, situated in two transverse rows, the laterals being in contact. The cribellum (or extra pair of spinning organs) and the calamistrum (a row of curving bristles on the protarsi of the fourth pair of legs) are present in all members of the family. They construct a tubular retreat with an outer sheet of webbing, which is covered with a flocculent silk made with the calamistrum from threads furnished with the cribellum.

226. *Ciniflo similis*, Blackwall.

Warrington (L. G.); Southport (O. P.-C. and A. R. J.).

A very common species in greenhouses, stables, and other outhouses. The males may often be found wandering about the walls of dwelling-houses after nightfall. Known also as *Amaurobius similis*.

227. *Ciniflo fenestralis*, Stroem.

Warrington (L. G.); Southport (O. P.-C. and A. R. J.).

A smaller species than the last, and easily distinguished by the characters of the genitalia. It is found, however, almost exclusively in the open country under stones, bark of trees, or the coping stones of walls all over the fell districts, whereas *C. similis* is almost entirely confined to the neighbourhood of dwelling-houses and out-buildings. Known also as *Amaurobius fenestralis* and *Ciniflo atrax*, Blackwall.

228. *Ciniflo ferox*, Walckenaer.

Garstang (L. G.); Southport (C. W.).

A much larger species, shiny black with pale markings, found in cellars and also beneath rocks and stones on the coast, or in crevices of banks in the open country. Known also as *Amaurobius ferox*.

229. *Dictyna arundinacea*, Linnæus.

Southport (O. P.-C.).

A very common species, forming its nest in the rush-heads and grass in marshy places. Known also as *Ergatis benigna*.

230. *Dictyna latens*, Fabricius.

Southport (O. P.-C. and A. R. J.).

A fairly common species, usually found on gorse bushes.

231. *Protadia patula*, Simon.

Kirkby, Rev. J. H. Bloom (O. P.-C.).

A rare species.

CHERNETES

CHELIFERIDÆ

Out of twenty species of false-scorpions hitherto recorded as indigenous to Great Britain, only one is recorded from this county. The various species can be found amongst moss and dead leaves, or beneath stones and the bark of trees. They are unmistakable on account of their possession of a pair of forcipated palpi, like those of the true scorpion. These are

usually extended wide open when the Arachnid is alarmed while it hastens backwards to take shelter. In spite of this scorpion-like appearance, these little creatures are closely allied to the Mites or *Acaridea*.

232. *Chthonius rayi*, L. Koch.

Duddon Vale.

OPILIONES

The Harvestmen are spider-like creatures with eight long legs, the tarsi long and very flexible. Eyes simple, two in number, situated on each side of an eye eminence. Body not divided into two distinct regions by a narrow pedicle, as in the spiders. Abdomen segmentate; breathing apparatus consisting of tracheal tubes with external stigmata at the base of the fourth pair of legs.

233. *Phalangium opilio*, Linnæus.
Blackpool.

Known also as *Phalangium cornutum*, Linnæus.

234. *Phalangium parietinum*, De Geer.
Duddon Vale.

Found in plenty on the walls of outhouses, squatting in a small hollow. Its appearance is an infallible sign of the approach of autumn.

235. *Megabunus insignis*, Meade.

Kirkby, Rev. J. H. Bloom (O. P.-C.).

Easily known by the long spikes on the eye-eminence.

236. *Oligolophus morio*, Fabricius.

Coniston.

Known also as *Phalangium morio* and *Phalangium urnigerum*, Hermann.

237. *Oligolophus agrestis*, Meade.

Duddon Vale.

Known also as *Opilio agrestis* and *Oligolophus ephippiger*, Simon.

238. *Nemastoma lugubre*, O. F. Müller.

Duddon Vale.

Known also as *Phalangium lugubre* and *Nemastoma bimaculatum*, Fabricius.

239. *Nemastoma chrysomelas*, Hermann.

Duddon Vale.

Known also as *Phalangium chrysomelas*.

CRUSTACEANS

The carcinology of Lancashire is not of a commonplace character. On the one hand it appeals for attention by the quaint simplicity of its earlier records, on the other by the scientific arduousness of its modern exponents. Some of the circumstances, however, are rather tantalizing. The highest forms of crustacea are by no means copiously represented, in spite of the extensive and diversified sea-board which might be expected to yield them. But this seeming advantage is to a great extent neutralized by the volume of freshwater and land débris poured into the bays and diffused along the shore line from more than one considerable river.¹ Moreover, the naturalists of Liverpool University have found it expedient to push their marine investigations so far out into the Irish Sea that many of the rarer captures cannot be specially credited to this county. Nevertheless its home waters have been found to contain numerous species of more or less desirable Entomostraca, and are still the field for valuable researches into the relations that exist, or should exist, between crustaceans, molluscs, fishes, and men, an affectionate readiness to eat one another being observable in all the groups, and only standing in need of intelligent regulation.

Reserving certain earlier authorities for a later stage of this discussion, it will be convenient for us to begin with '*The Natural History of Lancashire, Cheshire, and the Peak in Derbyshire*, by Charles Leigh, Doctor of Physick,' which was published at Oxford in the last year of the seventeenth century. From the seventh and the ninth chapters, which treat respectively of fishes and of birds, something may be gleaned which touches our present subject. Concerning fishes Dr. Leigh says, 'The Curious here have a large Field of Philosophy to range in, since both the Seas and Rivers in these Counties present us almost with an infinite variety of these Creatures.'² In the vague classification of that twilight era, the natural philosopher counted almost everything as fish that came to his net, so long as it came out of the water and was not of too insignificant a size. The whale-fish and the jelly-fish, the star-fish and the crab-fish, ranged alongside with a miscellaneous host of shell-fishes which might be either mollusca or crustacea. It was not as yet understood how incongruous the mixture of all these forms with true fishes would appear to later eyes. But in truth from that very mixture we may infer a carcinological fauna of considerable interest, as will hereafter be shown. A few crustaceans are directly mentioned by Dr. Leigh, though only under their vernacular names. Thus he observes, 'The *Oyster* and *Lobster* are very common, and likewise the *Shrimp* and *Prawn*; the *Prawn* is a Fish not much unlike the *Shrimp*, but much larger and far better Meat, and in my thought the most pleasing of any Shell-Fish whatever; it generates in Eggs, and of these it deposits an infinite number, which by a clammy matter it fastens to the Rocks, and piles them one upon another, till they look like a Pyramid

¹ A. Scott, on Plankton Work, *Trans. Liverpool Biol. Soc.* xiii. 93 (1899).

² Op. cit. Book i. p. 130.

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inverted, and hang like icicles on the Verge of a Penthouse.’¹ Here we have at least three (if not four) species and as many genera of crustaceans indicated. A presumption also that other members of the same class were observable in the waters of the county arises from Dr. Leigh’s various records of star-fishes, of ‘blebs’ or jelly-fishes, of salmon abounding in the rivers Ribble, Lune, Wire or Wyre, and Mersey, as well as from his discussion of the barnacle goose and his statement that ‘sometimes we have Whales and Sturgeons.’ No one, perhaps, would have been more surprised than Dr. Leigh himself to learn that the parasitic or semi-parasitic companions of his multifarious ‘fishes’ could be lawfully and properly classed along with the shrimp and the prawn. His apparently strange coupling together of the oyster and the lobster will be explained, and in a certain sense justified, later on. The different parasitic organisms will also be noticed under the appropriate heads of classification. But the curious will have to range in rather a wide field of philosophy before they can find prawns which deposit their eggs on the rocks in inverted pyramids or pendent like icicles. For Lancashire prawns the process is undoubtedly mythical, whatever the marine substance may have been which led Dr. Leigh to imagine it.

From the above-mentioned more or less garrulous work at the opening of the eighteenth century to the prim catalogue by Isaac Byerley at the middle of the nineteenth, is a scientific stride of considerable importance. Yet, so far as the crustacea are concerned, Byerley’s *Fauna of Liverpool* is not a little disappointing to a student of Lancashire zoology, since most of the localities specified are outside the boundaries of the county. That the author’s list of species is trustworthy depends not so much on any intrinsic evidence, as on the fact that the animals named are common and easily identified, and on the circumstance that most of them have been subsequently again observed by expert investigators of the same region.

In contrast to several other maritime counties of England, Lancashire allows the Malacostraca, which are of primary rank in the class, to take a somewhat secondary place in its fauna. Especially, as already suggested, the Brachyura or crabs, which are the leading members of the leading subclass, are here but poorly represented. The ‘arch-fronted’ *Cyclometopa* supply in the family Cancridæ the well-known *Cancer pagurus* (Linn.), the great eatable crab, of which Byerley says that it is ‘rather a plentiful species here, but seldom of large size’;² in the family Portunidæ, *Carcinus maenas* (Linn.), the common shore crab, mentioned by Byerley as ‘very common upon the shores everywhere,’³ and frequently referred to in the reports of the Liverpool Marine Biology Committee; *Portunus depurator* (Linn.), the cleanser swimming crab, according to Byerley ‘common both in tide pools and in deeper water,’ and according to A. O. Walker ‘abundant everywhere; generally on stony ground 3 to 7 fath.’;⁴ *Polybius henslowii* (Leach), mentioned incidentally by Professor Herdman as by universal consent one of the worst enemies of the shrimp;⁵ and, lastly, in the family Corystidæ, *Corystes cassivelaunus* (Pennant), the masked crab, which A. O. Walker speaks of as ‘not uncommon on sandy ground at various depths and between tide marks throughout the district.’⁶ These five crabs are easily discriminated one from

¹ Loc. cit. p. 134.

² Op. cit. p. 51 (1854).

³ Ibid.

⁴ *Trans. Biol. Sec. Liverpool*, vi. 97 (1892).

⁵ Loc. cit. p. 25.

⁶ Loc. cit. p. 97.

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the other. The great eatable crab has a carapace much broader than long, with its anterior margin cut into nine lobes on either side external to the orbits, while the masked crab has the carapace notably longer than broad, with some lateral denticles, and on its back in low relief of natural sculpture the lineaments of a human face. On the other hand the three Portunidæ show no great differences in the length and breadth of the carapace. They are called swimming crabs because of their agility in natation, which is promoted by the flattened blade-like termination of their fifth pair of legs. The shore crab, however, which is a rapid walker and tolerant of the open air, is distinguished from the other two by having its fifth pair of toes very moderately expanded. They all have the anterior margin on each side cut into five teeth outside the orbits, but while in the cleanser crab these teeth are prominent, in the nearly orbicular carapace of 'Henslow's swimming crab' they are flattened, so as only slightly to interrupt the circle. Distinctive characters may be drawn also from the dentation of the 'front,' that part of the anterior margin which lies between the orbits. In the *Catometopa* the front is more or less bent downward. Within this tribe is the family *Goneplacidæ*, with the species *Goneplax angulata* (Fabricius), the angular crab, which Mr. A. O. Walker records with what looks like an air of doubt and suspicion, 'One specimen said to have occurred at Southport (C. H. Brown). A Mediterranean species.'¹ It occurs in fact much nearer home than the Mediterranean, being not uncommon in the waters of South Devon, but there is reason to think that it is scarce in northern seas. Byerley speaks of 'specimens taken rarely in shrimp-nets,'² without specifying any locality. Its quadrate carapace, its long-stalked eyes, and special colouring would not allow it to be easily mistaken. In the male the chelipeds are also of striking elongation. Any doubt as to its occurrence at Southport is probably based not on any question of identification, but on the possibility that the specimen seen may have been imported by fishermen from a distant cruise. In the family *Pinnotheridæ*, Byerley records *Pinnotheres pisum* (Linn.) as 'very common in Muscles and Modiola,' and adds that 'the females from the latter are often very large.'³ Whether Byerley selected the correct specific name it is impossible to say. His remark on the size of the females would rather point to *Pinnotheres veterum* (Bosc.). But as the waters of Lancashire abound in the molluscs whose shells are frequented by these little soft-coated crabs, there is little doubt that both species are to be found in the district.

The *Macrura anomala* are not particularly demonstrative in this region, although the hermit, *Eupagurus bernbardus* (Linn.), is 'abundant everywhere,'⁴ and the so-called porcelain crabs, which are not true crabs, are evidently also plentiful. Byerley and Walker both represent the broad-clawed *Porcellana platycheles* (Pennant) as less common than its narrow-armed congener, *P. longicornis* (Linn.), Byerley supplying the information, presumably founded on experiment, that the former species 'seems to live for a long time in captivity, even with a small quantity of sea-water.'⁵

The genuine *Macrura*, or long-tailed Decapoda, including crawfishes, crayfishes, lobsters, prawns, and shrimps, make a fairer show than the two preceding groups. It is allowable perhaps to assign to the fauna of Lancashire

¹ Loc. cit. p. 96.

² *Fauna of Liverpool*, p. 51.

³ *Ibid.*

⁴ *Trans. Liverpool Biol. Soc.* vi. 98.

⁵ *Fauna of Liverpool*, p. 52.

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an interesting member of the burrowing family Callianassidæ, *Upogebia deltaura* (Leach), on the faith of Mr. Andrew Scott's account that 'An almost perfect specimen of this curious lobster-like crustacean, measuring two inches in length, was found in the stomach of a haddock caught on the off-shore station between Lancashire and the Isle of Man, 13 March, 1901. The *Upogebia* had evidently just been swallowed by the fish, as it was perfectly fresh, and the gastric juices had not had time to act upon the carapace.'¹ Another crustacean, which must be rather credited to the district than to any particular spot of tenancy, is the common sea crawfish, *Palinurus vulgaris* (Latreille). This has a kind of antiquarian interest; for when Dr. Leigh, as already quoted, in discussing the inhabitants of these waters, remarks that 'the Oyster and Lobster are very common,' and goes on to speak of prawns and shrimps, the oyster seems to be unaccountably introduced into very inappropriate company. It happens, however, that Borlase, in his *Natural History of Cornwall*, has supplied the same combination, but in a more intelligible and explanatory fashion. He compares the 'Long Oyster (the *Locusta marina* Aldrovandi de Crustat. chap. 2, tab. 2)' with the lobster,² and, to make the explanation still more satisfactory, we find Conrad Gesner at a much earlier date writing 'Ostreorum nomen, ut abunde explicavimus, non raro communiter genus totum testatorum complectitur.'³ Hence we may safely infer that the oyster, or long oyster, when compared by old writers with the lobster, signifies not the well-known mollusc, but the marine crawfish, which is distinguished from the lobster by much brighter colouring, much less powerful front feet, larger mandibles, and the spiny peduncles of its long and strong second antennæ. As for *Astacus gammarus* (Linn.), the common lobster, so often erroneously called *Homarus vulgaris*, it is interesting to note once more that Dr. Leigh speaks of it as 'very common,' whereas Byerley makes the rather surprising statement, 'Many years since one of this species was caught at Hilbre by Mr. C. Robin. Some of the oldest fishermen remember that they were formerly caught there, but very rarely, as well as many other creatures now no longer found, the ledges between the rocks being silted up with sand and affording less harbour.'⁴ The implication is that in 1854 the lobster had ceased to belong to the known fauna of Liverpool. That this loss has since been repaired may be judged from Mr. Andrew Scott's chapter 'On the Spawning of the Common Lobster,' in which he says, 'The usual process by which the eggs of the common lobster of the British coasts are shed and conveyed to the swimmerets appears to have been hitherto unknown. The following notes based on observation made at the Piel Hatchery may therefore be of interest.' As to the interest there can indeed be no question, but the whole account is too long for quotation; only one or two points may here be mentioned. 'As the eggs leave the oviducts they become coated with an adhesive substance which causes them to stick together and to the swimmerets. The period of oviposition in the lobster under observation was just over four hours.' The eggs when extruded are quite soft, of an opaque dark green colour, with a thin transparent shell. They were 1·8 millimetres, or a fourteenth of an inch, in diameter.'⁵

¹ *Trans. Liverpool Biol. Soc.* xv. 345 (1901).

² *De Aquatilibus*, p. 653 (1558, Edition 1604).

³ *Trans. Liverpool Biol. Soc.* xvii. 106 (1903).

⁴ *Op. cit.* p. 274 (1758).

⁵ *Fauna of Liverpool*, 52.

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The lobster belongs to the family Nephropsidæ, so called from *Nephrops norvegicus* (Linn.), the Norway lobster, common in northern waters, but apparently not definitely recorded from any actual point in this county. The nearly allied family of the *Potamobiidæ* supplies the river crayfish, *Potamobius fallipes* (Lereboullet), often less accurately called *Astacus fluviatilis*, about which Huxley wrote his celebrated book, *The Crayfish*, as an introduction to the study of zoology. It is rather singular that his inquiries as to the distribution of this species in England should have been comparatively unsuccessful. In his sixth chapter, after noticing that crayfishes are abundant in some of our rivers, he goes on to remark that 'they appear to be absent from many others,' and says, 'I cannot hear of any, for example, in the Cam or the Ouse, on the east, or in the rivers of Lancashire and Cheshire, on the west.' In regard to one of these localities, however, his knowledge was subsequently widened by a letter from 'Giggleswick School, near Settle, Yorkshire, 28th June, 1886,' which reads as follows: 'Dear Prof. Huxley, I have read in Chapter VI. of your book on the crayfish that you had not heard of any in the rivers of Lancashire. Yesterday I went to Ling-Gill one of the first affluents of Ribble (which even in Yorkshire we count as a Lancashire river) and I am trying to keep them alive. I shall be glad to send you one if you will tell me where to send it. Yours faithfully, Arthur Style.' Though from the wording of the letter this intelligent and observant school-boy appears to be offering Huxley one of the affluents of the Ribble, it is clear that Huxley accepted the spirit of the communication as a trustworthy assurance that the river crayfish had been found in Lancashire. The letter itself was given to me on 10 April, 1902, by my lamented friend, the late Professor G. B. Howes, F.R.S., Huxley's assistant and successor at the Royal College of Science. Professor Howes assured me that the letter was taken from Huxley's own copy of his book, and it still bears the marks of an honourable adhesion.

The tribe Caridea is a great group, including not all, but the majority of the prawns and shrimps that have commercial value, along with many that from smallness or rarity do not influence our markets. This tribe occupies a prominent place in the marine zoology of Lancashire, although only seven or eight species can be definitely claimed for its coasts, and only two or three of these have any mercantile importance. In the family Crangonidæ there are two species, *Crangon vulgaris* (Fabricius), emphatically the common shrimp, perhaps in England the most familiarly known of all crustaceans, and *Crangon allmanni* (Kinahan), the channel-tailed shrimp, distinguished from the other by the longitudinal dorsal groove or channel in the penultimate segment of the tail. Professor Herdman, in the *Fifth Annual Report of the Liverpool Biological Station*, speaking of the year 1891, says, 'In January, in all localities, the shrimps were smaller than in the previous years; the weather was colder, frosty.' Mr. Ascroft writes from Lytham in February 'that there are a great number of *Crangon allmanni* among the shrimps.'¹ Only a naturalist would be likely to notice the difference, and probably neither a naturalist nor an epicure could tell one species from another by his palate. With the capture of these shrimps some unexpectedly perplexing questions are connected. The ground that suits the shrimps is

¹ *Trans. Liverpool Biol. Soc.* vi. 25 (1892).

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also the ground that suits a number of small flat fishes, and the unthinking trawl catches indiscriminately the edible shrimps, the useless solenettes (*Solea lutea*), and the young soles (*Solea vulgaris*) in their unprofitable stage. Professor Herdman has suggested that the clearing off of solenettes by the shrimp-trawlers may be indirectly beneficial to the young soles, which will thereby have fewer enemies and less competition in pursuit of food.¹ But in 1895 he writes, 'The statistics of hauls taken during the past year from the steamer show once more, if any showing is still needed, that that destructive engine the shrimp-trawl brings up along with a miserably small number of shrimps, an astonishingly large number of young food fishes. On 2 November, off the Ribble estuary, with 5 quarts of shrimps were taken over 5,000 undersized food fishes. On the same date, off Blackpool, with 1½ quarts of shrimps were 10,000 fish; on 24 October, in Heysham Lake, with 2 quarts of shrimps were 4,000 plaice about 4 inches long; and so on. Of course it is satisfactory to know that there are so many young fish on the ground, but it is deplorable that for the sake of a quart or two of shrimps several thousands of young fish should run some risk of being sacrificed.'² As a remedy it has been proposed that the net should not be attached to the frame, which stirs up the mud, but to a bar raised just so far above the frame, that the flat fishes may glide away beneath the net while the more excitable shrimps leap into it. To the plan of restoring the young fishes to the sea it is objected that only very few of them would be likely to survive the rough handling they meet with in the process. It is difficult to say whether even so they may not as provender for other animals by transmigration of bodies ultimately become serviceable to man. This is no more than a pious hope. It should not make the fishing industry deaf to that wisdom of the ancients which pronounces that wilful waste makes woful want.

In the family Pandalidæ the species *Pandalus montagui* (Leach), often less correctly spoken of as *P. annulicornis*, is probably the prawn on which Dr. Leigh bestows so high a gastronomic commendation. Byerley says of it, 'This species, which is the plentiful edible prawn (or locally 'sprawn') of our district, has often been mistaken for the young condition of the true one.'³ By 'the true one' he evidently intends *Leander serratus* (Pennant), of the family Palæmonidæ, the common prawn of some districts, though not of all, as shown by Byerley's own remarks upon it, which follow the statement just quoted. He says that it is 'by no means common. Sometimes the fishermen may bring in from twelve to twenty amongst a hamper-full of the former species.' Similarly, A. O. Walker says of the *Pandalus*, 'abundant everywhere on stony ground,' but of *Leander serratus*, 'stony ground; not abundant.'⁴ The more modern writers appear to know nothing of 'sprawn' as a local name for *P. montagui*, invariably in the vernacular calling it 'the shank.' Professor Herdman supplies the information that it 'feeds to a large extent on *Sabellaria alveolata*—a worm which builds up masses of rock by cementing together sand grains—as the stomach contains usually numerous setæ, occasionally the remains of the worm itself,' besides several other items of a miscellaneous banquet.⁵ Another prawn, *Pasiphæa sivado* (Risso), belonging not to the family Penæidæ in which Byerley places it, but to the

¹ Op. cit. vii. 116, 118 (1893).

² Op. cit. ix. 152 (1895).

³ *Fauna of Liverpool*, 53.

⁴ *Trans. Liverpool Biol. Soc.* vi. 101 (1892).

⁵ *Ibid.* viii. 74 (1894).

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Pasiphæidæ, is made the subject of the following note in the *Fauna of Liverpool*, 'This, which appears to be a rare British species, has been given to me by a Dee fisherman. All the Hoylake men know it, and say that they may, on an average, meet with one in a week. The specimen is in the Royal Institution Museum.'¹ That the naturalist should prize one prawn above another because it comes more seldom into the net, is a species of idolatry or form of foolishness which the ordinary fisherman is very unwilling to encourage. Mr. A. O. Walker also records *P. sivado* from the 'Mouths of the Dee and Mersey, scarce.' But if every fishing boat finds on an average one every week, the scarcity for scientific purposes is rather artificial than real. From the shrimps and from one another the three prawns above named are easily distinguished. The shrimps alone have the first pair of legs sub-chelate, by which is meant that the penultimate joint or 'hand' is not produced into an elongate process or 'thumb' more or less parallel with the last joint or 'finger.' The finger folds down on the distal margin of the hand. In *Pandalus montagui* the first legs are provided with minute chelæ. In *Leander* the nippers are well developed, and in *Pasiphæa* they attain a conspicuous length, both finger and thumb being strikingly denticulate along their confronting margins, with curved apices which cross one another when the chela is closed. This species, like the shrimps, has an insignificant rostrum, while both the other prawns are armed with a long dentate frontal horn. In general aspect all the three differ among themselves considerably, owing to the superior size of *Leander serratus* and the singular lateral compression of the *Pasiphæa*. From the family Hippolytidæ Messrs. F. W. Keeble and F. W. Gamble attribute more than one species to this county. Part of their work on the colour physiology of *Hippolyte varians* (Leach) was done at the Piel Laboratory, and they say, '*Hippolyte varians* is one of the few Crustacea which may be considered abundant in the neighbourhood of Piel. It keeps for the most part to beds of weeds below low-water mark, and hence its habits have largely to be learnt from specimens in captivity.' They found that 'fresh weed or the dead bodies of its fellows serve *Hippolyte* as food.' In the Barrow Channel, they say, 'Shades of brown and yellow are abundant, whilst green and red are sometimes common, sometimes rare. With the large *Halidrys siliquosa* a dark brown variety is associated; among the fine Polyzoon (*Bowerbankia*) which clothes the lower parts of the *Halidrys* stems, a speckled variety of *Hippolyte* occurs: in the tide-pools of Foulney Island the green variety, and it alone, is found among the *Zostera*.' As a result of their experiments they say, 'We have arrived at the conclusion that there are two colour-phases in *Hippolyte varians*; one diurnal, the other nocturnal. The recurrence of these phases is to some extent independent of the conditions of illumination, although the colour itself may be profoundly influenced by varying the quality and intensity of the incident light, and also by other stimuli, which do not act through the eye.' Lastly they say, 'The species of Crustacea we worked with have been kindly identified by A. O. Walker, Esq. From the very limited fauna of Piel shore it may be of interest to give the list, which, however, is not quite complete. *Hippolyte varians* (Leach), common, just below the level of ordinary spring tides. *Hippolyte fascigera* (Gosse), a doubtful species; almost certainly a variety of

¹ Op. cit. 53.

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H. varians. *Hippolyte cranchii* and *Hippolyte pusiola* (Kröyer), less common, but occurring with the foregoing. A species of *Mysis* which gave interesting results and which occurs with *Hippolyte* has been determined as *Mysis neglecta* (G. O. Sars).¹ These three or four species are too small to be of any direct commercial importance. The tufts of hair on the body of *H. fascigera*, to which the specific name alludes, are easily detached, and when a specimen becomes bald there is apparently nothing left to distinguish it from *H. varians*.² On the other hand there are weightier characters which may justify the assignment of the two remaining species to a separate genus. *Hippolyte*, in the restricted sense, has a proper cutting edge to the mandible, but no palp, and the fifth joint or 'wrist' in its second pair of legs is subdivided into only three pieces or subarticulations. In contrast to this the genus *Spirontocaris* (Bate) has a palp to the mandible, but the cutting edge is rudimentary, and in the second pair of legs the 'wrist' is seven-jointed. It is with these latter conditions that *H. cranchii* and *H. pusiola* appear to comply, so that they should rather stand under the generic name *Spirontocaris*.³

The occurrence of *Mysis neglecta* introduces us to the sub-order Schizopoda, or cleft-footed Malacostraca. They derive their name from a feature which is not exclusively theirs, since trunk-legs with two branches are to be found in all the malacostracan sub-orders. The family Mysidæ is in one respect very peculiar, inasmuch as the members of it have no true branchiæ. Mr. Andrew Scott, in his observations on the habits and food of young fishes, says that plaice and flounders ranging from two-fifths to three-fifths of an inch in length make their diet almost entirely of Copepoda, but later on the stomachs of the smaller flat fishes 'from one inch up to four inches in length, captured on the shores of our neighbourhood, are usually almost entirely filled with *Mysis*,' and the young of many round fishes also feed on the same little shrimp.⁴ For *Mysis neglecta* the name *Praunus neglectus* is to be preferred.

Leaving the stalk-eyed Malacostraca we now pass on to the sessile-eyed division, containing three sub-orders, the Sympoda, Isopoda, and Amphipoda. The Sympoda, formerly called Cumacea, have characters which connect them pretty closely with the preceding podophthalmous division. In examining the food found in the various fishes Mr. A. O. Walker was able to identify *Pseudocuma longicorne* (Bate), sometimes called *P. cercaria* (van Beneden), from plaice and pogge taken at Morecambe, and *Diastylis rathkii* (Kröyer) from solenette at Blackpool.⁵ The former of these species belongs to the family Pseudocumidæ, in which the terminal tail-piece or telson is distinct, but small and unarmed. The other species belongs to the family Diastylidæ, which have a well-developed telson ending in two spines.⁶

The Isopoda of the county have not yet found a collector with the enthusiasm which any thorough and effective knowledge of this sub-order imperiously demands. They differ from all the rest of the Malacostraca that have been here mentioned by the position of the breathing organs. These in the genuine Isopoda are supplied by the pleopods, appendages of the pleon or tail, instead of being connected (as in almost all the other groups) with

¹ *Trans. Liverpool Biol. Soc.* xiii. 150, 152, 153 (1899).

² A. O. Walker, *Ann. Nat. Hist. Ser.* 7, vol. iii. 147 (1899).

³ Stebbing, *Hist. of Crustacea*, Internat. Scientific Ser. lxxiv. 234, 236 (1893).

⁴ *Trans. Liverpool Biol. Soc.* xiii. 90, 91, 92 (1899).

⁵ *Op. cit.* vii. 113, 114 (1893).

⁶ See further in *Hist. of Crustacea*, 307, 310.

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appendages that precede the pleon. Byerley speaks of *Limnoria lignorum* (J. Rathke), the gribble, under the later and now discarded name *L. terebrans*, and says that 'the wooden piles of the Rock lighthouse are completely drilled by this species.'¹ Mr. Andrew Scott, discussing surface collections in the vicinity of the Lancashire coast, says 'On a warm day, when the sea is calm, numbers of *Eurydice* may be seen disporting themselves on the surface. In their movements they are not unlike the "whirligig" beetle of the freshwater-ponds.'² The species is not specified, but probably *Eurydice acbata* (Slabber), often called *E. pulchra* (Leach), was the one observed. It is a curious circumstance that dead specimens of this family when put into liquid often display the same whirligig movements as those executed by the live animals, from which it may be inferred that, when the creature is introduced to the surface film of the water, the structure of its body has something to do with the mode of motion independently of its will. Mr. A. O. Walker mentions *Sphaeroma serratum* (Fabricius) from the stomach of a cod at Piel Island, and from that of a whiting at Morecambe, and *Idotea marina* (Linn.), also from a whiting at Morecambe. Though it does not seem to be specially recorded, the occurrence of *Hemiarthrus abdominalis* (Kröyer), so commonly parasitic beneath the pleon of *Pandalus montagui*, may almost be taken for granted. Of terrestrial Isopoda, or woodlice, strange to say, I have only found a single record, that of *Oniscus murarius*, another name for the very common *O. asellus* (Linn.), which Byerley oddly includes among the 'Myriopoda,' with the unimpeachable comment that it is 'very abundant about walls, rubbish, and damp localities.'³

The Amphipoda are associated with the Isopoda in classification on account of certain obvious points of resemblance. The two sub-orders, besides being alike edriophthalmous or sessile-eyed, agree also in the distinctly tri-partite arrangement of the body. The consolidation of head and trunk which prevails in crabs and lobsters here gives place to a severance of the cephalic division from a seven-segmented middle body or peræon. The Sympoda make an approach to this arrangement by having five segments between the head and tail uncovered by the carapace. It is these five segments which throughout the Malacostraca must be considered as normally leg-bearing segments. But in the Isopoda and Amphipoda the two preceding segments also carry legs, instead of having their appendages, as generally elsewhere, converted into mouth-organs. In some respects, however, the Amphipoda differ greatly from the Isopoda. They are usually compressed from side to side instead of being dorso-ventrally depressed. The appendages of the pleon are three pairs of pleopods with rami, as a rule flexible and many jointed, and three pairs of uropods with inflexible rami, not many jointed. In the Isopoda there are five pairs of pleopods and one pair of uropods, the flexible many-jointed condition being found only in the uropods, and there as an anomalous character. Above all, the Amphipoda are distinguished by the simple, or comparatively simple, branchial vesicles attached to some limbs of the peræon, and by the forward position of the heart, in contrast to the Isopoda, among which the heart (except in the anomalous group) is carried towards the rear in connection with the branchial system of the pleopods. When diligently searched

¹ *Fauna of Liverpool*, 56.

² *Trans. Liverp. Biol. Soc.* viii. 96 (1899).

³ *Fauna of Liverpool*, 111.

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for the purpose, the Lancashire coast will probably yield many more species of Amphipoda than can as yet with certainty be assigned to it. Mr. A. O. Walker records '*Ampelisca brevicornis* (Costa) = *A. lævigata* (Lilljeborg),' as taken 'off Southport, 10 to 20 f., June '91. Eyes crimson with a scarlet line behind them, and five black stellate spots behind that. Lower part of head having a scarlet cloud extending to the first epimere. Remainder of body transparent white with scattered black stellate spots. Length 13 mm.'¹ Of *Ampelisca spinipes* (Boeck), he says, 'Throughout the L.M.B.C. [Liverpool Marine Biology Committee] district in 20 to 50 fath. Length 17 mm. This is the commonest species in the district, the preceding one being the next commonest. I have little doubt that the species figured as *A. gaimardii* (Kr.) in the *British Sess.-eyed Crust.* is this species, and not, as Sars supposes, *A. typica* (Bate). I have examined Bate's specimen, in the British Museum, and find both it and the figure to confirm this view. The relative proportions of the upper and lower antennæ, which are correctly drawn, are alone sufficient to show that it cannot be *A. typica*.'² There are, however, some difficulties in the way of accepting this view, because it is Bate himself who identified the supposed *A. gaimardii* with his own *A. typica*, and, though he was mistaken in that identification, it is tolerably clear that the description and figures of his species which he gave in a succession of works refer all to the same specimen, though not necessarily or even probably to the very specimen preserved in the British Museum. If it could be proved that *A. spinipes* (Boeck) is the same species as the original *A. typica* (Bate), the latter name by its earlier date would supersede the name given by Boeck.³ From the stomachs of fishes Mr. Walker identified the following amphipods, *Bathyporeia pilosa*, in plaice and whiting at Morecambe; but it is doubtful whether this was Lindström's original species of the genus, or one of its near allies, such as *B. pelagica* (Bate); *Pontocrates arenarius* (Bate) in *Agonus*, the armed bullhead or pogge, at Morecambe Bay; *Atylus swammerdamii*, which should be called *Nototropis swammerdamiei* (Milne-Edwards), in dab and whiting at Morecambe, in cod at Garston; *Gammarus locusta* (Linn.), in cod at Garston; *G. marinus* (Leach), in cod at Morecambe and Piel Island; *Microprotopus maculatus*, Norman, in plaice and whiting at Morecambe, and *Corophium grossipes* (Linn.), more properly called *C. volutator* (Pallas), in cod at Piel Island, and in whiting at Morecambe.⁴ The same excellent authority records *Lafystius sturionis* (Krøyer), 'one specimen from underneath the pectoral fin of a cod from Liverpool Bay (*Lancashire Fisheries Laboratories*, November, 1893), length 3 mm.'⁵ and says of *Amatibilla homari* (Fabricius), 'the young of this species is one of the commonest Amphipoda on our coasts in tidal pools during spring and early summer';⁶ and of *Gammarus pulex* (de Geer), that 'it is found in brooks and springs up to 700 feet above the sea. Length 16 mm.'⁷ Walker further records '*Podoceroopsis excavata* (Bate) = *Nænia rimapalmata*,' 8 mm. in length, as taken off Southport, and '*Unciola planipes*, Norman =

¹ *Trans. Liverpool Biol. Soc.* ix. 299 (1895).

² *Ibid.* p. 298.

³ See Bate in *Ann. Nat. Hist.* (Ser. 2), xix. 139 (1857); in White's *Popular Hist. Brit. Crust.* p. 171, pl. 10, fig. 4 (1857); in *Brit. Sess. Crust.* i. 127, fig. in text (1862); *Cat. Amphipodous Crust.* 91, pl. 15, fig. 1 (1862); Sars, *Crustacea of Norway*, i. 165, pl. 57 (1891).

⁴ *Trans. Liverpool Biol. Soc.* vii. 113, 114 (1893).

⁵ *Op. cit.* ix. 304.

⁶ *Ibid.* p. 307.

⁷ *Ibid.*

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U. leucopis (Kr.), Bate and Westwood, 5.5 mm. long, as taken in 10 to 20 fathoms, also off Southport. *Pariambus typicus* (Krøyer), formerly called by a pre-occupied name *Podalirius*, is reported as occurring throughout Liverpool Bay on the common starfish *Asterias rubens*.¹

The Amphipoda, as at present known, are divided into three principal groups—Gammaridea, Caprellidea, Hyperiidea. The first group is by far the largest, and almost certainly that from which the other two have branched off. The third group is not represented in our list, but no doubt members of it are sometimes to be found, floating about or cast on the shore, domiciled in those 'Blebs,' or jelly-fishes, of which Dr. Leigh long ago took notice. Of the Caprellidea an example has just been mentioned in the little *Pariambus*, a fifth of an inch long, and very slender, with the fifth pair of legs degraded, and the pleon almost obsolete. This poor development of the tail part is characteristic of the whole group, and easily explained by the habits of the various species. It is all the more notable by contrast with this part of the body in the other two groups, where for different reasons the pleon is, as a rule, particularly conspicuous and important. Whether the whales which Dr. Leigh has recorded brought with them to Lancashire any of their parasites, the Cyamidæ, is matter for conjecture. These little companions of the whale belong to the same tribe Caprellidea, and show a remarkable agreement with the skeleton-shrimps of the companion family Caprellidæ, except in the one particular that they are much more substantially built.

The Entomostraca of Lancashire, although as yet far from exhaustively investigated, offer already a rather large number of species, in regard to which some brevity of treatment must be excused. An outline of the general classification shows three orders—the Branchiopoda with branchial feet, the Ostracoda, shut up in shell-valves, the Copepoda with rowing feet. Some, however, of the Branchiopoda have shell-valves like the Ostracoda, while some are entirely without them. Some use their feet for rowing like the Copepoda, but others have locomotive antennæ. One division, the Branchiura, has been as it were tossed to and fro between the Branchiopoda and the Copepoda, and, according to yet a third opinion, should be allowed an independent position between them. For the student bent upon sorting his specimens correctly these facts may seem unpleasantly perplexing, but they help to teach us that groups in some respects strangely dissimilar are nevertheless closely united by bonds of relationship. To the order or sub-order Branchiura there belongs in England only the little greenish, almost circular, fish parasite *Argulus foliaceus* (Linn.), in which one pair of maxillæ are transformed from jaws into suckers. Mr. Andrew Scott records it 'on trout from the Ribble, which were sent to University College, Liverpool, for examination.'² It makes its meals on various freshwater fishes and even on tadpoles. Mr. Charles Branch Wilson observes as to species in the United States of America that 'ordinarily the Argulidæ roam about so freely as to occasion little discomfort to their hosts. They change frequently from one fish to another, and must of necessity desert their hosts at the breeding seasons, since their eggs are deposited upon some convenient surface at or near the bottom, and are not carried about with them. Any fish, therefore, no matter how badly it may be infested, has a chance three times a year to get comparatively

¹ Op. cit. p. 313.

² Op. cit. xv. 348 (1901).

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well rid of its argulid parasites.’¹ The late Professor Claus, in reference to the similar habits of European species, applied to them the term ‘intermittent parasites.’ In his opinion, however, it is not so much breeding as a surfeit of feeding that induces them to leave their living tables.

A much more numerously represented and more familiar sub-order, the Cladocera or antlered branchiopods, derives its name from the character of the second antennæ, which are as a rule two-branched, with setæ on the branches to augment their swimming power. To prevent our being too presumptuously sure of anything, nature is fond of introducing unexpected exceptions. Accordingly, there is one very singular member of this group, *Holopedium gibberum* (Zaddach), reported by Mr. Conrad Beck from Lake Windermere,² in which the female has the second antennæ not branched but simple. This species belongs to, and in fact of itself in this county constitutes, the family Holopediidae, having the animal remarkably clothed in a very large gelatinous involucre. The remaining records belong to a different section of the Cladocera and are distributed among three families. All the names appear to have been supplied to Byerley by Mr. W. H. Weightman, whose notices will be quoted, with occasional comments made necessary by changes in technical nomenclature since Byerley’s work was published. The accepted authority for each species is also here appended, there being a fair general probability that the specific names given by Mr. Weightman were correctly identified. In the family Daphniidae, we have *Daphnia pulex* (de Geer), ‘in various ponds and ditches; sometimes, when of a red colour and very numerous, giving the water quite a blood-like tinge’; *D. vetula*, now called *Simosa vetula* (O. F. Müller), ‘occasionally met with both in Wirral and Lancashire: in ponds at Litherland and Scarisbrick’; *D. rotunda*, now *Ceriodaphnia rotunda* (Strauss), from ‘ponds in Lancashire.’ In the family Bosminidae, *Bosmina longirostris* (O. F. Müller) has been observed ‘in the brook that divides Seaforth from Litherland.’ In the family Chydoridae, often erroneously called Lynceidae, Mr. Weightman thus notices the little universally distributed *Chydorus sphaericus* (O. F. Müller): ‘Pond near Woodchurch, June, 1852. Has bred freely in my Vallisneria jar.—Pond at Roby.’ On *Acroperus nanus*, now *Alonella nana* (Baird), the remark is made, ‘Mr. Weightman met with one specimen at Aintree bearing much resemblance to this species, but larger than it is described in Baird’s work.’ He found *Alona quadrangularis* (O. F. Müller) ‘in the Litherland neighbourhood’; *Pleuroxus trigonellus* (O. F. Müller) ‘tolerably plentiful in the same pond with the last species, but none of the specimens were striated as in Baird’s *British Entomostraca*’; *Peracantha truncata* (O. F. Müller), at ‘Waterloo, October, 1851.’³ The ephippium or case in which the winter egg of *Bosmina longirostris* is sheltered during its resting stage has recently been described by Mr. D. J. Scourfield, and shown to differ in some respects from the better known ephippium of the Daphniidae.⁴

A few Ostracoda are catalogued by Mr. Weightman as belonging to this county. He names *Cypris monacha* from Waterloo, *C. minuta* from Roby,

¹ *Bulletin of the Bureau of Fisheries*, Washington, 1904, xxiv. 118.

² *Journ. R. Microscopical Soc.* (Ser. 2), iii. 780 (1883).

³ *Fauna of Liverpool*, 53, 54.

⁴ *Journ. Quekett Microscopical Club* (Ser. 2), viii. 51 (1901).

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C. elliptica from ponds in Lancashire, and *Candona reptans* as found at Scarisbrick,¹ all these being, like his Cladocera, freshwater species. The first of them is now called *Notodromas monacha* (O. F. Müller). *Cypris minuta* (Baird) is recognised as a synonym of *Cyclocypris lævis* (O. F. Müller); *C. elliptica* (Baird) retains its name, but Baird's *Candona reptans* has been transferred to the genus *Erpetocypris* (Brady and Norman), its generic and its specific name now alike pointing to the fact that this species has lost the power of swimming, and is content to crawl and creep. *Cypris obliqua* (Brady) has been taken by Dr. Brady in High Cross Tarn, Coniston.² All the preceding species belong to the family Cyprididæ. In the family Cytheridæ, Lancashire has several species of the genus *Cythere* (O. F. Müller), namely, *C. lutea* (Müller) from Scarphole Scar, near Duddon; *C. pellucida* (Baird), described by Brady and Norman as essentially a brackish-water species, obtained by Mr. Andrew Scott at Piel; *C. gibbosa* (Brady and Robertson) from the same locality; and *C. Robertsoni* (Brady) from the mussel beds at Morecambe. *Cytheridea elongata* (Brady) was obtained at Morecambe by Scott, and *C. torosa* (Rupert Jones) by Dr. Norman at Crossens.³ *Loxococoncha impressa* (Baird) is recorded by Scott from Piel; *L. guttata* (Norman) from Morecambe; *L. tamarindus* (R. Jones) from Piel and Duddon; this species having been also earlier supplied to Brady by Mr. E. C. Davison from the River Ribble.⁴ *Cytherura sella* (Sars) is reported by Scott from Piel and Morecambe; *C. striata* (Sars) from Morecambe; *C. angulata* (Brady) from Piel; *C. nigrescens* (Baird) from Piel; *C. cellulosa* (Norman) from Morecambe. *Cytheropteron latissimum* (Norman) is recorded by Brady as found by E. C. Davison 'in shell-sand from the River Ribble,'⁵ and *C. humile* (Brady and Norman), described by those authors as 'a most remarkable little species, on account of the excessive width as compared with the height,'⁶ is recorded by A. Scott from near Piel. *Sclerobtilus contortus* (Norman) was found by Scott in the mussel beds of Piel, Duddon, and Morecambe; *Cytheridea subulata* (Brady) at Piel; and of the family (or sub-family) Paradoxostomatidæ the same author has found *Paradoxostoma variabile* (Baird) at Duddon, and at Piel *P. abbreviatum* (Sars), and *P. flexuosum* (Brady). All these species belong to the section of the Ostracoda called Podocopa, a tribe in which there is no heart. The species obtained by Mr. A. Scott from the mussel beds at Piel, Duddon, and Morecambe were identified for him by his father, the veteran expert in Entomostraca, Dr. Thomas Scott, LL.D., F.L.S.⁷ On some of them Mr. Andrew Scott has since published remarks of his own. Of *Cythere pellucida* (Baird) he says: 'This form is very abundant, especially during the summer months, on the muddy sandy flats along the coast; common on the mud flats near Piel practically throughout the year.' Of *C. porcellanea* (Brady) he says: 'Usually associated with *C. pellucida*; some care has to be taken in identifying the two forms owing to the amount of variation that occurs amongst the two species; in the same locality as the last.' Upon *C. gibbosa* (Brady and Robertson) he remarks: 'This ostracod is frequently found in gatherings from the mud flats left dry by the receding tide; associated with *C. pellucida* and *C. porcellanea*, but is easily distinguished from either of

¹ *Fauna of Liverpool*, 54.

² *Trans. Royal Dublin Soc.* (Ser. 3), iv. 77 (1889).

³ *Op. cit.* p. 175.

⁴ Monograph of British Ostracoda, *Trans. Linn. Soc. Lond.* xvi. 436 (1868).

⁵ *Op. cit.* p. 448.

⁶ *Trans. Royal Dublin Soc.* (Ser. 2), iv. 220.

⁷ *Trans. Liverpool Biol. Soc.* x. 127-131 (1896).

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these species: in tidal pools near Piel.¹ Discussing *Cytheropteron humile* (Brady and Norman) Mr. Scott writes: 'Many specimens of this remarkable little ostracod are found by washing water-logged and decayed wood in weak spirit, and examining the sediment. My father, who first found the species in material dredged in the Clyde, tells me that he always finds it when examining the sediment washed from old wood brought up in the trawl net, and remarks that it seems to be partial to that kind of habitat. In water-logged wood burrowed by wood-boring crustacea, collected between tide marks in Barrow Channel, near Piel, April 18th, 1901.' The wood-boring crustacea noticed in this passage would no doubt be the isopod *Limnoria lignorum* (J. Rathke) and the amphipod *Cbelura terebrans* (Philippi).

From the minute forms of the Ostracoda, self-contained in a kind of natural boxes which they are able to close tightly over all their appendages, we now pass to the much more showy Copepoda. These, however, attain to no majesty of size, and, except in some of the parasitic species, are as a rule diminutive. But there is a vast variety among them, sometimes great beauty of microscopic adornment, and no doubt some of the species attain to considerable economic importance by the dense masses of individuals with which they populate some waters. As to the strictly freshwater denizens of this county, it happens that the records are rather scanty, the attention of local investigators having been for the time principally fixed upon the marine fauna. The chief specialists on this group are not entirely unanimous as to the principles on which its internal classification should be based, and for the moment the lines which the leading authorities propose to follow are not completely mapped out. In arranging the order of our local species we are therefore unable to follow any single guide, but must be content with a systematic framework as harmonious as the indications already divulged allow us to make it. The family Calanidæ has recently been much subdivided by Professor Sars. Accepted in the wider extension allowed it by Giesbrecht and Schmeil,² it supplies Lancashire with one of the smallest known Calanids, *Paracalanus parvus* (Claus), from the mussel beds at Piel,³ and with *Stephos gyrans* (Giesbrecht), obtained by Mr. A. Scott 'amongst material collected in *Laminaria* bed, near Piel, at a very low ebb.'⁴ Mr. I. C. Thompson speaks of '*Pseudocalanus elongatus* (Baird)', as 'very common throughout the district, and seldom absent in any tow-net gathering.'⁵ The name should properly read *Pseudocalanus elongatus* (Boeck). It is right to mention that the late Mr. I. C. Thompson, F.L.S., applied himself with enthusiastic industry to investigating the marine Copepoda not only of this county but of all the neighbouring waters, and that his labours have been supplemented in the same productive field by a worthy coadjutor and successor, Mr. Andrew Scott, A.L.S. Among the numerous species brought to light by their researches I propose as a rule to introduce to the readers of this chapter only those which have been definitely assigned to Lancashire localities, with merely an occasional reference to those spoken of in general terms as belonging to the district.

The family Diaptomidæ, corresponding with the Centropagidæ of Giesbrecht and Schmeil, may be credited here with at least four species, namely, *Diaptomus castor* (Jurine), of which 'Mr. Weightman met with specimens of

¹ Op. cit. xv. 347 (1901).

² *Trans. Liverpool Biol. Soc.* x. 127.

³ *Das Tierreich*, 'Copepoda Gymnoplea' (1898).

⁴ Op. cit. xv. 348 (1901).

⁵ Op. cit. vii. 181 (1893).

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a green variety at Roby in August and September, 1851; and a male of a very large green variety from a ditch near Seaforth: it was very distinct from that caught at Roby, and much more beautiful';¹ *D. hircus* (Brady), of which the author, Dr. G. S. Brady, F.R.S., remarks, 'I took a few specimens only of this, which appears to be a quite distinct species, in Goat Water, a tarn lying at a considerable elevation on the side of Coniston Old Man';² *Temora longicornis* (O. F. Müller) from the mussel beds at Piel, a species of which Sars observes that 'it moves in a peculiar revolving manner, and this seems to be the case with all the members of this genus';³ and *Eurytemora affinis* (Poppe), of which *Temorella affinis* (Claus) is a synonym, noticed by Mr. Thompson in the following terms: 'Length 1.75 mm. A large number of this species were taken by tow-net off the sand-banks at the mouth of the Mersey in 1886. It was not subsequently recorded in the district until 1891, when the filter-beds of the Bootle Corporation baths were found to be swarming with it. Mr. Ascroft has since sent me specimens found in tidal pools at Lytham. The males I have found are conspicuous by the number of spermatophores attached to them.'⁴ In 1894 Mr. Ascroft found this species filling the stomachs of fishes only half an inch long.⁵

The family Cyclopidae appeals in this county for further research. At present it claims the vague *Cyclops quadricornis*, of which the *Fauna of Liverpool*⁶ says in general terms: 'Common in most ponds and ditches; all the varieties are met with'; *C. abyssorum* (G. O. Sars), reported by Brady as 'taken in gatherings made by the deep net in Windermere and Coniston Water, but by no means plentiful';⁷ *C. scourfieldi* (Brady), of which the same author says, 'My first knowledge of this species was . . . derived from specimens which I took myself by moonlight in the surface-net at Coniston, in August, 1883; in this gathering it occurred in considerable numbers, as also in a subsequent daylight surface-gathering from the same lake';⁸ and recently he writes: 'The form described by me years ago under the specific name *scourfieldi* has been identified by other authors (Lilljeborg, Herrick, Schmeil) with *C. leuckarti* (Claus). I am doubtful as to the correctness of this identification: both Schmeil and Herrick figure, with differences, peculiar pellucid marginal laminæ on the last two joints of the larger antennæ. I have been unable to detect any such structure in my British specimens of *C. scourfieldi*, neither does it exist in the Natal specimens nor in others from Ceylon, which I refer to the same species.'⁹ From these remarks the student will readily infer that a very close attention to details is exacted by the requirements of modern classification. The distribution too of a minute freshwater species over several continents, though by no means unexampled, may still excite some surprise. Concerning '*Cyclops magnocavus* (Cragin)' Mr. Thompson says: 'One or two specimens of this brackish species were found along with quantities of *Temorella affinis* and *Tachidius brevicornis* in tow-net gatherings sent to me by Mr. Ascroft, taken by him in low-water marine pools at Lytham. It is evident that a considerable amount of fresh water finds its way into the Lytham pools.'¹⁰ This *C. magnocavus* is now regarded as a

¹ *Fauna of Liverpool*, 55.

² *Nat. Hist. Trans. Northumb.* etc. xi. pt. i. 101 (1891).

³ *Crustacea of Norway*, iv. 98 (1903).

⁴ *Trans. Liverpool Biol. Soc.* vii. 182.

⁵ *Op. cit.* ix. 107.

⁶ *Op. cit.* p. 55.

⁷ *Nat. Hist. Trans. Northumb.* etc., xi. pt. i. 74.

⁸ *Ibid.* p. 76.

⁹ *Proc. Zool. Soc. Lond.* ii. 122 (1904).

¹⁰ *Trans. Liverpool Biol. Soc.* ix. 99.

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synonym of *C. prasinus* (Fischer). In 1893 Mr. Thompson described a new species under the name *Cyclops marinus*, of which he says: 'Two specimens only, both females, were dredged in 20 fathoms, about 20 miles out from Southport Pier.' The name is preoccupied by *C. marinus*, Prestandrea, 1833, a species now transferred to the genus *Euchaeta*. Apart from the accident of preoccupation, the name chosen by Thompson is in conflict with the opinion of Dr. Giesbrecht, whom I consulted on the subject, and who at a recent date still refused to believe that any species of *Cyclops* hitherto described could be relied on as exclusively marine. The settlement of this point may be commended to the further attention of Lancashire naturalists.

The Arpacticidæ, in the wider sense of the term, have been variously divided up into numerous sub-families or families, with which it would be inexpedient here to concern ourselves. Distributed over these minor divisions are the following Lancashire species: *Arpacticus chelifer* (O. F. Müller) is recorded by A. Scott from the mussel beds at Piel; *Canuella perplexa* (T. and A. Scott) from the mussel beds alike of Piel, of Duddon, and of Morecambe; *Longipedia minor* (T. and A. Scott) from the mussel beds of Morecambe.² With regard to *Sunaristes paguri* (Hesse) Mr. A. Scott writes: 'This rather peculiar and interesting species was obtained by washing the shells of *Buccinum* inhabited by the hermit crabs, *Pagurus bernhardus*, collected in the trawl-nets of the steamer while working in the mouth of the Mersey estuary on the 23d of July, 1895. It seems to be a comparatively rare species, and so far as is known this is only the third time it has been found in British waters. From our present knowledge of its distribution it appears to be confined to areas having large volumes of brackish water passing over the bottom, and has not been found in pure sea-water.' Dr. T. Scott has pointed out the relationship between this genus and *Longipedia* and *Canuella*,³ and recently his son has described additional species of *Sunaristes* from the Indian Ocean. Mr. Thompson reports several specimens of *Ectinosoma normani* (T. and A. Scott) as obtained by the latter in material from Barrow Channel, collected by Professor Herdman, adding that 'when fresh this species has a brilliant red spot on the lower angles of the cephalothorax, and in this respect it agrees with *E. erythroptus* (Brady).'⁴ *E. curticornis* (Boeck) is reported by A. Scott from mussel beds at Piel and Morecambe, and from stomachs of young dabs at Blackpool.⁵ *Bradya minor* (T. and A. Scott), reported from mussel beds at Morecambe, has been transferred by Sars to a new genus, *Pseudobradya*.⁶ *Euterpe acutifrons* (Dana) from Piel, *Tachidius brevicornis* (O. F. Müller) from Duddon, *Idya furcata* (Baird) from Piel and Morecambe, are due to the mussel beds, but as to *Tachidius brevicornis*, under a thirtieth of an inch long, Mr. Thompson should also be quoted. He says: 'Length, 0.80mm. A brackish water species: we have taken it in quantity from material sent by Mr. Dwerryhouse from a brackish tributary of the Mersey at Hale.'⁷ He adds that the broad square fifth feet of the female serve to distinguish it. In describing a new species, *Idya elongata*, Mr. A. Scott

¹ Op. cit. vii. 188.

² It will perhaps suffice to give here a general reference for the species recorded by Mr. Andrew Scott to his papers in the *Trans. Liverpool Biol. Soc.* x. 127-131, 134-158 (1896), and vol. xv. 348-351.

³ *Ann. Nat. Hist.* (Ser. 6), xx. 489 (1897).

⁴ *Trans. Liverpool Biol. Soc.* ix. 100.

⁵ Op. cit. ix. 109.

⁶ *Crustacea of Norway*, v. 40 (1904).

⁷ *Trans. Liverpool Biol. Soc.* vii. 192 (1893).

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remarks that only a few specimens were obtained 'from the mud collected on the mussel beds between Morecambe and Heysham,' and that the elongate form of the animal, the short first antennæ and the small fifth feet are among its distinctive characters. *Idya minor* (T. and A. Scott) was taken by the latter at a very low ebb near Piel. *Thalestris harpactoides* (Claus) has been found at Duddon by A. Scott; *Canthocampus minutus* (Jurine) by Weightman at Seaforth.¹ *G. palustris* (Brady) is thus noticed by Scott: 'A considerable number of specimens of a copepod apparently belonging to this species were washed from mud adhering to samples of mussels (*Mytilus edulis*) sent from the St. Anne's mussel beds near Lytham; one of the samples was from that part of the beds which never becomes dry at low water, and was obtained by means of a "mussel rake"; the specimens, it is added, 'differ a little from the figures given by Dr. Brady.'² Thompson reports *Mesochra lilljeborgii* (Boeck) as 'found in mud taken in a brackish tributary of the Mersey at Hale'; *Paramesochra dubia* (Scott), 'in mud collected by Mr. Corbin from the Duddon cockle beds at the mouth of the River Duddon, near Barrow'; *Tetragoniceps bradyi* (Scott), 'found only at same times and habitat as the last named species'; and *Cletodes linearis* (Claus), 'in mud from Hale shore taken at low water.'³ *G. propinquus* (Brady and Robertson) is reported by A. Scott from Piel and Morecambe; *Laophonte serrata* (Claus) and *L. lamellifera* (Claus) from Piel; *L. curticauda* (Boeck) from Duddon; *L. intermedia* (T. Scott) from Duddon and Morecambe. *Delavalia palustris* (Brady) is reported from Duddon by Scott, and from Hale by Thompson, who speaks of it as a mud-loving species, of which the male is very rare. *Jonesiella hyænæ* (I. C. Thompson) has been found at Ulverston in the stomach of a young dab,⁴ but, as Sars has pointed out, the dab of the future must be entreated to consume it under the earlier generic name of *Danielssenia* (Boeck).⁵ *Ameira exigua* (T. Scott) has been found by A. Scott in the mussel beds at Piel. *A. exilis* (T. and A. Scott) is noted by Thompson, who writes: 'This slender and characteristic species was taken amongst material collected from holes dug in the soft mud near the remains of the old steamboat pier, Piel; not uncommon; March, 1899.' He also names *Stenhelia intermedia* (T. Scott) as taken 'in the same locality as the last; August, 1898; rare.'⁶ Concerning *Nannopus palustris* (Brady), Mr. A. Scott writes: 'Several specimens of this species were obtained in the mud collected from the Fleetwood oyster beds. It seems to be a brackish water species, and in general appearance is very like *Platychelipus littoralis*, another brackish water copepod; it can be distinguished from that species, however, even without dissecting, by making an examination of the fifth pair of feet and also of the inner branches of the third and fourth pairs of feet. *Nannopus palustris* has two ovisacs and *Platychelipus littoralis* one only.' Of *P. littoralis* (Brady) Mr. Thompson had earlier reported that 'this striking species occurs in abundance in mud taken at low water' at Hale and various other places, males and females being about equally plentiful.⁷

We now leave the Arpacticidæ, and must pause over only a few of the remaining species, many of which are semi-parasitic or wholly parasitic, and

¹ *Fauna of Liverpool*, 55.

² *Trans. Liverpool Biol. Soc.* x. 140.

³ *Op. cit.* vii. 197, 200.

⁴ *Op. cit.* ix. 109.

⁵ *Annuaire Mus. Zool. Acad. Impér. St. Pétersbourg, Jانا Exped.* p. 21 (1898).

⁶ *Trans. Liverpool Biol. Soc.* xiv. 140 (1900).

⁷ *Op. cit.* vii. 201.

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carry with their variations and abnormalities proportionate difficulties of description and classification. Writing in 1893 Mr. Thompson entered in his list *Lichomolgus agilis* (Scott), remarking, 'This species was recently described by Scott (*Ann. and Mag. of Nat. Hist.*, Sept., 1892), who found it plentiful in the shell of the cockle (*Cardium edule*) in specimens from Morecambe, Lancashire, and from the Firth of Forth. Upon examining fresh cockles of our district, I find several specimens of this active little Copepod in every bivalve opened. They may be readily found by carefully taking up the water contained in the shell by means of a camelhair brush and washing it into water contained in a watchglass under the microscope, when they will probably be seen actively darting about.'¹ In a later volume, however, Mr. Thompson reported that '*Lichomolgus (Doridicola) agilis* (Leydig) was found in the bottom of a tow-net, Morecambe Bay, May, 1894,' and in a subsequent reference to the occurrence of this species in another locality he observes, 'This is not the *Lichomolgus agilis* of T. and A. Scott referred to in the First Report as having been found in the cockles. The latter species is identical with *Hermanella rostrata* (Canu), a species which was described and published a short time before the figures and description by T. and A. Scott appeared.'² Canu's genus was apparently spelt *Herrmannella* in 1891, and certainly *Herrmannella* in 1892, not *Hermanella* as Thompson writes it. Of *Lichomolgus birsutipes* (T. Scott) Thompson says, 'This well-marked species was obtained from collections made in the *Zostera* beds near Piel'; of *Hersiliodes littoralis* (T. Scott), that it 'occurred sparingly in gatherings made on the mud flats near Piel'; and of *Nicotthoe astaci* (Audouin and Milne-Edwards), that this 'peculiar parasitic Copepod, which has all its appendages fully developed, is found occasionally in considerable numbers on the branchiæ of the common lobster caught on our coasts; we have noted its occurrence on lobsters from Holyhead, Port Erin, and Piel; the wing-like projections of the fourth thoracic segment give it an unusual appearance.'³ It may be looked upon as the familiar spirit of the lobster; and those who would deprive the lobster of its proper generic name *Astacus*, commit an outrage upon the old-standing designation of this interesting little entomostracan, its attached companion. Mr. Andrew Scott records *Modiolicola insignis*, Aurivillius, living as a messmate within the mouth of the 'horse mussel,' *Mytilus modiolus*. He relates that 'a number of specimens were found in the examples of this Mollusc which were brought up in the trawl-net of the steamer while working in the vicinity of the north end of "the Hole," on March 23rd, 1895,' and adds that 'this appears to be a widely distributed species of Copepod, its range being probably co-extensive with that of the Mollusc.' As he assigns the species to the family Sapphirinidæ, Thorell, it may be convenient to notice that Canu places it along with *Lichomolgus* and *Herrmannella* in the Lichomolgidæ, allotting *Hersiliodes* and *Nicotthoe* to the Hersiliidæ⁴ (now preferably known as Clausidiidæ). Giesbrecht thinks that the perplexing *Nicotthoe* might find rest in a sub-family of its own among the Asterocheridæ.⁵ In the family Ascomyzontidæ, A. Scott in 1896 described the new species *Ascomyzon thompsoni*, first obtained off the Isle of Man, but of which he says:

¹ Loc. cit. p. 207.

² Loc. cit. p. 143.

³ *Fauna und Flora des Golfes von Neapel*, Mon. 25, p. 57 (1899).

⁴ Op. cit. ix. pp. 102, 160.

⁵ *Les Copépodes du Boulonnais*, pp. 238, 248 (1892).

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'A number of specimens have since been found in material washed from Ophiuroids (*Ophioglypha* and *Ophiobrix*) taken in the trawl-net off Blackpool, and sent to us by Mr. Ascroft.' He further remarks that 'This species is readily distinguished from the other members of the Ascomyzontidæ by the almost oval outline of the cephalothorax, and on dissection, by the structure of the mandible palp and maxillæ; the stout seta on the larger lobe of the maxillæ appears to be a well marked character.'

For the fish parasites among the Copepoda of this county the arrangement adopted by Mr. P. W. Bassett-Smith, R.N., F.Z.S., may suitably be followed.¹ In the family Ergasilidæ stands *Bomolochus soleæ* (Claus), reported by Mr. A. Scott, 'From small cod caught in Barrow Channel,' with the remarks that 'A number of specimens of this copepod can usually be found by pressing the nostrils of cod, so that mucus, etc., may be ejected: the mucus is then placed in a drop of water, and the copepods, if present, are easily seen: the females have two large white egg sacs.'² The family Caligidæ comprises *Caligus minimus* (Otto), 'frequent in the mouth of the Bass (*Labrax lupus*), caught in Barrow Channel, August, 1900'; *C. brevicaudatus* (A. Scott), 'inside the mouth of the Common Gurnard (*Trigla gurnardus*), caught in the vicinity of Piel, August, 1901,' and distinguished in the genus by 'the extremely short abdomen and caudal stylets,' as also by 'the fourth pair of feet, the exopodite of which is very slender'; *Pseudocaligus brevipedis* (Bassett-Smith), of which a number of specimens 'were found inside the operculum of a three-bearded Rockling (*Onus tricirratus*) caught in Barrow Channel,' the new genus being characterized by Mr. Andrew Scott as having 'Fourth pair of feet very rudimentary, almost obsolete, consisting of a basal portion only; no exopodite as in *Caligus*'; *Lepeophtheirus pollachii* (Bassett-Smith), 'attached to the inside of the mouth of Pollack (*Gadus pollachius*), caught on the off-shore stations between Lancashire and Isle of Man'; *L. pectoralis* (O. F. Müller), of which a very elaborate study has been made by Mr. A. Scott, using chiefly specimens from flounders (*Pleuronectes flesus*) in the Piel fish-hatchery.³ To the above must no doubt be added *L. salmonis* (Krøyer), more commonly called *L. stromii* (Baird), the ordinary parasite of the salmon. In the family Dichelestiidæ the county no doubt also occasionally harbours *Dichelestium sturionis* (Hermann), parasitic on the sturgeons, for which Dr. Leigh vouches as part of the marine fauna. In the same family is included the species recorded by Mr. Scott as *Cychnus pallidus* (van Beneden), 'on the gills of the Conger (*Conger vulgaris*), caught in the Barrow Channel.' The name *Cychnus*, however, is preoccupied, so that this species should now be called *Congericola pallidus* (van Beneden).⁴ In the Lernæidæ, Mr. A. Scott has carefully studied *Lernæa branchialis* (Linn.), of which he says: 'The adult female is found on the gills of the Gadidae, such as cod, haddock, and whiting. Immature (cyclops stage) males, and females with adult males attached, are found on the apex of the gill filaments of the flounder, sometimes in large numbers. Full-grown females are not plentiful on the fishes caught in the vicinity of Piel. The length of a full-grown female *Lernæa* is a little

¹ *Proc. Zool. Soc. Lond.* pp. 438-507 (1899).

² *Trans. Liverpool Biol. Soc.* xv. 349 (1901), when not otherwise mentioned the remaining quotations are from this paper.

³ *Op. cit.* xv. p. 188. See also Thompson in *op. cit.* ix. 102.

⁴ Stebbing, in *Wiley's Zoological Results*, pt. v. 672 (1900).

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over 1 inch. The adult female is securely fastened to its host by strong branched horns, three in number, which are buried in the tissues of various parts of the gill arches.¹ Of the family Chondracanthidæ, Mr. A. Scott mentions *Oralien asellinus* (Linn.), 'on the gills of a yellow Gurnard (*Trigla birundo*) from the offshore station between Lancashire and Isle of Man'; from the same quarter *Chondracanthus cornutus* (O. F. Müller), 'on the gills of Plaice (*Pleuronectes platessa*),' and he says: 'What appears to be a variety of this species occurs on the gills of the Flounder (*P. flesus*) from the Barrow Channel and other parts of the Lancashire coast'; *C. clavatus* (Bassett-Smith), 'on the gills of Lemon Soles (*Pleuronectes microcephalus*),' from Barrow Channel; *C. soleæ* (Krøyer), which Bassett-Smith regards as a synonym of *C. cornutus*. *C. lophii* (Johnston) is recorded by Mr. I. C. Thompson in 1893 under the name *Lernentoma lophii*, with the observations that 'numerous specimens of this species were recently found by Mr. Corbin adherent to Cod, Ling and Lophius taken off Barrow. The female is from $\frac{1}{4}$ to $\frac{1}{2}$ inch or more in length, and is adorned with numerous blunt spines or tubercles over the surface of the body. The oviferous tubes are very long, slender and twisted. The males of this genus are very small and rudimentary, living parasitically on the body of the female.'² In the neighbouring family of Lernæopodidæ A. Scott reports *Charopinus dalmannii* (Retzius), 'in the spiracles of the Grey Skate (*Raia batis*) from the offshore station between Lancashire and Isle of Man'; *Brachiella ovalis* (Krøyer), 'attached to the gill-rakers of the Common Gurnard (*Trigla gurnardus*) from the offshore stations,' and of *Ancborella uncinata* (O. F. Müller) Mr. Thompson says that 'several specimens were found by Mr. Corbin on the gills of whiting taken in the Mersey estuary.'³

Lastly we have to notice the sub-class Thyrostraca, better known as cirripedes or barnacles. The fact that many of the species, whether pedunculate or simply sessile, attach themselves to all sorts of moving objects, living or lifeless, makes their distribution wide and irregular. It is quite unlikely that Lancashire should have any species peculiar to itself, but, with a reasonable share of the ordinary species found round our coasts, it probably has numerous exotic forms brought to it on the hulls of vessels from all parts of the globe. With whales may come the balanid *Coronula*, and on the *Coronula* may appear the lepadid *Concboderma*. It is not, however, in these that the county has any separate and individual right to pride itself. Its true interest in the Thyrostraca goes back to ancient times and is founded on Gerarde's account of 'The Goose tree, Barnacle tree, or the tree bearing Geese.' After explaining its shell-bearing quality, he goes on to say, 'which shells in time of maturity doe open, and out of them grow those little liuing things, which falling into the water do become fowles, which we call Barnacles; in the North of England, brant Geese; and in Lancashire, tree Geese; but the other that do fall upon the land, perish and come to nothing. Thus much by the writings of others, and also from the mouthes of people of those parts, which may very well accord with truth.

'But what our eyes have seene, and handes have touched, we shall declare. There is a small Island in Lancashire called the Pile of Foulders,

¹ *Trans. Liverpool Biol. Soc.* xv. 220.

² *Op. cit.* vii. 211.

³ *Loc. cit.* p. 213.

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wherein are found the broken pieces of old and bruised ships, some whereof haue been cast thither by shipwracke, and also the trunks and bodies with the branches of old and rotten trees, cast vp there likewise; whereon is found a certain spume or froth that in time breedeth vnto certain shells, in shape like those of the Muskle, but sharper pointed, and of a whitish colour; wherein is contained a thing in forme like a lace of silke finely wouen as it were together, of a whitish colour, one end whereof is fastened vnto the inside of the shell, even as the fish of Oisters and Muskles are: the other end is made fast vnto the belly of a rude masse or lumpe, which in time commeth to the shape and forme of a Bird: when it is perfectly formed the shell gapeth open, and the first thing that appeareth is the forsaid lace or string; next come the legs of the bird hanging out, and as it groweth greater it openeth the shell by degrees, til it is all come forth, and hangeth onely by the bill: in short space after it commeth to full maturitie, and falleth into the sea, where it gathereth feathers, and groweth to a fowle bigger than a Mallard, and lesser than a Goose, having black legs and bill or beake, and feathers black and white spotted in such manner as is our Magpie called in some places a Pie Anret, which the people of Lancashire call by no other name than a tree Goose: which place aforesaid, and all those parts adjoining do so much abound therewith, that one of the best is bought for three pence. For the truth hereof, if any doubt, may it please them to repaire vnto me, and I shall satisfie them by the testimonie of good witnesses.'

That there may be no mistake about the locality, Gerarde repeats that 'The bordes and rotten planks whereon are found these shels breeding the Barnakle, are taken up in a small Island adjoining to Lancashire halfe a mile from the main land, called the Pile of Foulders,' and in the pious conclusion of his volume he speaks of this anseriferous tree as 'the wonder of England.' His editor Johnson, between thirty and forty years later, will have nothing to do with this happy meeting ground of botany and zoology, but scornfully interpolates the remark that 'The Barnakle whose fabulous breed my Author here sets down, and diuers others have also deliuered, were found by some Hollanders to have another originall, and that by eggs as other birds have.'¹ With this it is of interest to compare Dr. Leigh's later discussion of the subject. He writes: 'These Counties afford us great variety of Birds, and in some places even clog the Inhabitants with their Plenty. Amongst the rest, the *Barnacle* being very common, and the manner of its Generation having been a Matter of Controversy, I shall recite my Observations upon it, and endeavour to reconcile that Point. It is observable of our Ships which trade to the *West-Indies*, that upon their return home, an infinite number of small shell-fishes often adhere to them, at the first view not much unlike young Geese; these for several Ages have pass'd for Barnacles, not only amongst the Vulgar, but Men of Learning likewise, wherefore to set things in their true Light, I shall in the first place give the Anatomy of this Shell-fish resembling the Barnacle, and afterwards that of the real bird, and then lay down some reasons to show the Impossibility of their being bred after the manner formerly receiv'd. This shell sticks to the outward Planks of Ships by a glutinous Matter, it resembles the Head of a *Goose*, to which there is a Neck annex'd, yet this Neck is not conserted to the Body, whence it is

¹ Gerarde, *Herball*, Johnson's edition, pp. 1587-1589 (1636).

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impossible that this should be the *Barnacle* in *Embryo*. Within the Shells are Claws, with Hairs like those of *Lobsters*, wound within one another in spiral Lines, and are not very unlike the wings of a *Goose*, but these I found to be perfect Shells, and not Quills or Feathers; whence it is plain, that they could not appertain to the Barnacle, that being of the Feather'd Kind. These Shell-fishes are observable upon several Sea-weeds in the Gulph of Florida, and are there chiefly pick'd up by our Shipping: I never yet could meet with any Seeman who could affirm that he had seen any fall from Ships, and swim, which must have necessarily happen'd, had they been converted into *Barnacles*; besides, in the Anatomy of *Barnacles*, I find them (as other *Geese*) Male and Female, the one having a *Penis*, the other *Ovaria*, whence it is evident that their way of breeding is no wise different from that of other Birds; what therefore has been asserted by Speed and others concerning this Bird, is only a Vulgar Error, and they only wanted a thorow Enquiry, to give them satisfaction in this Matter.¹

That a thorough inquiry is the one thing needed to give satisfaction in matters of natural history may readily be conceded. How to make inquiries thorough is not so easily perceived. Gerarde had long-standing belief to go upon, the testimony of good witnesses, the evidence of his own senses, and yet they only combined to lead him completely astray. In Dr. Leigh's discussion it is interesting to note the comparison at one point of the cirripedes with lobsters, since it was not till well into the nineteenth century that the Thyrostraca were accepted as part of the Crustacean class. In the *Systema Naturæ* of 1758, Linnæus preserves a remembrance of the old fable in the name *Lepas anatifera*, the duck-bearing Lepas, but he places the genus in the Mollusca, between *Chiton* and *Pholas*, without any suspicion that he is dealing with near kinsfolk of the prawn and the crab.

The record of Lancashire crustaceans is still at many points incomplete. Especially the Symпода, the Isopoda terrestria, and the Thyrostraca are awaiting fuller investigation. But for the class of Crustacea at large much valuable work has been already done. Some glimpses have been given in this chapter at the arduous operations by which successful research has been carried out. Among the workers pre-eminence must be awarded to A. O. Walker, F.L.S., I. C. Thompson, F.L.S., and Andrew Scott, A.L.S., a band of zealous experts brought together by the inspiring energy of the present president of the Linnean Society, Professor W. A. Herdman, F.R.S. Among the methods employed it is interesting to recall not merely trawling and dredging on the floor of the sea, digging and raking in the mud of the shore, but a number of other queer devices which experience has gradually evolved. Thus the naturalist of to-day seeks for crustaceans on whale and weed, on starfish and medusa, on shipping and wreckage, and still more laboriously obtains them by straining the liquor from a cockle, by examining the stomach of a juvenile flounder, or by pinching the nostrils of a cod.

¹ *Hist. of Lanc., etc.*, chap. ix. 'Of Birds,' p. 157.

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In the latest list of marine fishes of the Irish Sea—that of Herdman and Dawson¹—141 species are recorded, and owing to the amount of investigation that has been carried out, both on the English and Irish sides of the Irish Sea, this list is most probably a nearly exhaustive one. The present list, however, includes only those fishes which have actually been recorded from Lancashire shore waters, and from the sea within the 20-fathom line off the coast. Too much, however, may be made of these niceties of zoological distribution, and the differences between the piscine faunas of, say, Cumberland, Lancashire, and Cheshire are no doubt due merely to the fact that none of these areas has been thoroughly investigated. Taking wider areas we find that Fries, Ekstrom, and Sundevall, in their *History of Scandinavian Fishes*, Sauvage and Giard in the *Catalogue des Poissons du Boulonnais*, and Day in his *British Fishes*, give what are practically the same lists of marine fishes. The slight differences that exist between the three north-west English counties will no doubt disappear on long-continued investigation. Thus both the Bonito, *Thynnus pelamys* (Linn.), and the Sword-fish, *Xiphias gladius*, Linn., have been recorded from the coast of Cumberland, and the former has been taken off the Isle of Man, while the latter has been caught in the Bristol Channel. Nevertheless, neither has been, so far as I am aware, observed in strictly Lancashire waters.

But in respect of the abundance and sizes of fishes very considerable differences do exist even between such adjacent coastal waters as those of Lancashire and Cumberland. In the Solway Firth, it is true, we do find a fish fauna which resembles that of the Lancashire coast, but the Cumberland coast in its southern portion is not characterized by that abundance of very small fishes which we find in Lancashire waters. The greater part of the latter is indeed a 'fish nursery' on a gigantic scale. This is particularly the case with regard to three great areas—the shallow water off the mouth of the Mersey, the Ribble channels and their vicinity, and a great portion of Morecambe Bay. On these grounds we find all through the year immense numbers of small pleuronectid fishes, principally dabs, plaice, flounders, soles, solenettes, and others. The cause of this remarkable segregation of immature fishes is to be sought in the peculiar physical conditions which obtain off the coast of Lancashire. The set of the tides is such as to convey small floating objects from the offshore grounds and from the deep water off Carnarvon and Cardigan bays into the shallow water on the coast of Lancashire, and to a less extent that of Cumberland. This has been proved by the 'drift-bottle' experiments made by the Lancashire Sea Fishery Committee, and it is familiar to coasters and others who are generally on the look out on the north Lancashire and Cumberland coasts for wreckage in the case of vessels which break up off Holyhead or off the Mersey. Now the deep water off the coasts of Lancashire and Wales is frequented by *mature* pleuronectid and

¹ *Fishes and Fisheries of the Irish Sea; Lancashire Sea Fisheries Memoir*, No. 2. London: Geo. Philip and Son, 1902.

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gadoid fishes, and these spawn there in the early part of the year. Nearly all edible fishes except herring produce spawn which drifts at or near the surface of the sea; and these drifting eggs are conveyed by the surface currents, due to tidal streams and to the prevailing winds, towards the shallow inshore Lancashire waters.

There these eggs, having undergone their embryonic development while drifting in the sea, find their way; and when the metamorphosis of the larvæ hatching out from the eggs is completed, the little fishes sink to the bottom, and finding a suitable habitat in our shallow water they undergo further growth. During May and June we may find hosts of small pleuronectid fishes in the sand pools on the foreshore, and in the autumn incredible numbers of such may be trawled. They are about $\frac{1}{2}$ to $\frac{3}{4}$ inch long when found on the shore in June, and about 2 to 4 inches long when caught in the trawl net in the autumn. They inhabit the shallow waters for the first two or three years of their lives, moving along the coast, principally from south to north, in search of food. When they are three or four years of age they begin to move offshore, and getting into deep water they then begin to produce spawn. Incredible numbers of them are, however, caught during the first year or two of their lives by the shrimp trawlers. Catches of 10,000 or more dabs, plaice, or whiting, have frequently been made in the course of the fishery observation carried out by the Lancashire Sea Fisheries Committee.

The most abundant fishes of the Lancashire coast are dabs (*Pleuronectes limanda*), plaice (*P. platessa*), whiting (*Gadus merlangus*), soles (*Solea vulgaris*), solenettes (*Solea lutea*), skate and ray (various species of *Raja*, principally *R. maculata*, *R. clavata*, and *R. batis*), stingers (*Trachinus vipera*). Whiting are rather capricious as regards presence and abundance in any one locality. Dabs are always abundant, but are most numerous in the colder months. Plaice and soles are most abundant in the autumn. Herring in the form of 'sprats' are occasionally very abundant. Skate and ray are ubiquitous and nearly always numerous. The above forms are those which we may regard as characteristic of Lancashire waters.

The shallow sandy-bottomed waters of Lancashire, and the scarcity of rocks and seaweeds, constitute a habitat from which many species of fishes are naturally absent. Rock-loving fishes are therefore not abundant in our district, and their absence may be noted in the following list. Fish-collecting on the coast of Lancashire is a matter to be dealt with by the use of the trawl and line, and nearly all the species I mention have been caught by these methods.

TELEOSTEANS

ACANTHOPTERYGII

1. Perch. *Perca fluviatilis*, Linn.

Common in streams and ponds.

- 2.** Ruff. *Acerina vulgaris* (Belon.)

Used to be common in streams running into the Mersey.

3. Bass. *Labrax lupus* (Lac.)

Common in Lancashire waters, especially in Morecambe Bay. It is caught chiefly by lines or draft nets during the summer months.

4. Sea Bream. *Pagellus centrodontus*, De la Roche.

Fairly common in north Lancashire waters.

5. Norway Haddock. *Sebastes norvegicus* (Ascan.)

There is a specimen of this fish in the Liverpool Public Museum recorded from the mouth of the Mersey estuary in 1871. It is, however, a northern form, and uncommon in the Irish Sea.

6. Short-spined Cottus or Bull-head. *Cottus scorpius*, Linn.

This is the commonest *Cottus*. It is taken

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very often in the shrimp nets, and it may also be found in the shore pools.

7. Long-spined Cottus or Bull-head. *Cottus bubalis*, Euphr.

This species is not so common as *Cottus scorpius*, but it occurs frequently.

8. Yellow 'Gurnet' or Gurnard. *Trigla lucerna*, Linn.

(Day, *Trigla birundo*.)

Taken commonly in the trawl nets all along the Lancashire coast. It is the least common of the three species of gurnards found in our waters.

9. Red Gurnet. *Trigla pini*, Bloch.

Day, *T. cuculus*.

This gurnard is fairly abundant, and is sometimes taken in fair quantity out at sea.

10. Grey Gurnard. *Trigla gurnardus*, Linn.

This is the commonest of the gurnards in Lancashire waters.

11. Pogge, or 'Toad-fish.' *Agonus cataphractus* (Linn.)

Also called the Armed Bull-head; a very common little fish in shallow water near the mouths of the estuaries.

12. Angler or Devil-fish. *Lophius piscatorius* (Linn.)

This is a common fish, and is frequently taken in the trawl nets. Sometimes it is exceptionally large (6 feet), but in Lancashire waters it seldom exceeds 2 feet in length. Every adult specimen I have dissected has had the sporozoan *Glugea lophii* parasitic on the brain and cranial nerves. Formerly a valueless fish, the Angler now comes into the market in the form of 'cod steaks,' a portion of the trunk being utilized by the fishermen for this purpose.

13. The Weever or 'Stinger.' *Trachinus vipera*, Cuv. and Val.

A very common little fish on the shallow water fishing grounds all along the Lancashire coast. It has poison organs in connexion with the spine of the first dorsal fin and with the opercular spines. Shrimp fishermen have a very wholesome dread of this fish, and never attempt to sort out a catch of the shrimp trawl when they see it except with a piece of stick or a marlinespike. The wounds made by the poison spines are, though not dangerous, exceedingly painful.

14. Larger Weever. *Trachinus draco*, Linn.

Very uncommon. I have only known one specimen to be taken off the Lancashire coast. It was sent to me by a shrimper who caught it off the Mersey estuary.

15. Mackerel. *Scomber scombrus*, Linn.

Mackerel are usually abundant in north Lancashire waters in June, July, or August, the season varying somewhat. They are caught with lines, and at Formby and at other places in stake nets. It is said that with westerly winds and seas they leave the coast. The season is always later off Walney Island than further south. Last year (1904) mackerel were more abundant than for twenty years previously. My colleague, Mr. A. Scott, has noted a relation between the abundance of mackerel in the Irish Sea and that of the flagellate—*Noctiluca miliaris*.

16. Horse Mackerel. *Caranx trachurus* (Linn.)

This is not at all a common fish off the Lancashire coast, but it has been taken by the Fisheries steamer *John Fell* between there and the Isle of Man.

17. John Dory. *Zeus faber*, Linn.

Of occasional occurrence but never abundant. When caught it is usually small, about 5 inches, but occasionally it has been taken about twice that length.

18. Shade Fish. *Sciæna aquila* (Lacép.)

Mr. J. T. Moore recorded a specimen in the stock books of the Liverpool Public Museum as having been caught in the Mersey estuary in October, 1870.

19. Two-spotted Goby. *Gobius flavescens* (Fabr.) Day (*G. rubensparri*.)

There is a specimen of this fish in the Fisheries Museum at the University of Liverpool, but I am uncertain as to its precise locality.

20. Black Goby. *Gobius niger*, Linn.

Common in many shore pools.

21. Spotted Goby. *Gobius minutus*, Gmel.

Very common in Lancashire shallow waters.

22. Speckled Goby. *Gobius parnelli*.

Day's *G. Parnelli* is only the estuarine 'race' of *G. minutus*.¹

23. Transparent Goby or Nonnat. *Apbia pellucida* (Nard.)

I have seen great numbers of this little fish near Roa Island in the Barrow Channel.

24. Dragonet. *Callionymus lyra*, Linn.

The Gemmous dragonet, 'skulpin,' or 'bishop.' Very common everywhere in shallow water.

25. The Spoiled Dragonet. *Callionymus maculatus*, Bon.

Very rare in the Irish Sea, though no doubt it is often confused with *C. lyra*. Some specimens taken by Mr. J. A. Clubb in 1902 off the Liverpool N. W. light vessel were identified by

¹ Holt and Byrne. *Rep. Board of Agriculture and Technical Instruction, Ireland. Fisheries*. Pt. 2. Scientific investigations, 1902.

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my friend Mr. Andrew Scott. *C. maculatus* is smaller than *C. lyra*, and differs principally in the pigmentation of the anterior dorsal fin.

26. The Lump sucker or Hen Fish. *Cyclopterus lumpus*, Linn.

Quite common on the Lancashire coast. The female lays her eggs in rock pools in a large mass the size of a man's head, and the male stands by and aerates them by movements of his tail. Fishermen often mistake these eggs for those of the salmon, which they resemble only in colour, being, however, much less in diameter.

27. Sea-snail or Sucker. *Liparis montagui* (Don.)

Commonly taken in the shrimp nets in the estuaries. It has been found in the Mersey as far south as Garston (A. Scott).

28. Sucker. *Liparis vulgaris*, Flem.

Not so common as *L. montagui*, but with much the same distribution.

29. Double-spotted sucker. *Lepadogaster bima-
culatus*, Don.

Frequent in shallow water.

30. Cat-fish or wolf-fish. *Anarrhichas lupus*, Linn.

Very uncommon. A specimen in the Liverpool Public Museum and another in the Zoology Museum at the University of Liverpool are probably local.

31. Butterfly Blenny. *Blennius ocellarius*, Linn.

A single specimen was dredged by Capt. A. Wignall near Morecambe Bay light vessel, and was identified by A. Scott.

32. Shanny. *Blennius pholis*, Linn.

Very common in shore pools between tide marks on the Lancashire coast.

33. Butterfish. *Pholis gunnellus* (Linn.)
Day, *Centronotus gunnellus*.

Very common in shore pools and beneath stones. This pretty little fish lives well in small marine aquaria. The female may often be found in the spring coiled round a mass of her own eggs.

34. Ballan Wrasse. *Labrus maculatus*, Bl.

This species has been found in the Barrow Channel. The Fisheries steamer has trawled it from the offshore grounds between Lancashire and Isle of Man.

35. Gold Sinny. *Ctenolabrus rupestris*, Linn.

Herdman and Dawson record this fish from Liverpool Bay.

ANACANTHINI

36. Cod. *Gadus callarias*, Linn. (*Gadus morrbua* of most authors.)

The cod is of course very common in Lancashire waters, though in the inshore waters it is

mostly small 'codling' that are caught. The cod spawns in deep water, and the eggs may be found about March. In June young cod about an inch long may be seen on the shore waters. In Lancashire waters these little fishes often have a peculiar chess-board arrangement of pigment on their sides. They occur mostly among seaweeds or on rocky ground. Towards the autumn they disappear. Codling are common all along Lancashire inshore waters, and are caught both by line and trawl, but chiefly by the latter.

37. Haddock. *Gadus aeglefinus*, Linn.

The haddock is abundant in Lancashire waters, but it is rather a capricious fish and occasionally seems to shun our inshore waters. Some years ago it was very abundant. It is caught both by line and trawl.

38. Whiting. *Gadus merlangus*, Linn.

Whiting are perhaps more abundant in Lancashire waters than either cod or haddock. This is particularly the case with small fish (5 to 7 in. long) in the winter, several thousands being sometimes taken in one haul of a shrimp trawl. The brain of whiting caught in Lancashire waters is very often infested with the Trematode, *Gasterostomum gracilescens*, and the cranial capsule with the Myxosporidian, *Sphaerospora platessa*.

39. Coal-fish or Bluffin. *Gadus virens*, Linn.

Not so common as the above species of Gadidae. It is sometimes very abundant in the Barrow Channel off Roa Island.

40. Bib. *Gadus luscus* (Will.)

Not at all abundant. I have seen it in Barrow Channel.

41. Poor-cod or 'Power' Cod. *Gadus minutus*, Linn.

More common than the bib. It is very often taken in the trawl in Lancashire inshore waters, but never in quantity.

42. Pollack. *Gadus pollachius*, Linn.

This fish is less abundant than any of the above gadoids. It has been taken in the trawl off Blackpool.

43. Hake. *Merluccius vulgaris*, Cuv.

Scarce in Lancashire waters.

44. Fork-beard. *Phycis blennoides* (Brun.)

Mr. Andrew Scott records a specimen which came ashore on Roa Island in the Barrow Channel and was killed by some boys. It is very uncommon in the Irish Sea.

45. Ling. *Mokva vulgaris*, Flem.

Rare in Lancashire, but occasionally taken in the trawl.

FISHES

46. Five-bearded Rockling. *Onus mustela*, Linn.
(Day's *Motella mustela*.)

Not at all uncommon in Lancashire waters. I have obtained a medium-sized specimen from the shore in Barrow Channel.

47. Three-bearded Rockling. *Onus tricirrbatus* (Bl.)

Fairly common.

48. Halibut. *Hippoglossus vulgaris*, Flem.

The halibut is very scarce in Lancashire waters. I have not seen a specimen myself from inshore waters. When it does occur it is usually small. It is more often obtained south of the Isle of Man. A fisherman on Bardsey Island told me of a specimen taken on a line which weighed 80 lb. It was sold at Pwllheli for 8s.

49. Long rough Dab. *Drepanopsetta platessoides* (Fabr.)

Day, *Hippoglossoides limandoides*.

Very scarce in the Irish Sea. I have seen three or four specimens taken about midway between Lancashire and the Isle of Man. It is so uncommon that there is no local name for it, and it is usually called a 'kind of megrim.'

50. Turbot. *Rhombus maximus*, Linn.

Rather uncommon. Small specimens are, however, taken in shallow inshore waters in the shrimp net. We have had it from the inshore waters of Blackpool, from Morecambe Bay, and from Barrow Channel. Turbot and brill in Lancashire waters are usually infested with the tapeworm *Botriocephalus punctatus*.

51. Brill or 'Brett.' *Rhombus lævis*, Rondel.

More common than the turbot and with much the same distribution.

52. Norwegian Top-knot. *Scolophthalmus norvegicus*, Gunth.

(Day's *Zeugopterus norvegicus*.)

There is a specimen in the Fisheries Museum at the University of Liverpool which is probably local.

53. Bloch's Top-knot. *Scolophthalmus unimaculatus* (Risso.)

(Day, *Zeugopterus unimaculatus*.)

Scarce. Two specimens were caught by Capt. Wignall near the Morecambe Bay light vessel in 1894. This is the only recent record I am aware of.

54. Muller's Topknot. *Zeugopterus punctatus* (Bl.)

This is the commonest Topknot in Lancashire waters. Fishermen have no local name for any of these little flukes. They are often caught in the shrimp nets, especially in Morecambe Bay and about the Ribble Channels.

55. Megrim or 'Magrim.' *Lepidorbombus megastoma* (Donovan.)

Not uncommon, but not abundant enough in Lancashire waters to be of economic importance.

56. Scald-fish. *Arnoglossus laterna* (Walb.)

More abundant than the megrim which it resembles.

57. Plaice. *Pleuronectes platessa*, Linn.

Very abundant in Lancashire waters. The most valuable fishery in strictly local waters is that for the plaice. It is usually small and immature here on account of the active exploitation of Lancashire waters by fishermen. It is in all probability this excessive fishing which has produced the apparent correlation of the size of the fish with the depth of the water in which it is found. Generally speaking, the size of a plaice got in the Irish Sea varies directly (roughly of course) with the depth of water. Within the three mile territorial limit the plaice obtained in the trawl nets are small—from 8 to 11 inches. Occasionally a large fish may be found, but not often. The plaice becomes sexually mature at about 15 inches in total length in the female, and about 12 inches in the male. It is very rarely that such sexually mature fish are caught within the territorial waters. It is, however, to be noted that the cause of this distribution may not be that large fish find a natural habitat in deep water only, but rather that because of the great amount of fishing in inshore waters these large plaice have been 'fished out.' As a matter of fact, we find that in such an area as Luce Bay on the south coast of Scotland, where trawling is prohibited, large plaice from 15 to 22 inches long are relatively abundant. There is not the same intensity of fishing in offshore waters as within the narrow zone of territorial waters, and as a consequence we find that large plaice are found on these offshore grounds.

There are no doubt very definite migration habits in the case of the plaice (and of course other flat fish), but so far these have been made out only very imperfectly. The Lancashire Sea Fisheries Committee have, however, been making extensive experiments quite recently with a view to determining the migration paths of the plaice, and some interesting results have been obtained. The fish are marked by fastening a little numbered brass label to the body by means of silver wire. Records are then made of the size of the fish, the number of the label, date, place, and so on, and the fish is liberated. Experiments of this kind have only been made during the winter months, but they seem to show that the plaice in the inshore Lancashire waters move along the shallow coast waters during the early part of the winter, and finally come to rest in the bays and estuaries. Most of the liberated and marked plaice have been recovered from Morecambe Bay, the

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Ribble estuary, and the Dec. In comparatively few cases have the fishes moved offshore into deep water.

Some of the journeys made by these marked plaice are rather remarkable. Several fish liberated near the mouth of the River Mersey were re-caught in from one to two months near the north end of the Isle of Man, and several fishes liberated near Blackpool turned up subsequently on the coast of Anglesey. One fish liberated off Great Orme's Head was caught some months later in Tremadoc Bay, having doubtless journeyed south through the Menai Straits, through Carnavon Bay and through Bardsey Sound. Speaking generally, however, the migration paths of plaice in Lancashire waters are very local ones.

It is interesting to note that nearly 20 per cent. of the fish so marked and liberated in Lancashire waters were found during the first four months. This shows the intensity of the fishing that goes on within territorial waters. It means that 20 per cent. of all the fish on the seabottom in that area were caught by fishermen during the same period.

58. Lemon Sole. *Pleuronectes microcephalus*, Don.

Not very abundant and usually got in offshore waters.

59. Dab. More commonly called 'Garve' and 'Skear-back.'

The most abundant pleuronectid in local waters. I have known as many as 15,000 to be taken in one haul of a shrimp net off Blackpool. The dab is not regarded as a valuable food-fish and does not command a very good price. It is more distinctively an inshore fish than the plaice.

There appears to be a curious complementary relation between the abundance of plaice and dabs in Lancashire waters. It is often the case that when plaice are scarce dabs are abundant and *vice versa*. Of late years dabs have become more abundant here than plaice. It is just possible that the restrictive measures imposed on trawl-fishing in Lancashire waters have benefited the dab to a greater extent than plaice. This is all the more probable since the dab is a species which spawns when it is (compared with plaice) relatively small. The relatively wide trawl and stake net meshes enforced now by the Fishery Board may possibly have produced this increase in the number of dabs in Lancashire waters.

60. Flounder. Also called 'White Fluke.'
Pleuronectes flesus, Linn.

Common. The best grounds for the flounder are perhaps in the Lune and Ribble estuaries. Flounders obtained from the former ground are often infested with the sporozoan parasite, *Lymphocystis johnstonei*, Woodcock,¹ a most re-

¹ Woodcock, *Lancashire Sea Fish. Lab. Report for 1903*, pp. 63-72, Liverpool, 1904.

markable organism which produces white warts on the skin and fins of the fish. Fishermen often call these parasites eggs, and say that the flounder 'carries its eggs on its back.' There is a prejudice locally against these flukes, since it is believed that they frequent the neighbourhood of sewer outfalls. Mr. A. Scott believes that flounders spawn in shallow waters.

61. Witch or 'Whitch.' *Pleuronectes cynoglossus*, Linn.

Fairly common. The witch is a poor kind of edible fish, but it is often sold in poorer fish shops as 'soles' or white soles (at about 3d. a lb.).

62. Sole. *Solea vulgaris*, Quens.

Individually the sole is the most valuable fish caught in Lancashire waters. It is found everywhere, but some grounds, as for instance in the neighbourhood of the Liverpool N.W. lightship, are very lucrative. The sole fishery in Lancashire waters has been steadily improving for the last half-dozen years.

63. Lucky Sole. *Solea variegata* (Don.)

Very uncommon. Mr. A. Scott recorded a specimen from near the Morecambe Bay lightship in April 1894. It is a smallish fish.

64. Solenette. *Solea lutea* (Risso.)

This is a small fish 3 to 5 inches long which is abundant on the shrimping grounds, especially in the Mersey estuary. It used to be mistaken for the true sole, which it resembles when the latter is young. It is thicker, redder, and has coarser scales than the latter. About half, or even more, of the small 'soles' got on the Mersey shrimping grounds are solenettes. The solenette becomes mature when about 3 to 5 inches long. There are probably three species of *Solea* which are confused together by fishermen, especially offshore trawlers. *Solea variegata* and *Solea lutea* are certainly confounded, and are both called 'Lucky Soles.' Probably *S. lascaris* is also found, but I am not aware of any indubitable record of its occurrence in strictly Lancashire waters.

PERCESCOCES

65. Grey Mullet. *Mugil chelo*, Cuv.

This mullet is found all along the Lancashire coast in summer. Large numbers of the young occasionally enter Morecambe Bay and have been mistaken by fishermen for young salmon. I have seen them in abundance in Fleetwood Dock, and they are said to be very numerous in the Cavendish Dock at Barrow. They are frequently caught in stake and seine nets at Southport and in Morecambe Bay. The other grey mullet, *Mugil capito*, may occasionally turn up in Lancashire waters and may have been confused

FISHES

with *M. chels*, the two species being very similar, but I am not aware of any certain record of the occurrence of the former fish.

66. Greater Sand-eel. *Ammodytes lanceolatus*, Lesauv.

Not a common fish in Lancashire waters, but a specimen has been taken in Morecambe Bay.

67. Lesser Sand-eel. *Ammodytes tobianus*, Linn.

Much commoner than the greater sand-eel. It is caught almost everywhere in shallow waters, and is a common fish in the shrimp nets. There is a fishery for sand-eels at Fleetwood, where they are simply dug out of the sand.

68. Garfish or Greenbone. *Belone vulgaris*, Will.

The occurrence of this fish is rather capricious. It is occasionally taken in Ulverston Channel in stake nets, and it has been caught in the Queen's Dock at Liverpool and in the Manchester Ship Canal at Eastham!

HEMIBRANCHII

69. Three-spined Stickleback. *Gasterosteus aculeatus*, Linn.

Locally, Jack Sharp.

A semi-marine species. It occurs near Piel in the Barrow Channel.

**70. Ten-Spined Stickleback. *Gasterosteus pungitius*, Linn.

This stickleback is recorded by Scott from the Barrow Channel.

71. Fifteen-spined Stickleback. *Gasterosteus spinachia*, Linn.

Scott has recorded this fish from Morecambe Bay and from the Barrow Channel.

Sticklebacks are often infested with the Myxosporidian parasite, *Glugea anomala*, which forms little globular swellings underneath the skin. A number of these fishes from a pond in the public park, Preston, were sent to me some time ago, all infested with this Sporozoon. Apparently the parasite caused no inconvenience to the fishes.

LOPHOBRANCHII

72. Broad-nosed Pipe-fish. *Siphonostoma typhle*, Linn.

A shore fish which is very rare in Lancashire waters.

73. Pipe-fish. *Syngnathus acus*, Linn.

This is the common pipe-fish. It is got very frequently in the shrimp nets and in the shore pools.

PLECTOGNATHI

74. Sun fish. *Orthogoriscus mola* (Linn.)

This fish must be very rare off the north-west coast of England. It is recorded in the stock books of the Liverpool Public Museum as having been taken 'off Southport' in 1864. I am not aware of any other record of its occurrence in the North Sea.

HAPLOMI

*75. Pike. *Esox lucius*, Linn.

Common in rivers and meres.

OSTARIOPHYSI

*76. Carp. *Cyprinus carpio*, Linn.

In Bryerly's time¹ the carp was common in ponds and streams, but it is certainly much rarer now.

77. Roach. *Leuciscus rutilus* (Linn.)

Not uncommon.

78. Chub. *Leuciscus cephalus* (Linn.)

Not at all common.

*79. Dace. *Leuciscus vulgaris* (Linn.)

Bryerly states that *Leuciscus lancastriensis* was common in 1856 in the streams about Warrington. *L. lancastriensis* is identical with *L. vulgaris*.

*80. Minnow. *Leuciscus phoxinus* (Linn.)

Common.

*81. Rudd. *Leuciscus erythrophthalmus* (Linn.)

This is Bryerly's *L. caeruleus*.

*82. Tench. *Tinca vulgaris*, Linn.

Common in ponds.

*83. Bream. *Abramis brama* (Linn.)

In ponds and streams.

*84. White Bream. *Abramis blicca* (Bloch)

Bryerly recorded this fish from the Weaver.

*85. Loach or 'Beardie.' *Nemacheilus barbatar*, Rond.

Not uncommon in smaller streams.

¹ Isaac Bryerly, *Fauna of Liverpool*, 1856.

MALACOPTERYGII

**86. Salmon. *Salmo salar*, Linn.

Taken by seine nets, 'hang-nets,' 'heaves.' This fish also occurs frequently in the stake nets in Morecambe Bay and elsewhere, and it is sometimes taken in the trawl. Our knowledge of the salmon in the open sea is very scanty. In

1901 a salmon smolt about $\frac{1}{4}$ lb. in weight was taken by the fishery steamer *John Fell*, off Blackpool, about two miles from land. This fish was feeding voraciously, when taken, on young fish (sprats or herrings), and its stomach also contained the remains of brittle stars and

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sponges. I believe that this is the first recorded instance of a salmon smolt being found in the open sea.

The Lune is the chief Lancashire salmon river, and indeed this is one of the best salmon streams in England. During late years a deterioration in the value of the Lune salmon fisheries has been noted, and one cause assigned is the excessive amount of netting at the mouth of the estuary. But I think the other alleged cause, the growing pollution of the stream, is a more important factor. All the sewage from Lancaster, from an infectious disease hospital, and the effluents from several factories, enter the portion of the estuary where salmon are found. The effect of this pollution is perhaps not so much to kill the fish—it is not bad enough yet—as to prevent them going up the river. Attempts have been made in recent years to compel the local authorities concerned to adopt sewage purification measures, but these have so far been fruitless.

**87. Sea Trout. *Salmo trutta*, Linn.

Sea trout are very often taken along the sea coast. Fishermen in Lancashire distinguish between several kinds of salmonidæ, giving them local names, such as 'mort,' 'fork-tails,' etc., but most probably all these are to be referred either to the salmon or the sea trout.

*88. Trout. *Salmo fario*, Linn.

The Ribble is the best Lancashire trout stream.

89. Sparling. *Osmerus eperlanus* (Linn.)

Sparling are common enough in Lancashire waters to form the material for a fishery. They are taken by seine nets in Morecambe Bay when the fishery lasts, (legally) from 1 November to 31 March. They are also got occasionally in Barrow Channel, and in the shrimp trawl nets off Blackpool. They are very small (3 ins. or thereabout) in the latter habitat.

**90. Grayling. *Corregous thymallus* (Linn.)

In Bryerly's time the grayling was taken abundantly in the Mersey near Garston Dock.

91. Anchovy. *Engraulis encrasicolus* (Linn.)

The anchovy is a rare visitant to Lancashire waters. I have seen specimens taken by Capt. Eccles in the shrimp trawl in the Mersey estuary and off Blackpool. It is so uncommon that fishermen usually fail to recognize it.

92. Herring. *Clupea harenga*, Linn.

There is no real fishery now for herring in Lancashire waters, though they are caught off the Isle of Man and in Welsh waters. They used to be abundant in Morecambe Bay, but have deserted this district for many years on account of the increased steam traffic in the bay, some fishermen say. They were, however, rather abundant in the Mersey between Rock Ferry and Eastham a few years ago, and some boats from Morecambe followed the fishing there with much success. They occur very frequently, however, though not in sufficient numbers to make a remunerative fishery, and are constantly met with in the trawl nets.

93. Sprat. *Clupea spratta*, Linn.

'Sprats' are always mixtures of the true sprat and the herring. They are very abundant at times. In 1902 great quantities were taken by the shrimp boats off Southport. In this case the fish were caught by being 'meshed' during the 'shooting' and hauling of the shank nets. The fish live in the intermediate and upper layers of the water and were caught by the net in descending and ascending.

94. Twaite Shad. *Clupea finta*, Cuv.

All silvery fishes in and about Morecambe Bay are known as 'shads.' The twaite shad is, however, very uncommon. It has been taken in the Mersey (20 October, 1876, Moore, Liverpool Public Museum), at Formby, and off Blackpool.

APODES

95. Eel. *Anguilla vulgaris*, Turton.

Common along the shores in many places.

96. Conger. *Conger vulgaris*, Cuv.

The conger is common in Lancashire waters. It is caught in the trawl and by lines. I have caught it on the Scars in Barrow Channel in low water by the 'gaff.' The immature stage is the

well-known *Leptocephalus*. Mr. A. Scott captured a number of these in 1898 in the Barrow Channel by placing a fine net in the sand gutters through which the last of the tide was ebbing. These, however, were rather the transitional stage between *Leptocephalus* and the young congers than the true *leptocephaline* larval stage.

GANOIDS

96. Sturgeon. *Acipenser sturio*, Linn.

The sturgeon is not a true member of our local piscine fauna, but is to be regarded as a rather rare visitant. Still, it occurs now and then. Frequently got at Morecambe in Burrow's Balks; a specimen caught at the end of 1904

was between 9-10 feet long. One was caught by some salmon fishermen using a draft net in the Leven. This example was sent to Mr. Broadbent, fishmonger, Barrow, who sent the head to Mr. A. Scott at Piel. The fish was 8 feet long and weighed 4 cwt.

FISHES

CHONDROPTERYGIANS

97. Toper. *Galeus vulgaris* (Linn.)
Locally, Darwen Salmon.

This large dogfish has been taken at the mouth of the Mersey, in the river above Liverpool, and elsewhere. It is, however, rather rare. Along with (no doubt) other dogfish it is sold occasionally as human food.

98. Pike Dog. *Acanthias vulgaris*, Risso.

The commonest 'dog' in Lancashire waters. I witnessed a haul of a fish trawl made by Capt. Wignall off Liverpool N.W. lightship in September, 1904, in which there were 350 dogfishes, mainly *Acanthias*.

Dogfishes have, during the last few years, proved a veritable plague to fishermen. They occur in great numbers, eat fish from lines, and destroy nets. No method of getting rid of them is likely to prove effective, and it is only by making use of them as human food, openly and not surreptitiously, that their evil effects may be minimized. I have eaten dogfish and found it not unpalatable.

99. Lesser spotted Dogfish. *Scyllium canicula* (Linn.)

Less abundant than the preceding species. This and *S. catulus* are known to fishermen as 'fay-dogs.'

100. Larger spotted Dogfish. *Scyllium catulus*, Gunn.

Least abundant of the 'dogs.' I have seen it off the Mersey estuary.

101. Black-mouthed Dogfish. *Pristiurus melanostomus* (Raffin)

A specimen of this fish in the Fisheries Museum at Liverpool University is probably local.

102. Monk or Abbot. *Rbina squatina* (Linn.)

Frequently taken in the trawl nets in offshore waters.

103. Torpedo. *Torpedo nobiliana*, Bonap.

The electric ray is very rare in purely Lancashire waters. The stock books of Liverpool Public Museum record one as having been caught in Meols Bay, Southport, in 1884. This specimen, which does not appear to be in the museum, however, weighed thirty pounds.

104. Skate or Bluet. *Raja batis*, Linn.

Very abundant in all parts of the Lancashire district.

105. White Skate. *Raja alba*, Lacép.

I have not known personally of the capture of this fish, but according to Day it is recorded from Liverpool. Bryerly recorded it from Liverpool as *R. marginata*. These records are, however, very doubtful.

106. Ray. *Raja clavata*, Linn.

This is the commonest ray. It is always abundant.

107. Spotted Ray. *Raja maculata*, Mont.

Also abundant.

108. Starry Ray. *Raja radiata*, Don.

Rarer than any of the above Rajæ.

109. Cuckoo Ray or Butterfly Ray. *Raja circularis*, Couch.

Not at all common, but got in the trawl now and then. Probably *Raja miraletus*. Couch has been confused with this species.

110. Sting Ray. *Trygon pastinaca*, Cuv.

This species is recorded in the stock books of the Liverpool Museum as having been found off the Mersey estuary.

CYCLOSTOMES

- **111. Sea-Lamprey. *Petromyzon marinus*, Linn.

These 'fishes' are rare in Lancashire waters, but have been taken in the shrimp trawl from the Ribble estuary, the Mersey, and the inshore grounds off the latter estuary.

- **112. Lamprey or 'Silver-eel.' *Petromyzon fluviatilis*, Linn.

Common. It has been got from Piel, Ulverston Channel, and off Morecambe. I have seen a flounder caught in the Lune which bears the wound inflicted by the suctorial mouth of the lamprey. It 'sucks' on to living fishes. Fisher-

men call it the 'nine eyes' or 'nine holes,' a name which is curiously enough cognate with the German popular name for the species, 'Neunauge.'

113. Hagfish. *Myxine glutinosa*, Linn.

I am doubtful as to whether this species really occurs in Lancashire waters. Capt. Wignall, however, informs me that he has seen cod with the internal anatomy destroyed, leaving only skin and bone, and my friend Mr. F. J. Cole tells me that this is the effect produced by hagfishes, which bore into the body of dead fishes like the cod and devour the interior parts.

An asterisk (*) indicates occurrence in fresh water only, two asterisks (**) in both fresh and salt water.

REPTILES AND BATRACHIANS

Neither the reptiles nor batrachians of Lancashire call for much attention. Scarce in Britain generally, these two groups are scarcer still in Lancashire, where uncultivated land now hardly exists except on the sandhills fringing the coast and in parts of the Furness district. This record of the local reptilian and amphibian fauna is taken from the lists given in the British Association handbook for Liverpool and Southport, except those for the Furness area, which have been collected by Mr. Harper Gaythorpe, of Barrow.

REPTILES

LACERTILIA

1. Sand Lizard. *Lacerta agilis*, Linn.

This species used to be, and indeed still is, abundant on the sandhills of Formby, Seaforth, and Southport. It is recorded from Walney Island, Piel Island, and Yarlside, but it is nevertheless rare. It is, however, now becoming rarer than it used to be.

2. Viviparous Lizard or Swift. *Lacerta vivipara*, Jacq.

On the mosses and rarely on the sandhills. It occurs at Weston, near Runcorn, and on Latrigg Moss near Broughton-in-Furness.

3. Slow-worm or Blind-worm. *Anguis fragilis*, Linn.

Found occasionally in the Leyland district and in woods in the Lake district. On the whole it is fairly common in Furness, but more so at Woodland than anywhere else.

OPHIDIA

4. Viper or Adder. *Vipera berus*, Linn.

Very common at Woodland and on the Fells about Torver and among heather and peat mosses. Four were destroyed at Haverthwaite station in June 1905, the largest being 4 feet long (R. Lord, Kirkby-in-Furness), also common on Warton Crag and at Kellet (W. Farrer).

5. Common or Ringed Snake. *Tropidonatus natrix*, Linn.

This snake has been found at Crake Valley and at Woodland (M. Rodgers, Barrow).

These two species of snakes are said to occur in south-west Lancashire, but it is rather doubtful whether they do or not. Specimens have been reported as occurring in the immediate neighbourhood of Southport, but it is easy in such cases to satisfy oneself that such have not been imported. 'Snakes' in the Furness district are called 'Hag-worms' by the country people.

BATRACHIANS

ECAUDATA

1. Common Frog. *Rana temporaria*, Linn.

Even the common frog does not appear to be so common now as was formerly the case.

2. The Toad. *Bufo vulgaris*, Linn.
Common over the county.

3. Natterjack. *Bufo calamita*, Laur.

Both species of toad are fairly common. They are most abundant on the Formby and Southport sandhills in the slacks. But owing to the draining of the latter *B. calamita* appears to be becoming less common. It is said to be common enough at Mureside Mosses (between Woodland and Broughton-in-Furness) (T. Johnstone, Woodland).

CAUDATA

4. Crested Newt. *Molge cristata*, Laur.

5. Common Newt. *Molge vulgaris*, Linn.

Both these newts are said to be well distributed over Lancashire—that is, the portion of Lancashire still capable of forming a habitat for them. The crested newt is neither so abundant nor so well distributed as *M. vulgaris*.

Molge palmata, Schn., was recorded by Bryerly in 1856 as rare. Three small specimens were taken in a shallow stream at Upton. It is very doubtful if it exists in Lancashire to-day.

BIRDS

Lancashire is rich in respect of its bird life. It forms one of the larger counties of England, possessing an extensive sea-board, and is well endowed with mountain and plain, with wood, river, and lake. It can consequently present to the ornithologist a very representative series of species in the majority of the avian families, and in most districts numerous individuals of each. Situated, however, in the north and west of England, its position is less favourable for receiving visits from the stream of migratory birds passing to and from the continent of Europe than the eastern and southern counties, where so many tarry for a time every spring and autumn.

In general, the entire coast of Lancashire from the mouth of the river Duddon to the estuary of the Mersey is fronted by an enormous expanse of sandbanks, hundreds of square miles in extent, left dry by the sea at low water. In Furness, the country landward of the high-water mark forms a plain several miles in width, which rather abruptly rises to an altitude of over 2,500 feet in Furness and Dunnerdale fells. The whole district is rich in tracts of wild crag, elevated moorland and forested slopes, with abundance of brakes and timbered parks interspersed amid the extensively cultivated lowlands and the upland grass farms. In this portion of the county also occur the largest stretches of fresh water, Lake Windermere, Coniston and Esthwaite Waters, and numerous larger or smaller tarns. Many rare species of birds, therefore, survive in the seclusion of this safe sanctuary, and hosts of waterfowl find here unmolested nurseries. Within its boundaries still breed the merlin, the wood warbler, the dipper, the raven, the carrion crow, the great and lesser spotted woodpeckers, the hen-harrier, the white-tailed eagle, and the peregrine falcon. To Furness appertains Walney Island, which has long been noted as one of our chief safe nesting places for terns and limicoline birds. At the southern extremity of the island there is situated the largest of the two important gulleries in the county, the other being that on Cockerham Moss on the south-eastern shore of Morecambe Bay. Leigh, the historian of Lancashire in 1700, remarks that there were there vast quantities of sea-gulls: 'in the breeding time the whole island is near covered with eggs or young ones, so that it is scarce passable without injuring them.' In the list of rare visitors to Walney Island, the Duddon Sands, or the adjacent bay of Morecambe, occur the names of the barnacle goose, the scaup, the redbreasted merganser, the avocet, the whimbrel, and the eared grebe. During autumn and spring on migration, and in winter—especially if severe weather prevail—thousands of ducks, geese, swans, curlews, and dunlins find these sands an inexhaustible feeding ground.

The coast between Morecambe Bay and the boundary of Cheshire is indented by the estuaries of the Lune, the Wyre, the Ribble, and the Mersey. The greater part of the long sea line of this region is fringed with sand dunes varying from one to four miles in width, and from 20 to

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30 feet in height. Between these dunes and a line drawn roughly from Lancaster through Preston and Wigan to Manchester, Lancashire is practically a level plain undulating eastward, rarely anywhere rising over 400 to 500 feet. Eastward of this line the country gradually ascends through the foot hills and outliers of the Pennine Range to the boundary of Yorkshire. A special feature of the plains is the extensive area covered by peat mosses. In former days these were vastly greater; but now they are less continuous and more isolated. Yet still between the Ribble and the Mersey there is an almost continuous belt, twenty miles in length by some three miles in width, dotted with numerous meres and pools, the remnants of the more extensive water-expanses, some of which nearly equalled Lake Windermere in size, so that at one time the name of Lake Lancashire was given to these lowlands. In like manner the great woods and smaller plantations, still so abundantly preserved, are but the residue of the almost unbroken forest which once clothed this part of England and harboured so many now vanished species of animals and plants. Countless parks, shrubberies and orchards diversify the surface of the county in the midst of cultivated farms or extensive permanent grass-lands. Lancashire, south of the Fells, therefore presents suitable cover and abundant food supply for most species of birds. Still year after year constant drainage, the continuous additions being made to the arable land, and the growth of the population with the demand for wider areas for human habitation, are curtailing and extinguishing these pleasant habitats and driving their feathered tenants to other sanctuaries. Many species are now far less frequently met with than even a few decades ago; some have entirely deserted us with little hope of their ever returning. The little bittern, the hobby, and, it is to be feared, the kite, are lost to us; the honey-buzzard, the bittern, the night-heron and the wryneck are *aves rarissime*; the cross-bill, the chough, the carrion crow, the buzzard, the marsh harrier, the nut-hatch, and the tree-creeper, become rarer every season.

The almost entire absence of shore rocks deprives the county of many of our common sea-birds as breeding species, the majority of which would certainly nest under different conditions, such as the puffin, most of the gulls, the guillemots, the chough, the rock-dove, the cormorant, and the shag. As might be expected, however, from the extent of our maritime sandbanks, our lakes, meres, rivers and the wide river-like ditches cut through the mosses, the number of sea or fresh-water-loving birds is very large. No fewer than seventy-nine can be enumerated either as resident or visiting species, and, as already said, during migration and in severe winters vast flocks congregate on the sandbanks, on the mudflats of the estuaries, and on our inland waters.

Several species have been recorded for the first time as British birds from Lancashire, namely, the black-throated wheatear, the collared pratincole, the sociable plover, the great snipe, the white-faced petrel, and the lanner falcon; while such rarities as Montagu's harrier, the goshawk, the honey-buzzard, the red-footed falcon, the glossy ibis, the spoonbill, and the Siberian thrush, have all been observed or taken in it. Several of these records are becoming ancient history; many of those visitors have not for many years passed this way again. A goodly number of the specimens upon which these records are founded were fortunately acquired by the thirteenth Earl of

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Derby, in whose magnificent collection they were preserved till they passed by bequest to the custody of the city of Liverpool in 1851.

Duck decoying is now almost extinct in Lancashire. In former days it was carried on in several localities; but Hale, on the Mersey, the seat of the Ireland-Blackburnes, is the only place where a decoy still continues to be worked. It is provided with five pipes, and has been operated for over 150 years. The chief species that are captured in it are mallard and teal, with a fair proportion of wigeon in most years. Fowlers, on the other hand, are numerous, and are successful in securing every season thousands of scoter, scaup, mallard, curlews, geese, and dunlins by means of douker or fly-nets. The former are suspended a foot or two over the birds' feeding grounds between tides, in diving down to which they get entangled by the neck and drowned in the rising water. The latter, often of great length and some four feet in height, are set on the sands athwart the track of the birds hastening to their feeding banks from which the sea has just retreated. Vast numbers of teal and snipe are also taken in horsehair snares, known as 'pantles,' set in lone spots in grassy marshes, and on prepared and baited places when the ground is snow-covered. The ignoble skylark-fowler employs the usual clap-net. Dr. Leigh's *History of Lancashire*, which contains numerous quaint observations on natural history, has the following interesting note on the 'fowling' of mallard without their capture: 'but the most remarkable thing of the Wild Ducks is the way of feeding them at Bold in Lancashire. Great quantities of these breed in the summer season in Pits and Ponds within the Demesne, which probably may entice them to come into the Moat near the Hall, which a person accustomed to them perceiving, he beats with a stone on a hollow wood vessel; the Ducks answer to the sound, and come quite round him upon an Hill adjoining to the Water. He scatters corn amongst them, which they take with as much Quietness and Familiarity as Tame ones; when fed they take their flight to the Rivers, Meers, and Salt-marshes.'

The latest list of birds enumerated as British contains 475 species; but of these 72 have been disallowed as not sufficiently authenticated. Those, therefore, with a good title to the designation number only 403. Of this total 269 are entered in the following list as having been observed in Lancashire, so that only 134 have not yet favoured us by residence or visit. Of the 269 Lancashire birds, 136 nest with us as residents (93), or as summer visitors (43). The majority, just over a half (69), of these are passerine birds, while larine, limicoline, picarian, and accipitrine species form the bulk of the remainder. Winter sojourners or migrants making a short stay on their autumn and spring passages number 77: 46 being anserine or limicoline. The balance of 56 are stragglers and occasional visitors, the greater number (48) belonging to anserine, larine, and limicoline species.

1. Mistle-Thrush. *Turdus viscivorus*, Linn.

Locally, Stormcock, Shirley.

Common throughout the county, but more abundant year by year. Often frequents shrubberies and orchards throughout the winter.

2. Song-Thrush. *Turdus musicus*, Linn.

Met with everywhere and apparently increasing in numbers.

3. Redwing. *Turdus iliacus*, Linn.

A common winter and spring visitor, frequenting lower grounds than the fieldfare.

4. Fieldfare. *Turdus pilaris*, Linn.

An autumn and winter visitor, often in large flocks in the Mersey Valley and on the lower Fells.

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5. Siberian Thrush. *Turdus sibiricus*, Pallas.
 Seen by the writer in his garden in Liverpool on many occasions during the severe winter of 1895.
6. Blackbird. *Turdus merula*, Linn.
 Abundant.
7. Ring-Ousel. *Turdus torquatus*, Linn.
 A summer immigrant, nesting more abundantly in the Fells than elsewhere.
8. Wheatear. *Saxicola œnanthe* (Linn.).
Locally, Stone-chack, Wall-chack, White-rump.
 A summer resident, arriving at the end of March or early in April. Common on the lowlands and sandy links near the coast.
9. Black-throated Wheatear. *Saxicola stapazina*, Vieillot.
 A specimen taken at Bury, 8 May, 1875, was the first record in the British Islands. (P. Z. S. 1878, pp. 881-997). Figured in Saunders' *Manual*, p. 23, and by Dresser, *Birds of Europe*, under the name of *Saxicola rufa* (Harting, *Handbook of British Birds*, p. 353).
10. Whinchat. *Pratincola rubetra* (Linn.).
 A summer visitor to all our wastes, moorlands, and low-lying open country.
11. Stonechat. *Pratincola rubicola* (Linn.).
Locally, Stone-chack, Flick-tail.
 A resident, frequenting commons and furzy wastes. Irregularly distributed.
12. Redstart. *Ruticilla phoenicurus* (Linn.).
Locally, Jennie Red-tail.
 An early spring immigrant and summer resident, sparingly distributed.
13. Black Redstart. *Ruticilla titys* (Scopoli).
 A rare autumn and winter visitant.
14. Robin or Redbreast. *Eristhacus rubecula* (Linn.).
 Abundant.
15. Nightingale. *Daulias luscinia* (Linn.).
 The majority of the records of the occurrence of the nightingale in this county are insufficiently authenticated, but its presence in the Irwell valley seems worthy of respect. No authentic nest has ever been taken. The writer may mention here that he saw it at close quarters in his garden at Hoylake, in Cheshire, in 1900.
16. Whitethroat. *Sylvia cinerea* (Bechstein).
Locally, Peggy Whitethroat.
 A common summer immigrant.
17. Lesser Whitethroat. *Sylvia curruca* (Linn.).
Locally, Hazel-linnet.
 An occasional summer visitor.
18. Blackcap. *Sylvia atricapilla* (Linn.).
 A summer immigrant and lowland woodlander, only very occasionally wintering in the county.
19. Garden-Warbler. *Sylvia hortensis* (Bechstein).
 A common summer migrant, often seen late in autumn in gardens and orchards.
20. Goldcrest. *Regulus cristatus*. K. L. Koch.
 A fairly common resident, more conspicuous after the close of the breeding season, when it occurs in small companies.
21. Firecrest. *Regulus ignicapillus* (Brehm).
 One or two occurrences of this species are recorded, but none of them appear absolutely authentic; the record (*Zoologist*, 1903, p. 455) of the finding of a male specimen near Southport, in October 1903, proved erroneous.
22. Chiffchaff. *Phylloscopus rufus* (Bechstein).
Locally, Petty-chaps.
 A rare summer visitor, arriving early in April.
23. Willow - Warbler. *Phylloscopus trochilus* (Linn.).
Locally, White Wren, Peggy Whitethroat.
 A quite common summer visitor.
24. Wood-Warbler. *Phylloscopus sibilatrix* (Bechstein).
Locally, Fell Peggy.
 A summer immigrant, especially frequent in the more wooded districts among the Fells.
25. Reed-Warbler. *Acrocephalus streperus* (Vieillot).
 A summer immigrant, local and not uncommon by the margins of our meres and osier thickets.
26. Sedge - Warbler. *Acrocephalus phragmitis* (Bechstein).
Locally, Water Nanny.
 A summer visitor, common on meres and reedy swamps.
27. Grasshopper - Warbler. *Locustella nævia* (Boddaert).
 A generally distributed species, arriving early in May and spending the summer with us in larger numbers than usually supposed.
28. Hedge-Sparrow. *Acentor modularis* (Linn.).
Locally, Hedge-dunny, Dunnock, Dykey.
 A resident common throughout the county all the year round.
29. Dipper. *Cinclus aquaticus*, Bechstein.
Locally, Bessy Ducker, Water-Ouzel, Betty Dowker.
 Numerous in all streams, especially in the higher parts of the county.

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30. British long-tailed Tit. *Acredula rosea* (Blyth).
Locally, Bottle Tit.
 A fairly abundant species, especially in wooded districts.
31. Great Tit. *Parus major*, Linn.
Locally, Ox-eye Tit.
 An abundant resident.
32. British Coal-Tit. *Parus britannicus*, Sharpe and Dresser.
 A resident but local. It is numerous in some districts of the Fells. More often observed in winter than at other seasons.
33. British Marsh Tit. *Parus palustris*, Linn.
 A resident nesting species, but not so abundant as the last, except in the localities it affects, where considerable flocks may be seen in late autumn and in winter.
34. Blue Tit. *Parus cæruleus*, Linn.
Locally, Blue Nope.
 A very common resident, in winter tame and familiar, loving the neighbourhood of dwellings.
35. Nuthatch. *Sitta cæsia*, Wolf.
Locally, Kitty Wren.
 An extremely rare summer visitor. It is said to have bred near Manchester. (Mitchell, *Birds of Lancashire*, p. 38.) Its last recorded occurrence is September 1880.
36. Wren. *Troglodytes parvulus*, Koch.
Locally, Kitty Wren.
 An abundant resident.
37. Tree-Creeper. *Certhia familiaris*, Linn.
 A resident, but becoming rarer than it formerly was. A few pairs, however, nest annually in most of the woods throughout the county.
38. Wall-Creeper. *Tichodroma muraria* (Linn.).
 A very rare straggler. The second specimen in England, after 1792, was shot at the village of Subden, Pendle Hill, 8 May, 1872. (*Zoologist*, 1876, p. 4839; *Birds of Lancashire*, ed. 1, p. 56, with plate; ed. 2, p. 60, woodcut.)
39. Pied wagtail. *Motacilla lugubris*, Temm.
Locally, Water Wagtail.
 An abundant resident, but more conspicuous in early autumn, when it frequents lawns, moist pathways, and wet sandy patches in companies of two or three pairs together. It is scarcer in winter.
40. White Wagtail. *Motacilla alba*, Linn.
 A spring visitor, and less common than the preceding species, but occurring probably 'more frequently than is supposed' (Mitchell). It nests on many of our mosses.
41. Grey Wagtail. *Motacilla melanope*, Pallas.
 A resident, but nests in Lancashire less frequently than the pied wagtail, though still
- numerous on the rocky streams of Langridge Fell.
42. Yellow Wagtail. *Motacilla raii* (Bonaparte).
Locally, Yellow Hand-stir, Seedfore.
 A not uncommon summer visitor, nesting in maritime and inland meadows.
43. Tree-Pipit. *Anthus trivialis* (Linn.).
 A summer immigrant, well distributed especially near woods.
44. Meadow-Pipit. *Anthus pratensis* (Linn.).
Locally, Titlark.
 Abundant everywhere.
45. Richard's Pipit. *Anthus richardi*, Vieillot.
 Specimens of Richard's pipit were killed at Crosby and on the Wyre in 1869. (Mitchell, *Birds of Lancashire*, ed. 2, p. 48.)
46. Rock-Pipit. *Anthus obscurus* (Latham).
 A resident species, common along the coast and margins of our large estuaries, and on Walney Island, where it breeds. (Harting, *Zoologist*, 1864.)
47. Golden Oriole. *Oriolus galbula*, Linn.
 There are several records of the species as a summer visitor, but none of its having nested in the county.
48. Great Grey Shrike. *Lanius excubitor*, Linn.
 An occasional visitor in late autumn and in winter. An adult female specimen was shot at Urmston in January 1904. (*Zoologist*, 1904, p. 115.) It used to breed at one time among the sandhills. Mr. H. Murray saw one shot at Chorlton near Manchester in 1905.
49. Red-backed Shrike. *Lanius collurio*, Linn.
 A summer visitor. There are frequent records of its having bred in the county. (*Zoologist*, 1896, p. 70.)
50. Woodchat Shrike. *Lanius pomeranus*, Sparman.
 Two occurrences of this species are on record. (Mitchell, *Birds of Lancashire*, ed. 2, p. 53.)
51. Waxwing. *Ampelis garrulus*, Linn.
 There have been several invasions of considerable numbers at a time of the waxwing, generally at long intervals, and as a rule in mid-winter.
52. Pied Flycatcher. *Muscicapa atricapilla*, Linn.
 A summer visitor on migration; some few breed annually.
53. Spotted Flycatcher. *Muscicapa grisola*, Linn.
 A common summer visitor.
54. Swallow. *Hirundo rustica*, Linn.
 A summer visitor universally distributed. First seen in 1903 as early as the end of March, near Liverpool. In North Lancashire during the very unseasonable May of 1886 between six and

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seven hundred swallows perished from cold and wet. (*Zoologist*, 1886, p. 248.) Great flocks frequent our meres in autumn before their migration flight.

55. House-Martin. *Cheledon urbica* (Linn.).

Equally common with the last species but later in arriving. For some unknown cause it is often weeks later in some years than in others in returning to its annually frequented haunts, though abundant in neighbouring districts. Numerous house-martins succumbed to the disastrous weather of May 1886.

56. Sand-Martin. *Cotile riparia* (Linn.).

A summer visitor, numerous wherever it finds suitable sandbanks.

57. Greenfinch. *Ligurinus chloris* (Linn.).

Locally, Green Linnet.

A resident and generally distributed species. In times of hard frost it frequents dwellings in association with starlings, sparrows, robins, and gulls.

58. Hawfinch. *Coccothraustes vulgaris*, Pallas.

Resident and fairly numerous, and becoming more so of late years.

59. Goldfinch. *Carduelis elegans*, Stephens.

A resident and widely distributed species, but less numerous than formerly.

60. Siskin. *Carduelis spinus* (Linn.).

Locally, Aberdevine.

A winter visitor in small flocks. There is a record of the siskin having bred near Lancaster in 1836. (Mitchell, *Birds of Lancashire*, ed. 2, p. 63.)

61. House Sparrow. *Passer domesticus* (Linn.).

Abundant.

62. Tree Sparrow. *Passer montanus* (Linn.).

A resident occurring sparingly throughout the county.

63. Chaffinch. *Fringilla cœlebs*, Linn.

Locally, Pink-pink, Fleckie.

A resident, and very common everywhere.

64. Brambling. *Fringilla montifringilla*, Linn.

An occasional mid-winter visitor.

65. Linnet. *Linota cannabina* (Linn.).

Locally, Brown Linnet, Gorse-finch.

A resident and common species throughout the county in whin-covered moors and especially in gorse fields not far from the sea.

66. Mealy Redpoll. *Linota linaria* (Linn.).

This species was caught occasionally twenty years ago on Mellor Moor, as Mr. R. J. Howard has satisfied himself. (Saunders, in Mitchell's *Birds of Lancashire*, ed. 2, p. 73 n.)

67. Lesser Redpoll. *Linota rufescens* (Vieillot).

Locally, Grey Bob, Jitty.

A resident, common in the lowlands of the northern districts, where it nests freely.

68. Twite. *Linota flavirostris* (Linn.).

Locally, Moor Linnet.

A resident species nesting on all heaths and moors both in the uplands and lowlands.

69. Bullfinch. *Pyrrhula europæa*, Vieillot.

An abundant resident.

70. Pine-Grosbeak. *Pyrrhula enucleator* (Linn.).

There exist two records of the occurrence of the pine-grosbeak, one prior to 1837 at Hurlston, and the second in February, 1895, at Rochdale. (Mitchell, *Birds of Lancashire*, ed. 2, p. 75.)

71. Crossbill. *Loxia curvirostra*, Linn.

The crossbill appears at intervals of a few years in small flocks which frequent the pine plantations. The occurrence of a bird of the year at Morecambe in 1883 suggests its having been bred in the county (*Birds of Lancashire*, ed. 2, p. 76). In former times this species nested regularly.

72. Corn-bunting. *Emberiza miliaria*, Linn.

A resident and locally abundant species, especially on the lowlands of the Mersey Valley.

73. Yellow Hammer. *Emberiza citrinella*, Linn.

Locally, Goldfinch, Yellow Yoldring, Bessy Blakeling.

Abundant everywhere, often frequenting farmyards and lawns in company with sparrows.

74. Cirl Bunting. *Emberiza cirlus*, Linn.

A very rare visitor. It is recorded to have bred at Formby (Mitchell, *Birds of Lancashire*, ed. 2, p. 79.)

75. Ortolan Bunting. *Emberiza hortulana*, Linn.

A male of this species was killed near Manchester in November, 1827 (*Zoological Journal*, iii. p. 498), and figured by Selby. (Mitchell, *Birds of Lancashire*, ed. 2, p. 79.)

76. Reed Bunting. *Emberiza schoeniclus*, Linn.

Locally, Blackcap, Reed Sparrow.

A common resident, locally distributed.

77. Snow Bunting. *Plectrophenax nivalis* (Linn.).

Locally, Shore Lark, Mountain Bunting.

An annual winter visitant to our shores in considerable numbers.

78. Lapland Bunting. *Calcarius lapponicus* (Linn.).

A very rare winter visitant, and only four times observed in Lancashire between the years 1834 and 1882.

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79. Starling. *Sturnus vulgaris*, Linn.

Locally, Shepster.

A resident, abundant everywhere, nesting in hollow trees and about dwelling houses so numerous as to amount now to a nuisance. Its numbers are increasing with great rapidity every year. During winter immense flocks congregate in every suitable shrubbery.

80. Rose-coloured Starling. *Pastor roseus* (Linn.).

A rare visitor on migration during autumn.

81. Chough. *Pyrrhocorax graculus* (Linn.).

The chough, or red-legged crow, as it is often called, has no suitable breeding place nearer to Lancashire than Anglesea and the Isle of Man. It frequents the Fells, however. It is said to have nested formerly, if not now, at Whitbarrow in Morecambe Bay, just over the Westmorland border.

82. Jay. *Garrulus glaudarius* (Linn.).

A resident. Common in woods where it is not persecuted by gamekeepers.

83. Magpie. *Pica rustica* (Scopoli).

Locally, Piet, Pyanet.

A common resident, but more abundant in the uplands and Fell districts.

84. Jackdaw. *Corvus monedula*, Linn.

An abundant resident throughout Lancashire, breeding in steeples and in old beeches and oaks.

85. Raven. *Corvus corax*, Linn.

The raven is a resident breeding annually among the cliffs in the high Fells and on crag ledges of the unfrequented dales of the northern districts.

86. Carrion-Crow. *Corvus corone*, Linn.

Locally, Kar-crow, Doup-crow.

A resident species, occurring locally, but everywhere becoming rarer through persecution. Its nesting places are chiefly in the retired districts of the Lancashire lakeland.

87. Grey or Hooded Crow. *Corvus cornix*, Linn.

Locally, Manx Crow, Royston Crow, Sea Crow.

A late autumn and winter visitor to our shores from the Isle of Man chiefly. In the early hours of a November morning they may often enough be heard announcing their arrival to sleepless dwellers near the coast. In the hurricane of 3 December, 1821, a very large number of wild birds, such as 'sea-crows, snipe, and other aquatic birds,' were washed ashore dead on the Lancashire coast. (Bland, *Annals of Southport*, p. 82.)

88. Rook. *Corvus frugilegus*, Linn.

An abundant resident. During severe winter rooks may be seen feeding along the shore singly or in pairs widely separated, in company with plovers, gulls, and starlings.

89. Sky-Lark. *Alauda arvensis*, Linn.

Abundant.

90. Wood-Lark. *Alauda arborea*, Linn.

A once abundant but now very rare species, yet still probably often undistinguished from the sky-lark.

91. Shore-Lark. *Otocorys alpestris* (Linn.).

A very rare visitor and only in winter.

92. Swift. *Cypselus apus* (Linn.).

Locally, Devil skirler, Develin, Devil Screamer.

An abundant summer visitant.

93. Alpine Swift. *Cypselus melba* (Linn.).

Of this bird only two occurrences are on record. (Mitchell, *Birds of Lancashire*, ed. 2, p. 102.)

94. Nightjar. *Caprimulgus europæus*, Linn.

Locally, Night Hawk, Fern Owl.

A summer visitant, common in suitable localities.

95. Wryneck. *Ijnx torquilla*, Linn.

Locally, Lang tongue.

Formerly numerous, but now a very rare summer visitor. Observed on Stiperden Moor, Burnley, on 30 August, 1905.

96. Green Woodpecker. *Geocinus viridis* (Linn.).

Locally, Heyhough (Leigh).

A resident and not uncommon in thick woods, where it nests, but scarce elsewhere.

97. Great Spotted Woodpecker. *Dendrocopus major* (Linn.).

A sparsely distributed resident, chiefly frequenting our fir woods. Specimens were taken on Cartmell Fell and near Ulverston in November 1889. It nests in Witton Park, Blackburn. (*Zoologist*, 1904, p. 260.)

98. Lesser Spotted Woodpecker. *Dendrocopus minor* (Linn.).

A resident species, but much more rarely seen than the previous species, yet probably more numerous than is generally supposed. Nests are found every year.

[Great Black Woodpecker. *Picus martius*, Linn.

Yarrell (*History of British Birds*, ed. 3, ii. 138) records that an individual had been shot in the county by Lord Stanley, but it was proved to be a mistaken idea. (Harting, *Handbook of British Birds*, p. 304.)]

99. Middle Spotted Woodpecker. *Dendrocopus medius* (Linn.).

One visit of this species to Lancashire is on record. (Pennant, *Brit. Zool.* i. 180.)

['The Brazilian Magpie.' *Rhombastidarium sp. ig.*

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Leigh, writing in 1700 in his *History of Lancashire* (i. 195), records: 'About two years ago in the same violent hail storm [which brought the Tropic Bird, see p. 198 *infra*] the Brazilian magpie was "found dead on the coasts of Lancashire."' The figure 2 on 'Table ye I of Birds,' opposite p. 195, represents unquestionably a Toucan, but as Professor Newton suggests (*Dict. of Birds*, s.v. Toucan, p. 977), it may have escaped from captivity. Some probability, however, is given to its having really been brought by the storm from the occurrence of another southern and western bird—the Tropic bird—thrown on the Lancashire shore by the same storm.]

100. Kingfisher. *Alcedo ispida*, Linn.

A resident occurring on streams and meres, where not too frequented, in large and apparently increasing numbers through the operation of the Protection Acts. It occasionally nests on sea-washed cliffs.

101. Roller. *Coracias garrulus*, Linn.

An irregular summer migrant of whose occurrence some half dozen records, more or less authentic, exist.

102. Hoopoe. *Upupa epops*, Linn.

Formerly an irregular visitor to Lancashire, occurring generally in spring and autumn, more rarely in winter and summer; now very rare. A specimen taken at Knowsley in 1815 is preserved in the Lord Derby Museum, Liverpool. A late visit on record is from Walney Island in 1884. (Macpherson, *Fauna of Lakeland*, p. 169.) A specimen shot at Sale near Manchester in 1905 passed through Mr. H. Murray's hands.

103. Cuckoo. *Cuculus canorus*, Linn.

A constant annual summer visitor. It is still to be heard in the larger shrubberies even within the city bounds, generally in the stillness of the early morning before the din of its turmoil begins.

104. White or Barn-Owl. *Strix flammea*, Linn.

Locally, Howlet, White Owl.

A resident species and quite common.

105. Long-eared Owl. *Asio otus* (Linn.).

A resident, but more sparsely distributed than the last species, yet plentiful in some parts of the county. Nests in Witton Park, Blackburn. (*Zoologist*, 1904, p. 259.)

106. Short-eared Owl. *Asio accipitrinus* (Pallas).

The short-eared owl arrives in small companies generally in autumn and winter, and becomes fairly evenly distributed over the county. A good few remain and nest annually in suitable spots, such as unfrequented moors and dry mosses. It was seen in considerable numbers at Walney

Island in 1891, and a pair bred there in 1885, as certified by Mr. Howard Saunders. (Mitchell's *Birds of Lancashire*, ed. 2, p. 117.)

107. Tawny Owl. *Syrnium aluco* (Linn.).

Locally, Wood-owl.

Resident and still fairly common despite the persecution to which it is subjected. It is more frequent in our wooded districts.

108. Tengmalm's Owl. *Nyctala tengmalmi* (J. F. Gmelin).

A single specimen is recorded as taken near Preston in Mitchell's *Birds of Lancashire*, ed. 2, p. 119, the bird being now in the Nottingham Town Museum.

109. Little Owl. *Athene noctua* (Scopoli).

The single record for Lancashire occurs in the *Naturalist's Scrap-book*, 1863, part 5.

110. Scops-Owl. *Scops giu* (Scopoli).

One insufficiently authenticated occurrence of this bird is on record. (Mitchell, *Birds of Lancashire*, ed. 2, p. 120).

111. Marsh-Harrier. *Circus æruginosus* (Linn.).

Formerly a not uncommon straggler over most of the low-lying parts of the county, but now very rare.

112. Hen-Harrier. *Circus cyaneus* (Linn.).

Locally, Ringtail, Blue Glede.

Rather rare. It nests from time to time among the Fells, and is seen occasionally still on the low heather-clad hills and on the plain.

113. Montagu's Harrier. *Circus cineraceus* (Montagu).

Has been recorded twice from Lancashire, once from Walney Island in 1874, and once from Whitendale Moor in 1889 (Mitchell's *Birds of Lancashire*, ed. 2, p. 123.)

114. Buzzard. *Buteo vulgaris*, Leach.

A local much persecuted resident, nesting now only in our lake districts, where it receives less molestation from gunners and gamekeepers. The bird breeds more abundantly in Westmorland and also numerously in Anglesea, and from these localities many of our Lancashire frequenting individuals doubtless come.

115. Rough-legged Buzzard. *Buteo lagopus* (J. F. Gmelin).

A rare autumn visitor, putting in an appearance at intervals of a few years in the neighbourhood of the rabbit warrens along our coasts or in the interior of the county.

116. Spotted Eagle. *Aquila maculata* (J. F. Gmelin).

One occurrence of this species is recorded for 1875 from Walney Island by Mr. W. A. Durnford in his *Birds of Walney* (1883).

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117. Golden Eagle. *Aquila chrysaetus* (Linn.).

Durnford in the *Birds of Walney* notes one occurrence of the golden eagle near Furness Abbey in 1815.

118. White-tailed Eagle. *Haliaeetus albicilla* (Linn.).

The present writer thinks that the white-tailed eagle may still probably breed from time to time somewhere on the heights of this or the neighbouring counties, for several immature specimens have been taken along the coast and at other places. One killed at Blundellsands in 1895 was brought to him in the flesh on 3 December, and is now preserved in the Lord Derby Museum in Liverpool.

119. Goshawk. *Astur palumbarius* (Linn.).

The goshawk has twice been recorded from the county, in the years 1838 and 1863 respectively. (Mitchell, *Birds of Lancashire*, ed. 2, p. 127.)

120. Sparrow-Hawk. *Accipiter nisus* (Linn.).

A resident and still fairly abundant notwithstanding the hostility of every gamekeeper towards it.

121. Kite. *Milvus iclinus*, Savigny.

Locally, Gled.

Formerly more frequently met with than now in Lancashire as elsewhere, where it nested, though rarely in the tall trees, among the Fells and in a few other favourable places. It does not appear to have been noted, however, during the last quarter of a century.

[Swallow-tailed Kite. *Elanoides furcatus* (Linn.).

A specimen from the Macclesfield Museum sold at Stevens' Auction Rooms in London in June 1861 was said to have been shot on the Mersey in June 1843, but it may as well have escaped from captivity as been wafted to our shores by westerly winds. A very doubtful record, which is not sufficient to qualify for the Lancashire register.]

122. Honey-Buzzard. *Pernis apivorus* (Linn.).

An occasional summer visitor to Lancashire; but it has not occurred for many years now. Two female specimens, one shot (in Knowsley Park by the Hon. E. G. Stanley) in October, 1818, and a second at Rainford in 1835, are preserved in the Lord Derby Museum, Liverpool.

[Greenland Falcon. *Falco candicans* (J. F. Gmelin).

An insufficiently authenticated record exists of an adult specimen having been shot on a vessel coming into the port of Liverpool in the middle sixties. (Gregson, *Proc. Hist. Soc. of Lancashire and Cheshire*, 1865-6).]

123. Peregrine Falcon. *Falco peregrinus*, Tunstall.

A resident still in small numbers in the Fells, where amid their wild isolation a few broods are annually reared. One with a dunlin fast in its talons was taken by a fisherman on the marsh near Carnforth in 1900. It is not infrequently seen in some districts in spring.

124. Lanner Falcon. *Falco feldeggi*, Schl.

A female was picked up newly shot on the sea-shore near Carnforth, in April 1902, after frequenting the district for some weeks. (Robinson, *Zoologist*, 1904, p. 75.) No record is forthcoming that the bird was an escape from confinement.

125. Hobby. *Falco subbuteo* (Linn.).

An occasional spring and autumn migrant, now very rarely seen, though more frequent in former times, and for the last twenty-five years no occurrence has been recorded. A specimen shot at Knowsley is preserved in the Lord Derby Museum in Liverpool.

126. Merlin. *Falco aesalon*, Tunstall.

A locally distributed resident nesting on the hill sides and high moors and visiting the lowlands but rarely, and usually chiefly in winter, and these generally young birds. A very beautiful partial albino, shot at Lower Darwen, near Blackburn, in October, 1891, is preserved in the Lord Derby Museum, Liverpool.

127. Red-footed Falcon. *Falco vespertinus*, Linn.

A rare straggler, observed in the county only three times, all in the year 1843, one from Heaton Park and two from Prestwich Clough—the latter record, however, leaves much to be desired in the way of authentication.

128. Kestrel. *Falco tinnunculus*, Linn.

Locally, Windhover.

A common resident, the best known and the oftenest seen of all our hawks, nesting in all suitable plantations, and often formerly among the coastal sandhills. It is still much persecuted by gamekeepers, although now it derives some indirect, rather than intentional, benefit (so far as its persecutors are concerned) from the Bird Protection Acts.

129. Osprey. *Pandion haliaetus* (Linn.).

Locally, Fishing-hawk.

A not infrequent spring and autumn visitor, frequenting our inland meres.

130. Cormorant. *Phalacrocorax carbo* (Linn.).

Locally, Scarf.

A resident 'common in these parts' (according to Leigh) in 1700, but not nesting within our

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area as there are no suitable building sites, but as it breeds in North Wales and in Cumberland it frequents our coasts and rivers, often ascending the estuaries for some distance chiefly in autumn and winter. It may be noted that the 'Liver' in the arms of the Corporation of Liverpool has been supposed to be the cormorant, as the same appears in the arms of the earl of Liverpool and is described in Burke's Peerage as a 'Cormorant holding in the beak a bunch of seaweed,' for which, however, as Prof. Newton remarks, there is no authority.

131. Shag or Green Cormorant. *Phalacrocorax graculus* (Linn.).

An occasional visitor. The same observations apply to the shag as to the cormorant, except that for some reason it visits our coasts less frequently than the latter.

132. Gannet or Solan Goose. *Sula bassana* (Linn.).

A frequent visitor to Liverpool Bay; more frequently seen 8-10 miles off the coast and during winter.

[The Tropic Bird. (? *Phaethon aethereus* (Linn.).

'About two years ago (1698) by a violent hailstorm . . . there was brought a bird all white (except only a short red beak) about the bigness of a pigeon. . . I could apprehend it to be no other than what our travellers call the Tropic Bird, met with usually in crossing that Line.' (Leigh, *History of Lancashire*, i. pp. 164, 165; Table ye I of Birds, fig. 3). The illustration (l. c.) certainly represents a species of *Phaethon* which must no doubt have been brought from the S.W. regions of the Atlantic by the storm].

133. Heron. *Ardea cinerea*, Linn.

Locally, Crane, Yern, Longricks, Jammy, Heronshaw.

Many heronries have existed in the county at one place and another within the last fifteen years, but the extension of cultivated land and the consequent destruction of the plantations frequented by the birds have greatly reduced their number. Isolated nests are occasionally found in suitable places throughout the county. The most important heronries still remaining are at Ince Blundell near Waterloo, where about a score of pairs breed annually, and at Scarisbrick, near Southport, where there is a colony of twenty-five to thirty pairs. Another colony of ten to twelve pairs finds a home at Ashton, near Lancaster (Mitchell, *Birds of Lancashire*, ed. 2, p. 143). Macpherson (*Lakeland*, p. 223) records three other heronries: one of ten to twelve pairs at Roundsea Wood, which was destroyed in 1886, but exists probably somewhere not far off, as young birds were seen on Roundsea Moss in 1891; a second in the Rusland Valley, where

annually from eight to ten pairs nest, and the third at Whittington near Kirkby Lonsdale. The bird is far from an uncommon fisher by the banks of all our streams and canals and by our mere margins. Notwithstanding Lancashire's poverty in heronries large and flourishing colonies exist in Yorkshire and Cheshire, from which come many of our very welcome visitors.

134. Purple Heron. *Ardea purpurea*, Linn.

One visit of this species is recorded in 1887 (Pickin, *Zoologist*, 1887, p. 432).

135. Night Heron. *Nycticorax griseus* (Linn.).

No certain record of the occurrence of this species can be traced during the last twenty years; but Mr. Davies, of Lymm in Cheshire, possesses a specimen, received by him in the flesh, killed at Newton-le-Willows some 'ten or twelve years ago' (Coward, *Zoologist*, 1904, p. 314).

136. Little Bittern. *Ardetta minuta* (Linn.).

In past years an occasional summer visitor, but no record exists of its presence within our boundaries for many years past.

137. Bittern. *Botaurus stellaris* (Linn.).

Locally, Butter-bump, Bittery, Bog-bumper, Muedrum.

A very frequent visitor in winter, but not now known to nest within the county, although there can be little doubt that it once did so when drainage was less undertaken, and our meres and mosses were, therefore, more extensive and further from human habitation than to-day.

138. American Bittern. *Botaurus lentiginosus* (Montagu).

One clearly authenticated occurrence is recorded from Fleetwood on 8 December, 1895 (Cooper, *Zoologist*, 1846, p. 1248).

139. Glossy Ibis. *Plegadis falcinellus* (Linn.).

This species has been observed on four occasions in Lancashire during the past century. A specimen, preserved in the Lord Derby Museum, Liverpool, was shot at Ormskirk, and bequeathed to the city by the thirteenth Lord Derby in 1851. Some local interest attaches to this bird, as to it, amongst others, has been assigned the original of the 'Liver' in the arms of the City of Liverpool. 'The mysterious bird that figured on the ancient Corporation Seal seems to have been an eagle, the well-known symbol of St. John the Evangelist' (cf. Picton, *Memorials of Liverpool*, i. p. 18, and Newton, *Dictionary of Birds*, sub voce 'Lever or Liver'; also under Cormorant, No. 129, supra).

140. Spoonbill. *Platalea leucorodia*, Linn.

The spoonbill is recorded only once from Lancashire—the specimen now in the Preston Museum having been taken on the Ribble in 1840 (Mitchell, *Birds of Lancashire*, ed. 2, p. 148).

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141. Grey Lag-Goose. *Anser cinereus*, Meyer.

This bird is seen annually during the spring and autumn migration in flocks which rest on the sandbanks off the mouths of the Mersey and Dee, and in Morecambe Bay on the large tract of land reclaimed since 1863 in the Ribble estuary. While other waders have ceased to find it a suitable rendezvous, geese of several species annually muster on it to the number of many thousands (Mitchell, *Birds of Lancashire*, ed. 2, p. 151). A pair nested on the Formby Sands in 1904, but on their eggs being taken the birds took their departure.

[Egyptian Goose. *Cbenalopex ægyptiacus* (Linn.).

Shot on several occasions on the Ribble, but probably an escape from confinement (Mitchell, *Birds of Lancashire*, ed. 2, p. xi.)].

142. White-fronted Goose. *Anser albifrons* (Scopoli).

A winter visitor, seen and obtained on several occasions among flocks of migrating geese.

143. Bean-Goose. *Anser segetum* (J. F. Gmelin).

The bean-geese is often shot on passage during the spring and autumn migration, and so occasionally comes into the poultry markets of our large towns.

144. Pink-footed Goose. *Anser brachyrhynchus*, Baillon.

An annual winter visitant, assembling with other species of geese in our larger estuaries, visiting the mouth of the Ribble in large flocks every year to feed on the early bent-grass shoots abundant there.

145. Red-breasted Goose. *Bernicla ruficollis* (Pallas).

Two are said to have been shot between 1832 and 1837 in the flooded marshes at Sowerby near Garstang (Hornby, *Zoologist*, 1872, p. 3236; Harting, *Handbook of British Birds*, p. 435).

146. Barnacle Goose. *Bernicla leucopsis* (Bechstein).

An annual winter visitant, resorting in large flocks to Walney Island and to the shores of Morecambe Bay, and to the sandbanks in the estuaries of the Ribble and the Mersey.

147. Brent Goose. *Bernicla brenta* (Pallas).

An annual winter visitor to all suitable banks and shores throughout the length of the Lancashire coast, and to many of the lakes, though not in large numbers.

[Canada Goose. *Bernicla canadensis* (Linn.).

Though often obtained on the coast, probably an escape from confinement.]

148. Whooper Swan. *Cygnus musicus*, Bechstein.

A winter visitor, especially in severe winters such as 1895, when they were reported from

the meres, lakes, and estuaries of the county in considerable numbers.

149. Bewick's Swan. *Cygnus bewicki*, Yarrell.

A winter visitor, generally in flocks, but so rare in Lancashire that only a few records exist during the past thirty years.

150. Mute Swan. *Cygnus olor* (J. F. Gmelin).

Individuals of this common domesticated species, which often make their appearance for a time on formerly untenanted waters, are doubtless young birds driven from some private enclosure by their parents when about to nest again in the spring.

151. Sheld-Duck. *Tadorna cornuta* (S. G. Gmelin).

The sheld-duck is a resident and nests in all suitable places along our coasts, such as the Formby sandhills, among the warrens near the Ribble, and abundantly on Walney Island.

152. Mallard or Wild Duck. *Anas boschas*, Linn.
Locally, Mere Duck.

A common resident, breeding in all our meres, and occasionally also far from water. In winter large numbers of migrants from the Continent augment our resident flocks. Several hundreds are taken every year in the large decoy at Hale.

153. Gadwall. *Anas strepera*, Linn.

A rare winter visitor to our inland waters, of whose occurrence several records exist, but probably it is oftener seen than identified and recorded.

154. Shoveler. *Spatula clypeata* (Linn.).

Locally, Spoonbill-duck.

An annual winter visitant to all the marshes, meres, river pools, estuaries, and lakes of the county; a few probably every year remaining to breed.

155. Pintail. *Dafila acuta* (Linn.).

A regular winter visitor in increasing numbers to our estuaries and inland waters, and probably some remain to nest, though no record so far exists of their having done so.

156. Teal. *Nettion crecca* (Linn.).

A resident, breeding in all suitable heathlands in almost every district of Lancashire. During autumn the home flocks are greatly increased by migrants from the Continent. Over 450 teal on an average are annually captured at the decoy at Hale.

157. Garganey. *Querquedula cirica* (Linn.).

A rare spring and autumn migrant, observed three or four times only.

158. Wigeon. *Mareca penelope* (Linn.).

During winter numerous flocks of this duck visit the larger estuaries along the coast and

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some of the meres. Considerable numbers are annually taken in the decoy at Hale, now the only remaining one in Lancashire.

159. Pochard. *Fuligula ferina* (Linn.).

A winter visitor, more numerous in some seasons than in others.

160. Ferruginous Duck. *Fuligula nyroca* (Güldenstädt).

Locally, White-eye.

None of the records of the occurrence of this duck in Lancashire are sufficiently authenticated. The same applies to that reported from near Runcorn on the Cheshire side of the Mersey. (Mitchell, *Birds of Lancashire*, ed. 2, p. 175.)

161. Tufted Duck. *Fuligula cristata* (Leach).

A winter visitor, never very common, but apparently increasing in numbers. Although some pairs usually remain over the summer there are only a few records of this species breeding within the county.

162. Scaup Duck. *Fuligula marila* (Linn.).

Locally, Bluebill, Cockle Duck.

An annual winter visitor to our off-shore sandbanks and estuaries, where it is caught in vast numbers in the douker nets set by the Morecambe Bay fowlers. This very maritime species has been taken on our inland lakes (Windermere) and reservoirs (near Hyde Park Road Station, Manchester).

163. Goldeneye. *Clangula glaucion* (Linn.).

Locally, Mussel Cracker.

An annual winter visitant.

164. Long-tailed Duck. *Harelda glacialis* (Linn.).

This species has been recorded only three or four times from Lancashire, and always in winter. A female specimen was shot in the River Keer, in 1901.

165. Eider Duck. *Somateria mollissima* (Linn.).

A very rare winter visitant.

166. Common Scoter. *Edemia nigra* (Linn.).

Locally, Black Douker.

The Common Scoter arrives in great flocks on migration in our larger estuaries and Morecambe Bay. It derives its local appellation from being the duck taken in largest numbers by the douker netters.

167. Velvet Scoter. *Edemia fusca* (Linn.).

An infrequent winter visitor to off-shore sandbanks and to the larger estuaries; occasionally it frequents the lakes and inland open waters.

168. Surf Scoter. *Edemia perspicillata* (Linn.).

A specimen shot by Mr. R. H. Thompson off the shore at Lytham, 9 December, 1882 (*Zoologist*, 1884, p. 29), is the only recorded occurrence of this species in the county.

169. Goosander. *Mergus merganser*, Linn.

Locally, Sparling-fisher (Leigh), Dun-diver (the female), Sparlin' Fowl (Willoughby), Gravel Duck.

An occasional winter visitor in small flocks.

170. Red-breasted Merganser. *Mergus serrator*, Linn.

A winter visitor in considerable numbers to the larger estuaries and Morecambe Bay, visiting also Lake Windermere.

171. Smew. *Mergus albellus*, Linn.

A rare winter visitant during specially severe weather.

172. Ring-Dove or Wood-Pigeon. *Columba palumbus*, Linn.

Locally, Cushat, Queeze.

A widely distributed resident.

173. Stock-Dove. *Columba œnas*, Linn.

A resident, common along the coast on the sand-dunes, among which it nests. Its numbers are increasing. It is met with occasionally inland.

174. Rock-Dove. *Columba livia*, J. F. Gmelin.

To the absence in Lancashire of rocks suitable for the nidification of this bird is due the rarity of its occurrence within the county. Mr. W. Farrer of Carnforth mentions that several breed yearly on Jackscar, between Carnforth and Silverdale.

175. Turtle-Dove. *Turtur communis*, Selby.

A rare straggler in summer.

176. Pallas's Sand-Grouse. *Syrnhartes paradoxus*, (Pallas).

To two at least of those extraordinary irregular (and at present inexplicable) migratory movements, originating on the Asiatic steppes in special force in 1863-4 and 1888-9, during which hordes of this species travelled across Europe and reached its western shores, we are indebted for the inclusion of a considerable number of this beautiful species in the avifauna of Lancashire. During both these irruptions large flocks reached the British Isles, of which a portion appeared in the Island of Walney on 22 May, 1863, the day after their being observed in Northumberland. In 1888 a larger number of birds visited Lancashire, the earliest of them reaching Walney Island on 19 May.

177. Black Grouse. *Tetrao tetrix*, Linn.

Locally, Black-cock.

An introduced species, at one time fairly abundant on certain of the Fells and Dales, but now very rare if not exterminated.

178. Red Grouse. *Lagopus scoticus* (Latham).

Resident and abundant on the upland moors, of Furness specially.

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179. Pheasant. *Phasianus colchicus*, Linn.

Abundant.

180. Partridge. *Perdix cinerea*, Latham.

An abundant resident.

[The Red-legged Partridge. *Caccabis rufa* (Linn.).

This species was on more than one occasion introduced into Lancashire, but none have survived, as in some other counties, to become naturalized residents.]

181. Quail. *Coturnix communis*, Bonnatere.

A resident, but less numerous than formerly.

[Virginian Quail. *Ortyx virginianus* (Linn.).

Several attempts to introduce this species into Lancashire have failed, as they have also done in other parts of England.]

182. Land-Rail. *Crex pratensis*, Bechstein.

Locally, Corn-crake, Draken Hen.

An abundant summer immigrant; resting abundantly.

183. Spotted Crake. *Porzana maruetta* (Leach).

An autumn immigrant, less frequently observed than other rails. It winters occasionally; three occurrences are recorded in 1898 and one in 1904, all from the Rusland Valley in Furness (*Zoologist*, 1904, p. 460); and with little doubt it occasionally nests in Lancashire.

184. Little Crake. *Porzana parva* (Scopoli).

Some half dozen specimens are recorded as having been taken in the county (Mitchell, *Birds of Lancashire*, ed. 2, p. 201).

185. Baillon's Crake. *Porzana bailloni* (Vieillot).

Two occurrences only of this species are on record (Mitchell, *Birds of Lancashire*, ed. 2, p. 201; Macpherson, *Fauna of Lakeland*, p. 343).

186. Water-Rail. *Rallus aquaticus*, Linn.

Locally, Scarraraise.

A numerous and widely distributed resident.

[Purple Gallinule. *Porphyrio cœruleus* (Vandelli).

A specimen shot near Grange in 1876 (*Zoologist*, 1877) was doubtless an escape from confinement.]

187. Moor-Hen. *Gallinula chloropus* (Linn.).

Locally, Water-hen.

A resident, frequenting all our tarns and meres.

188. Coot. *Fulica atra*, Linn.

Locally, Lake-hen.

An abundant resident, frequenting and nesting on our various lakes and in all reedy tarns and pools.

189. Crane. *Grus communis*, Bechstein.

Only once observed within the county (Mitchell, *Birds of Lancashire*, ed. 2, p. 206).

190. Little Bustard. *Otis tetrax*, Linn.

Four specimens of this species have been recorded from Lancashire (Mitchell, *Birds of Lancashire*, ed. 2, p. 206).

191. Collared Pratincole. *Glareola pratincola*, Linn.

This species was taken for the first time in Britain at North Meols, near Ormskirck, in the spring of 1805 (cf. *Trans. Linn. Soc.* lx. p. 198). The specimen is now preserved in the Lord Derby Museum, Liverpool. Though taken many times since in England, it has not occurred again in Lancashire.

192. Dotterel. *Eudromias morinellus* (Linn.).

A spring and autumn visitor on migration, spreading over the county, frequenting mosses and estuaries, then proceeding on its way. A few probably occasionally remain to breed.

193. Ringed Plover. *Ægialitis biaticula* (Linn.).

Locally, Sand-lark, Tullet.

An abundant resident.

194. Golden Plover. *Charadrius plumbeus*, Linn.

Locally, Sheep's Guide.

A spring immigrant distributed sparsely over the county, breeding in suitable localities and frequenting the shore in winter.

195. Grey Plover. *Squatarola belvetica* (Linn.).

A winter visitant.

196. Sociable Plover. *Vanellus gregarius* (Pallas).

A solitary straggler has been recorded from Lancashire. The unique specimen recorded first as a cream coloured courser by Mitchell (*Birds of Lancashire*, ed. 2, p. 212) is said to have come from St. Michael's-in-Wyre in 1860. The stuffed specimen was exhibited by the late Mr. H. Seebohm at a meeting of the Zoological Society in 1888; but there is no actual authentication of the bird having been captured in the county.

197. Peewit or Lapwing. *Vanellus vulgaris*, Bechstein.

Locally, Peewit, Green Plover, Puetts.

Resident throughout the year, congregating in large flocks in spring in their nesting quarters. Very abundant on Walney Island. Some districts are entirely forsaken by the lapwings after their young are reared, and are not again visited till the following spring. In other districts they remain the entire year through, or, if not, immigrants from elsewhere fill their places.

198. Turnstone. *Streptilas interpres* (Linn.).

A spring and autumn visitor to our coasts. It not infrequently appears in full summer dress on

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Walney Island and along the shores of Morecambe Bay in May (Mitchell).

199. Oyster-Catcher. *Hæmatopus ostralegus*, Linn.

Locally, Sea Pie.

A resident frequenting the entire shore line of the county; it is specially abundant on Walney Island, where it breeds freely, as it does on the sandhills further south.

200. Avocet. *Recurvirostra avocetta*, Linn.

A very rare visitor. It has occurred on Walney Island and on the Ribble (Mitchell, *Birds of Lancashire*, ed. 2, p. 217).

201. Grey Phalarope. *Phalaridopus fulicarius* (Linn.).

An irregular autumn visitor. Mr. Macpherson records specimens from Walney Island and Windermere (*Fauna of Lakeland*, p. 368).

202. Red-necked Phalarope. *Phalaridopus hyperboreus* (Linn.).

A very rare autumn and winter visitant to our estuaries. One is said to have been shot near Southport in 1832, and during the last ten years eight specimens have been brought to Mr. H. Murray, all shot on Carnforth and Martin Marshes.

203. Woodcock. *Scolopax rusticula*, Linn.

An autumn visitor on migration, arriving in large numbers and remaining over the winter. It breeds in the northern districts of the county.

204. Great Snipe. *Gallinago major* (J. F. Gmelin).

An autumn and winter visitor. It was first recorded as a British bird from this county. The specimen passed into Sir Ashton Lever's Museum, thence into the hands of an unknown purchaser on the dispersion of that celebrated collection. A specimen in the Lord Derby Museum, Liverpool, was shot by the late Edward J. S. Hornby, Esq., at Winwick, Lancashire.

205. Common Snipe. *Gallinago cælestis* (Frenzel).

Locally, Heather-bleat.

Resident and abundantly distributed over Lancashire, nesting in all suitable places. The resident flocks are largely augmented in numbers during winter by immigrant visitors.

206. Jack Snipe. *Gallinago gallinula* (Linn.).

Locally, Indcock.

A fairly abundant winter immigrant.

207. Dunlin. *Tringa alpina*, Linn.

Locally, Sealark, Oxeye, Sea Mouse.

A winter visitor frequenting in countless thousands the off-shore sandbanks along the

coast; some few annually remain to breed, and are known to do so in fair numbers on Carnforth and Martin Marshes.

208. Little Stint. *Tringa minuta*, Leisler.

A scarce spring and autumn visitor on migration.

209. Temminck's Stint. *Tringa temmincki*, Leisler.

A rare spring and autumn straggler on migration, more rarely observed than the little stint, there being only a couple of records of its occurrence; but probably it is often unrecognized.

210. Curlew Sandpiper. *Tringa subarquata* (Guldenstädt).

A fairly common spring and autumn visitant to our shores, occasionally travelling inland.

211. Purple Sandpiper. *Tringa striata*, Linn.

An annual winter visitor, but far from common.

212. Knot. *Tringa canutus*, Linn.

Large flocks of knots annually visit Morecambe Bay and the Mersey and Ribble estuaries as spring and autumn migrants.

213. Sanderling. *Calidris arenaria* (Linn.).

A spring and autumn visitor on migration to our off-shore sandbanks, often in very large flocks.

214. Ruff. *Macbetes pugnax* (Linn.).

A fairly common spring and autumn visitor.

215. Buff-breasted Sandpiper. *Tringites rufescens* (Vieillot).

Very rare straggler. Recorded only once, from Formby, in 1829.

216. Common Sandpiper. *Totanus hypoleucus* (Linn.).

Locally, Sand-snipie, Sand-lark, Willie Liltie.

A summer immigrant which breeds on the Fells and uplands of the county.

217. American Spotted Sandpiper. *Totanus macularius* (Linn.).

A North American species, of which four examples, well authenticated, have straggled into Lancashire in two closely set years, 1863 and 1865.

218. Wood Sandpiper. *Totanus glareola* (J. F. Gmelin).

A rare autumn and winter straggler.

219. Green Sandpiper. *Totanus ochropus* (Linn.).

A regular autumn visitor on migration to most of the inland streams.

220. Redshank. *Totanus calidris* (Linn.).

An autumn and winter visitant, occasionally in large flocks; but a few always reside through-

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out the year, nesting only in a very few localities, Carnforth and Martin Marshes, Winster Valley and Walney Island among them.

221. Spotted Redshank. *Totanus fuscus* (Linn.).
Locally, Dusky Redshank.

A spring and autumn migrant of rare occurrence.

222. Greenshank. *Totanus canescens* (J. F. Gmelin).

An annual visitant in autumn, sparsely distributed on the coast, usually in small flocks.

223. Red-breasted Snipe. *Macrorhamphus griseus* (J. F. Gmelin).

Two occurrences of this N. American species are on record (*Zoologist*, 1875) in the years 1873 and 1891 respectively, both by Mr. J. B. Hodgkinson (Harting, *Handbook of British Birds*, p. 436; Mitchell, *Birds of Lancashire*, ed. 2, p. 235).

224. Bar-tailed Godwit. *Limosa lapponica*, (Linn.).

Locally, Curlew Knave.

A short sojourner in spring and autumn on passage.

225. Black-tailed Godwit. *Limosa belgica* (J. F. Gmelin).

A rarer visitant than the last, but a few are seen every year, as a rule in the autumn.

226. Curlew. *Numenius arquatus* (Linn.).

A resident and abundant species, visiting Walney Island in large flocks, nesting on the Fells, the upland moors, and on the mosses of the lowlands. In autumn and winter frequenting in great numbers the off-shore sandbanks.

227. Whimbrel. *Numenius phaeopus* (Linn.).

Locally, Curlew Hilp (Leigh), Curlew Knave.

Rarer than the curlew, the whimbrel visits our shores, especially off Morecambe Bay, only in autumn and spring on migration to and from its nesting grounds.

228. Black Tern. *Hydrochelidon nigra* (Linn.).

A fairly frequent sojourner on its passage in spring and autumn to and from its nesting haunts. A specimen is recorded from Ashton-on-Mersey on 3 November, 1893.

229. Gull-billed Tern. *Sterna anglica*, Montagu.

One occurrence of this species is recorded from Lancashire, but it lacks sufficient authenticity.

230. Sandwich Tern. *Sterna cantiaica*, J. F. Gmelin.

Locally, Cat Swallow.

A summer immigrant nesting on Walney Island among the black-headed gulls. Rare elsewhere and taking its departure at the end of summer.

231. Roseate Tern. *Sterna dougalli*, Montagu.

A rare summer visitor, breeding on Walney Island from time to time. It nested at one period on the isolated islet of Foulney, but does so no longer.

232. Common Tern. *Sterna fluviatilis*, Naumann.

Locally, Sea Swallow, Sparling.

A summer visitor breeding in many places along the coast in suitable and undisturbed localities, especially on Walney Island in association with black-headed gulls, and often among the Formby sandhills.

233. Arctic Tern. *Sterna macrura*, Naumann.

Locally, Sea Swallow, Sparling.

A summer visitor, but few in numbers. Walney Island is one of its chief haunts in Lancashire, where it nests in association with gulls and other terns.

234. Little Tern. *Sterna minuta*, Linn.

Locally, Sea Swallow, Sparling.

A summer visitor nesting on Walney Island.

235. Sooty Tern. *Sterna fuliginosa*, J. F. Gmelin.

This West Indian species was caught alive 9 October, 1901, in a street in Hulme, near Manchester (*Bull. B.O.C.* xii. 26).

236. Sabine's Gull. *Xema sabini* (Sabine).

Two specimens from Morecambe Bay are on record, obtained in October, 1893, and at the same place Mr. Moor of Morecambe has shot three specimens within the last few years.

237. Little Gull. *Larus minutus*, Pallas.

An irregular autumn and winter straggler, of which four or five occurrences are recorded (Mitchell, *Birds of Lancashire*, ed. 2. p. 254; Jourdain, *Zoologist*, 1904, p. 193). A specimen was shot by Mr. Murray's son on Carnforth Marshes in 1902.

238. Black-headed Gull. *Larus ridibundus*, Linn.

Locally, Chir-Maws, Cockle Maw.

A resident, and abundant on our inland waters in great and increasing numbers. Many colonies breed in the sandhills and marshy parts of Walney Island. It is often seen far inland.

239. Common Gull. *Larus canus*, Linn.

An annual visitant throughout the winter, but the species breeds nowhere in England.

240. Herring-Gull. *Larus argentatus*, J. F. Gmelin.

Locally, Silver Gull.

A resident, abundant on the coast at all seasons, but nesting only in a few places now, mainly at Foulshaw Moss, near Morecambe Bay,

A HISTORY OF LANCASHIRE

in association with lesser black-backed gulls. (Macpherson, *Fauna of Lakeland*, p. 428.)

241. Lesser Black-backed Gull. *Larus fuscus*, Linn.

Resident, and numerous all the year round; but now its nesting places are confined to small colonies 'on the low grounds round the estuary of the Kent' (Mitchell); also on Walney Island and Foulshaw Moss, near Morecambe Bay. It formerly bred on Piling and Cockerham Mosses, but of late years it has not been observed nesting there.

242. Great Black-backed Gull. *Larus marinus*, Linn.

Locally, Devoke Water Maw.

A resident species, frequently seen on the Mersey during winter, and numerous a few miles off shore all the year round. It nests on Piling Moss in numbers, and on the Fells near Rusland, not far from Morecambe Bay (Macpherson, *Fauna of Lakeland*, p. 432).

243. Glaucous Gull. *Larus glaucus*, Fabricius.

A very rare visitant.

244. Iceland Gull. *Larus leucopterus*, Faber.

Seen on Duddon Estuary, 24 October, 1885. (Macpherson, *Fauna of Lakeland*, p. 437.)

245. Kittiwake. *Rissa tridactyla* (Linn.).

A resident, abundant all the year round, but because of the absence of rocks it does not nest within our boundaries.

246. Ivory Gull. *Pagophila eburnea* (Phipps).

This species is said to have been killed on several occasions in Morecambe Bay, but none of the records seem quite sufficiently authenticated; Mr. Macpherson, however, vouches for one taken near Kendal 'within a short flight of the sea coast' (*Fauna of Lakeland*, p. 438). One shot on Foulshaw Moss in 1847 is now in the collection of Dr. Jackson, of Carnforth.

247. Great Skua. *Megalestris catarrhactes* (Linn.).

A rare visitant at various seasons of the year; but as it keeps off-shore its visits are probably not so rare as supposed.

248. Pomatorhine Skua. *Stercorarius pomatorhinus* (Temminck).

A more frequent visitor than the great Skua.

249. Arctic or Richardson's Skua. *Stercorarius crepidatus* (J. F. Gmelin).

A few specimens are observed in most years.

250. Long-tailed or Buffon's Skua. *Stercorarius parasiticus* (Linn.).

A goodly number of occurrences have been recorded, but at long intervals of time.

251. Razor-bill. *Alca torda*, Linn.

A resident, but chiefly an off-shore living species, rarely, if ever, breeding in Lancashire, purely through lack of such suitable localities as it finds abundantly on the Isle of Man and in N. Wales. Mitchell records evidence of the nesting of this species once on the Furness coast.

252. Guillemot. *Uria troile* (Linn.).

The guillemot, being like the razor-bill a rock-loving species, does not nest in Lancashire. It is quite commonly met with a few miles off shore. After storms it is very frequently thrown on the beach dead.

253. Black Guillemot. *Uria grylle* (Linn.).

An extremely rare visitor, and then generally in the winter. It would doubtless find a home on our coasts if they had been furnished with rocks, which this bird invariably loves to frequent.

254. Little Auk. *Mergulus alle* (Linn.).

The little auk is seen mainly on our shores as flotsam and jetsam after very cold and stormy weather. Macpherson records the capture alive of specimens near Coniston and Windermere (*Fauna of Lakeland*, p. 446).

255. Puffin. *Fratercula arctica* (Linn.).

Locally, Coulterneb.

The puffin, like the last species, is generally seen on our shores dead after storms. It would no doubt nest in Lancashire if there were such sites as the Welsh coast and the Isle of Man provide.

256. Great Northern Diver. *Colymbus glacialis*, Linn.

An annual winter visitant in small numbers. It is occasionally taken in nets set for ducks.

257. Black-throated Diver. *Colymbus arcticus*, Linn.

Only a very occasional visitant.

258. Red-throated Diver. *Colymbus septentrionalis*, Linn.

An annual visitor in winter.

259. Great Crested Grebe. *Podiceps cristatus* (Linn.).

Locally, Diver.

A resident, and numerous on our inland meres and lakes, nesting annually in suitable localities. In severe weather it frequents estuaries and the sea coast.

260. Red-necked Grebe. *Podiceps griseigena* (Boddaert).

Only a very occasional winter visitant, especially in severe weather.

261. Slavonian Grebe. *Podiceps auritus* (Linn.).

Of the occurrence of this species only a few records exist; but the bird has not been observed during the past twenty-five years.

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262. Eared or Black-necked Grebe. *Podiceps nigricollis* (C. L. Brehm).

Mr. Hugh Hornby possesses a specimen 'killed near Lune Mouth late in March or early in April, 1886' (Saunders, in Mitchell's *Birds of Lancashire*, ed. 2, p. 262). An adult male specimen, in full summer plumage, was captured alive at Middleton, near Lancaster, 28 July, 1904 (Robinson, *Zoologist*, 1904, p. 350).

263. Little Grebe or Dabchick. *Podiceps fluviatilis* (Tunstall).

Locally, Douker, Little Diver, Foot-in-arse.

A resident species which breeds regularly in most suitable places throughout the county.

264. Storm-Petrel. *Procellaria pelagica*, Linn.

This species is never seen except after gales and stormy weather, when it is sometimes cast up on the shore dead, or occasionally blown inland.

265. Leach's Fork-tailed Petrel. *Oceanodroma leucorhoa* (Vieillot).

This petrel reaches Lancashire only after

stormy weather. When it occurs several individuals are generally observed together.

266. Wilson's Petrel. *Oceanites oceanicus* (Kuhl).

A specimen was washed up 'on the north-west shore of Walney Island in November, 1890' (Macpherson, *Fauna of Lakeland*, p. 457.)

267. Frigate or White-faced Petrel. *Pelagodroma marina* (Latham).

A dead specimen was washed up after the severe gale of November, 1890, 'on the outside of Walney Island' (Macpherson, *Fauna of Lakeland*, p. 458).

268. Manx Shearwater. *Puffinus anglorum* (Temminck).

A not infrequent winter visitant.

269. Fulmar. *Fulmarus glacialis* (Linn.).

A very rare visitant, reaching our coasts during or after severe weather. There are three or four occurrences on record.

MAMMALS

The generally recognized British mammal fauna of the present day comprises seventy-three species, of which, excluding the domesticated mammals, Lancashire has forty-seven representatives. The most notable absentees occur among the *Cheiroptera* and the *Cetacea*, and of the sixteen species of the former admitted into the British list, seven have so far been recorded for the county. Among the unregistered species, however, the hairy-armed bat (*Pterygistes leisleri*) and the whiskered bat (*Myotis mystacinus*), whose range has been recorded as extending to the 'Lake District,' without specifically mentioning any locality in Lancashire, will almost certainly be yet discovered within our limits when the bats have been more numerously collected and more carefully identified in the northern part of the shire. Of the remaining species of bats three are doubtfully British, and four are confined to the south of England. Of the unrecorded cetaceans four are unknown to have visited the western coasts of Britain; one, Risso's grampus (*Grampus griseus*), is a very rare visitor to our seas; and the other two, the black-fish (*Globicephalus melas*) and the lesser rorqual (*Balænoptera acuto-rostrata*), will in all probability, from their known wide range, be yet recorded as Lancashire visitants. Indeed, among the remains of various animals found in the excavations on the margin of the Ribble for the Preston Docks, no fewer than three skulls of the black-fish were discovered, besides the jaw-bone of a right whale (*Balæna mysticetus*) and the skulls of a porpoise and of a species of grampus. The most remarkable cetacean on our list is the great hump-backed whale, which, venturing into the Mersey in 1863, became stranded so far from the sea as the mud flats near to Speke Hall.

The only other group in which Lancashire falls short of the full tale of English species is the *Carnivora*, in which no representative of the ringed seal (*Phoca hispida*) has yet been met with; nor, indeed, has the species been recorded from the shores of any western county of England.

The enormous and increasing sandbanks fringing the whole coast line from Cumberland to the mouth of the Dee are loaded with rich molluscan and ophiuroid deposits, and the waters overflowing them teem with polyzoa, crustaceans, and fish-fry. These sandbanks are just the localities towards which cetaceans and marine carnivores would be attracted; and doubtless these unvisited areas are visited by species of both groups, during their migrations, far oftener than can be observed from the shore.

The ceaseless extension of the boundaries of our towns and cities; the increase of chemical and other industries which invade with their fatal fumes ever broadening tracts of country; the continuous reduction by drainage of the mosses and meres which in Lancashire were once (and even yet are) so

MAMMALS

extensive; and, above all, the intrusion of man into every nook and corner of districts which long were sanctuaries for every beast of the field, are all having a reducing effect on its mammalian, especially its carnivorous, fauna. The fox, the otter, the badger, and the pine marten are becoming rarer every year, and will soon have passed altogether, if indeed the last-named, together, too probably, with the wild cat, has not already become extinct in Lancashire. The charming diminutive harvest mouse, whose grass-ball nest filled with tiny young was ever the delight of the old-time scythe-man, has been all but exterminated by the modern reaping machine.

The present fauna has, however, long lost its most imposing members. It would have been possible a few centuries ago to have seen wild, amid the uplands of lakeland Lancashire and in the open glades and in the once dense but now vanished forests of the plain, some noble and formidable quadrupeds. The wolf, whose lair was among the crags of the Pennines and the Fells, was only finally exterminated in the seventeenth century. Innumerable wild boars infested the woods, and large beaver communities the banks of many of the streams. Herds of red-deer, generally more splendidly antlered than the species is to-day, roamed over the opener parts of the county till the close of the seventeenth century. If tradition may be trusted, one of the last retreats where the wild white cattle of Britain, the direct offspring—probably mingled with other blood—of the urus, lived and bred unparked and in a state of nature was the far-extending ancient forest of Bowland, just as they had ‘brede in times [longer] paste at Blakele.’ Hence, doubtless, was obtained the foundation of those herds which during the past 500 years or more were enclosed in parks in many parts of Lancashire, such as at Houghton Tower, Whalley Abbey, and Middleton Hall, where the cattle roamed in a quite undomesticated state. According to Leigh’s *History of Lancashire*, the herd of Sir Ralph Ashton at the last-mentioned hall was still wild as late as the year 1700, and apparently the bulls still sported flowing manes, an ancestral heritage which is generally hardly to be discerned in the majority of their male descendants to-day. Various other domestic breeds appear to have been specially reared in the county. The author just quoted notes that ‘Lancashire . . . is most remarkable for breeding Cattle of a size more than Ordinary large, particularly about Burnley and Maudsley, from which places I have known Cattle sold at extraordinary rates, an heifer sometimes amounting to £15 or £20; the ground they feed upon is usually upon an ascent, and the grass shorter than in lower grounds.’ A native breed of cattle which has now become nearly extinct had long horns, a thick firm textured hide with long thick shaggy hair variable in colour, large hoofs, and a coarse thick neck. Baines, too, speaks of ‘a herd of black sheep which used to graze on the pastures of Higher Furness, furnishing wool that in former times rendered the woollen manufacture of Kendal and Cartmel famous throughout England.’ The Haslingden sheep are probably the remains of the ancient Lancashire horned breed which had a grey face and carried a heavy fleece. The Hardwick breed in Higher Furness, which is hornless, produces short wool, and has the face and legs speckled. Any detailed notice, however, of the species of mammals which once inhabited the county, but have been entirely removed from the roll of living creatures, must be left to the palæontologist to supply.

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CHEIROPTERA

1. Lesser Horse-shoe Bat. *Rhinolophus hipposiderus*, Bechstein.
Rare.
2. Long-eared Bat. *Plecotus auritus*, Linn.
Common.
3. Barbastelle. *Barbastella barbastellus*, Schreber.
Bell—*Barbastellus daubentonii*.
Rare.
4. Great or White's Bat (Noctule). *Pipistrellus noctula*, Schreber.
Bell—*Scotophilus noctula*; White—*Vespertilio altivolans*; Thomas—*Pterygistes noctula*.
Now very scarce. Lancashire is, so far as known, its north-western limit.
5. Pipistrelle. *Pipistrellus pipistrellus*, Schreber.
Bell—*Scotophilus pipistrellus*.
Locally, Flittermouse.
Not uncommon.
6. Natterer's or Reddish-grey Bat. *Myotis nattereri*, Leisler.
Bell—*Vespertilio nattereri*.
Not infrequent. A specimen was taken at Cheetham Hill, Manchester, Christmas 1892.
7. Daubenton's Bat. *Myotis daubentoni*, Leisler.
Bell—*Vespertilio daubentonii*.
Not uncommon in wooded localities.

INSECTIVORA

8. Hedgehog. *Erinaceus europæus*, Linn.
Locally, Urchin.
Abundant.
9. Mole. *Talpa europæa*, Linn.
Locally, Moodiawrk, Want.
Abundant, occasionally albino.
10. Common Shrew. *Sorex araneus*, Linn.
Quite common.
11. Pigmy Shrew. *Sorex minutus*, Linn.
Bell—*Sorex pygmaeus*.
Occurring sparsely.
12. Water Shrew. *Neomys fodiens*, Pallas.
Bell—*Crossopus fodiens*.
Common.

CARNIVORA

13. Wild Cat. *Felis catus*, Linn.
About a century ago the wild cat was to be seen on Cartmel Fell and other parts of Lakeland in considerable numbers, and it was, though extremely rare, still to be met with fifty years ago, but it is much to be feared that it is now extinct in Lancashire.
14. Fox. *Vulpes vulpes*, Linn.
Bell—*Vulpes vulgaris*.
Numerous.
15. Pine Marten. *Mustela martes*, Linn.
Bell—*Martes abietum*.
Locally, Fox Cork, Mart Cork, Mart, Sweetmart.
Tolerably numerous in the uplands, Coniston Hills, Windermere and Furness districts. An old female specimen was caught in the Rusland Valley, Furness, in May 1902 (Archibald, *Zoologist*, 1904, p. 455).
16. Polecat. *Putorius putorius*, Linn.
Bell—*Mustela putorius*.
Locally, Fomart, Fichet.
Not nearly so common as the weasel, but more numerous formerly; yet abundant in some localities.
17. Common Stoat. *Putorius ermineus*, Linn.
Bell—*Mustela erminea*.
Common. Very rarely seen in the white garb of winter except among the high Fells, and there often partially changed only.
18. Weasel. *Putorius nivalis*, Linn.
Bell—*Mustela vulgaris*.
Abundant.
19. Otter. *Lutra lutra*, Linn.
Bell—*Lutra vulgaris*.
Still abundant in many of the upland streams on which they are regularly hunted. Not infrequently reported from the River Alt.
20. Badger. *Meles meles*, Linn.
Bell—*Meles taxus*.
Locally, Brock.
Abundant about 150 to 200 years ago. Now rare. Five taken by Mr. Gillow's keepers on Warton Crag 7 or 8 years ago.
21. Common Seal. *Phoca vitulina*, Linn.
Not uncommon in Morecambe Bay, in the Mersey and Ribble estuaries, and along our shores.
22. Harp Seal. *Phoca groenlandica*, Fabricius.
An occasional visitor to the estuary of the Mersey; one was taken in Morecambe Bay on 23 January, 1868 (Turner, *Journal Anat. and Phys.* ix. 163).
23. Hooded Seal. *Cystophora cristata*, Erxl.
A specimen was found alive on the Lancashire shore of the Mersey on 3 February, 1873 (Moore, *Proc. Lit. and Phil. Soc. Liverp.* xxvii. p. lxxiii.).
24. Grey Seal. *Halibæus gryphus*, Fabricius.
Bell—*Halibæus gryphus*.
A specimen was captured in 1861 in the Canada Dock, in Liverpool.

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RODENTIA

25. Squirrel. *Sciurus leucourus*, Kerr.

Bell—*Sciurus vulgaris*.

Abundant in all our thicker woods.

26. Dormouse. *Muscardinus avellanarius*, Linn.

Bell—*Myoxus avellanarius*.

Local. Colonies occur here and there in woods in the western and northern districts of the county.

27. Common or Brown Rat. *Mus acumanus*, Pallas.

Too abundant.

28. Black Rat. *Mus rattus*, Linn.

The black rat occurs from time to time in various parts of Lancashire. A few find sanctuary in Walney Island (Macpherson, *Fauna of Lakeland*, p. 81). One was caught in Liverpool in 1896.

29. House Mouse. *Mus musculus*, Linn.

Abundant.

30. Wood Mouse or Long-tailed Field Mouse.

Mus sylvaticus, Linn.

Generally distributed.

31. Harvest Mouse. *Mus minutus*, Pallas.

Very sparingly distributed; once abundant in fields and ricks, but the use of reaping machines has destroyed the nests and young so that now

the species is almost extinct. Advertisement extensively made recently for specimens brought not a single favourable reply. There is a specimen from Halsall Moss, Southport, in Owens College Museum, Manchester University.

32. Water Vole. *Microtus amphibius*, Linn.

Bell—*Arvicola amphibius*.

Common.

33. Field Vole. *Microtus agrestis*, Linn.

Bell—*Arvicola agrestis*.

Fairly common, and generally distributed. More abundant in some years than in others.

34. Bank Vole. *Evotomys glareolus*, Schreber.

Bell—*Arvicola glareolus*.

Locally, Red Field Vole.

Fairly common locally. It lives on the margins of thickets, and winters among heaps of turnips.

35. Hare. *Lepus europæus*, Pallas.

Bell—*Lepus timidus*.

Abundant, but diminishing in numbers.

36. Rabbit. *Lepus cuniculus*, Linn.

Very abundant; extensive warrens exist along the sea coast. Melanistic varieties are not uncommon.

UNGULATA

37. Red Deer. *Cervus elaphus*, Linn.

The red deer, indigenous and abundant in England from prehistoric times, was from the Roman period down to the fifteenth and sixteenth centuries widely distributed in Lancashire (as in other counties) upon the wooded heights and vales of the Fells and in the forests of the lowlands. After the middle of the seventeenth century the herds in their wild state became fewer and fewer, and those now existing, though probably retaining some of the blood of their feral ancestors, are all preserved and largely winter-fed.

38. Fallow Deer. *Cervus dama*, Linn.

The fallow deer, though in prehistoric times indigenous to England, is at the present day to be found—in Lancashire, at all events—only conserved in private parks.

39. Roe Deer. *Capreolus capreolus*, Linn.

Bell—*Capreolus caprea*.

There are at the present day, it is supposed, no truly indigenous roe deer in Lancashire, unless those in the woods of Higher Furness may be so, since it is believed that in some districts of Cumberland a few descendants of indigenous herds still survive.

CETACEA

40. Common Rorqual. *Balænoptera musculus*, Linn.

Remains of this species have been obtained on the coast (Silloth excavations, *Proc. R. Phys. Soc.* viii. 336).

41. Hump-backed Whale. *Megaptera boops*, Gray.

An occasional visitor. A specimen in the Lord Derby Museum, Liverpool, was stranded

on a sandbank near Speke, many miles up from the mouth of the Mersey, on 17 July, 1863.

42. Bottle-nosed Whale. *Hyperoodon rostratus*, Chemnitz.

An occasional visitor. A specimen now in the Nottingham Museum was stranded near Speke, some distance up the River Mersey, in 1881. Examples have been taken stranded in Morecambe Bay (in 1887) and at Cocken-in-

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Furness; others have been taken on the East Hoyle Bank, which is at the mouth of the Mersey, but towards the Cheshire side.

[The Narwhal. *Monodon monoceros*, Linn.

This species, now almost extinct, has been recorded within the historical period from the coasts of Lancashire. H. H. Johnston, *British Mammals*, p. 380.]

43. Grampus or Killer. *Orca gladiator*, Lacépède.

A rare visitor to Morecambe Bay and to the Mersey.

44. Porpoise. *Phocæna communis*, F. Cuv.

Very commonly seen off the coast, and strag-

glers have been taken in the estuary of the Mersey, in Morecambe Bay, and at Walney Island.

45. Dolphin. *Delphinus delphis*, Linn.

Often seen off the coast, and specimens have been taken in the estuary of the Mersey and in Morecambe Bay.

46. White-beaked Dolphin. *Delphinus albirostris*, J. E. Gray.

A specimen now in the Lord Derby Museum, Liverpool, was stranded on Hilbre Island, at the mouth of the Dee, after apparently passing down the Lancashire coast.

47. Bottle-nosed Dolphin. *Tursiops tursio*.

Seen in the estuary of the Mersey.

ADDENDA

17. Common Stoat. *Putorius ermineus*, Linn.

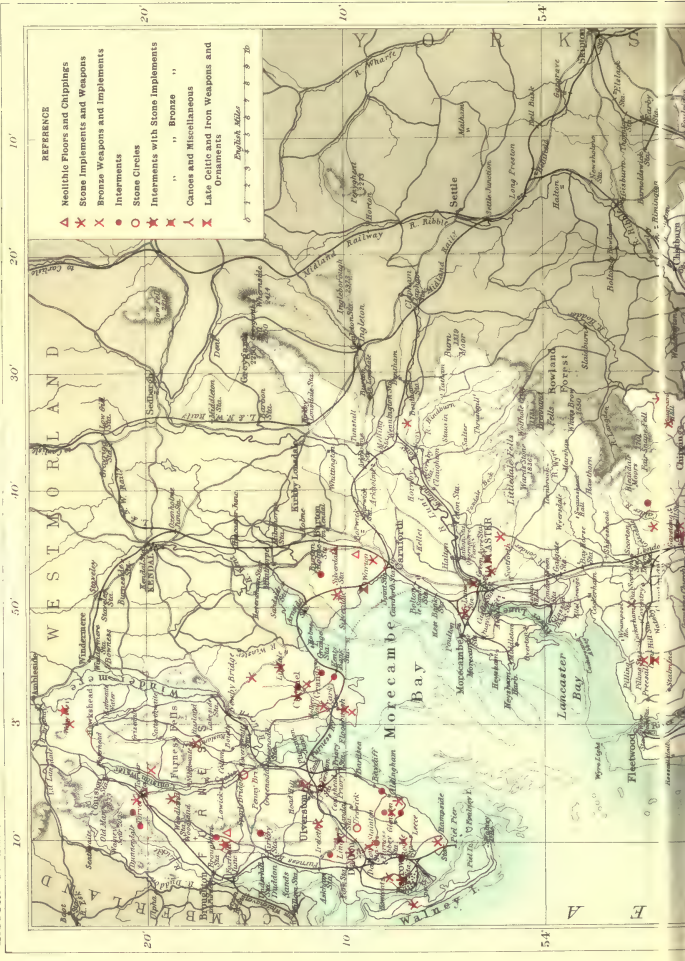
Mr. H. Murray received eight specimens in winter coat (white) during the last winter, all taken within two miles of Carnforth.

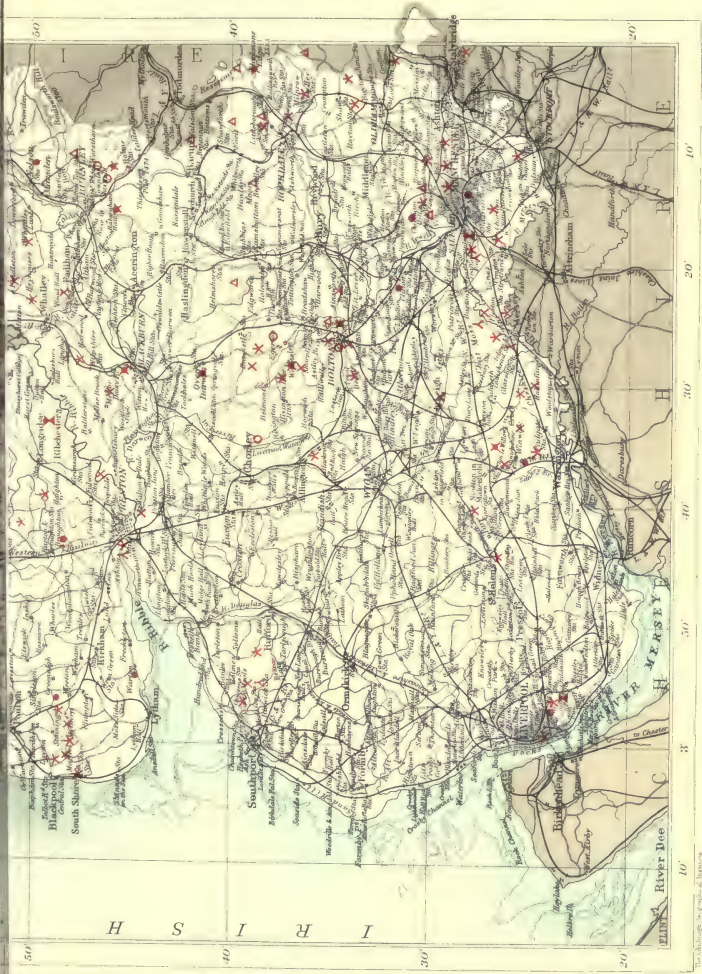
37. Red Deer. *Cervus elaphus*, Linn.

A few are now at large in Wyresdale, Lonsdale, and Kentdale, which have been released for chase by the late Wyresdale deerhounds and the existing Oxenholme pack.

PRE-HISTORIC REMAINS

HISTORY OF LANCASHIRE





THE VICTORIA HISTORY OF THE COUNTIES OF ENGLAND

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EARLY MAN

THE physical boundaries of the county of Lancashire, which separate it for the most part from its neighbours, impart to its story an individuality that would not have been possible in a piece of land arbitrarily divided as by a county boundary only. In the extreme north-west, however, there lies a detached portion known generally as Lancashire over Sands, which cannot well be separated physically from the counties of Cumberland and Westmorland: the antiquities of this district, therefore, although described in the present articles, do not enter into the general consideration of early culture-development in the county.

So far as evidence shows, it was to the moorlands of the Yorkshire border, though bleak and inhospitable, that man was first tempted to come and settle. The undrained lowlands around the coast were for the most part marshy and uninhabitable, while the uplands and valleys lying between were still largely covered with primæval forest. There can be no certainty, however, in the matter. The disposition of early man is indicated for the most part by sporadic finds in recent times of a small number only of the objects and implements he used; hence, while the suggestion remains of some places in which man lived, the lack of finds in other places does not exclude the possibility of habitation there.

Of the people themselves scant traces have been found. The human skulls found in making deep excavations at Preston for the Ribble Docks constitute the most reliable evidence. They were found associated with bones of the urus, which was already extinct at the dawn of this era, and with remains of earlier ages. The anthropometrical analysis of these (p. 256) shows them to belong probably to a population of mixed race—the original stock of neolithic times upon whom had come the Celtic element usually associated with the rise of the Bronze Age in art; but the numbers of examples are too few to warrant any general conclusion. Other than these, the perishable bones from a few burials in isolated spots and the charred remains of those who were cremated are all that remain of man himself. Some of his burial places, however, are known. The long barrows characteristic of stone-using man, indeed, are few and uncertain; but possibly some mounds on the moors above Rochdale, particularly those which lie towards Extwistle near to Burnley and some few at Wavertree near Liverpool, as will be shown later, may be assigned to this period. The round barrows and burial mounds of the early metal age, however, are more numerous and more readily identified. The neighbourhood particularly of Winwick, near to Warrington, has yielded the best examples. The moors around Rochdale and Bolton in the south, and Bleasdale and Lancaster in the north of the county, are sites of a fair

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number of interesting interments of that age, while here and there at different places—Bolton, Darwen, Blackburn, and elsewhere—isolated burials have from time to time been brought to light.

The evidence of burial places ranks first in importance. As usual there is little or no trace of the places where man really lived, although the localities where implements have been found, particularly in accumulation, is some suggestion. The ancient canoes found at Preston, Martin Mere, Barton, and Irlam, are better evidence of settlement, but the precise period of these objects themselves is not at all certain. In lack of direct testimony the most probable indication is, then, the vicinity of funereal mounds. Save for such indirect (and non-exclusive) testimony there is little guide to the problem—with one notable exception. The moors and hilltops of the Pennine range present a tract less liable than elsewhere to the disturbance of cultivation, and have yielded to the patient researches of enthusiastic investigators the knowledge that at a remote period numbers of flint-using people dwelt there in settlements, finding the situation probably as advantageous for their own safety as it was for descending to the woods and valleys for food. There is little trace of man, but certain evidence of his handiwork in myriads of flints, flakes and chips, arrow-heads and knives, hammer-stones and the cores from which the flakes have been chipped, even his stores of flint and graphite, etc., abounding chiefly in the range of hills that lies eastward and northward from Rochdale and Ashton-under-Lyne. The flint is not geologically indigenous, and the absence of metal tools amongst the wealth of stone objects throughout this tract points to a settlement there of a neolithic population as early at least as present evidence shows man to have found his way at all into the county.

Of the metal-using or Bronze Age which followed there is more general evidence of remains though less definite evidence of settlement. Undoubtedly the group of bronze implements containing a great spear, dagger, and eight axe-heads, found at Winmarleigh in the north of Lancashire,¹ ranks first, though late in date, among the relics of that age. The vicinity of Warrington, and the range of upland lying north of Manchester by Bolton-le-Moors, also bear indirect witness of habitation in the weapons and interments which have come to light. The mountain range to the east, and more particularly the river valleys and the sites of former marshes now reclaimed, contribute also their portion of evidence.

The later Celtic period, characterized by the introduction also of iron among the metals worked, is represented somewhat sparsely, but some of the remains of this time are of exceptional character. The iron sword from Warton, north of Lancaster, in the British Museum; the bronze sword-sheath from Pilling Moss, in the museum at Salford; and especially the bronze torque found at Mow Road, near Rochdale, now in private possession, rank among noteworthy examples of late Celtic art.

The classification of objects under three main divisions called the Stone Age, Bronze Age, and Iron Age respectively, is conventional and generally adopted, but it should be recognized at the outset as a mere convenient terminology, liable, as is often the case, to error of general inference. The basis of the nomenclature is the most characteristic material employed in

¹ Preserved in the museum at Warrington, Plate V.

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three successive major stages of development; but the distinction does not imply man's exclusive use of these materials, except at the superior limit of time. Some of the best examples of stone implements are the small polished hammers found in 'round barrows,' the burial mounds characteristic of the bronze age associated with the early Celtic population.¹ The overlap indicated is general, and it is by no means possible to assign some objects to any special age. Since, however, some method of classification is necessary for dealing with numbers of ancient remains, especially in regard to the implements and weapons, which are the most plentiful, a Bronze Age is usually supposed to begin with the first observed use of bronze, and similarly an Iron Age with the incipient use of that material. But neither the periods themselves in respect of different localities nor the materials involved in each are mutually exclusive.

In the following pages the remains of Early Man are described under three main heads as follows:—

1. Stone implements and remains of the Neolithic Period.
2. Bronze implements and remains of the Early Celtic Period.
3. Iron implements and remains of the Late Celtic Period.
4. Remains not included in this classification, being of doubtful age or miscellaneous character.

This nomenclature is not so concise as the usual 'Stone Age, Bronze Age, and Iron Age' upon which it is based, but it is proportionately less open to misinterpretation. It has also one other advantage in that it continues to associate the remains with the idea that a people made and used them. In any other regard the objects lose their chief interest as material remains of the human past, and become merely lifeless examples of special forms or technical series. To separate archaeology from its relation to humanity is not only to deprive early history of its fundamental material, but is inimical to a proper interpretation of all early remains. It should never be forgotten in the study of these objects that they are the products of man's hands, made by him to serve some purpose; therefore every fact of human interest associated with an object of antiquity should be deemed equal in importance with the form and character of the thing itself. Such facts are perhaps scanty and to be gleaned only partially and indirectly, as from the position and place in which an object is found, its association with other objects, its own use and theirs. It is only in this way that it may be possible for intelligent and tempered imagination to catch a glimpse of the real life of olden times.

I. STONE IMPLEMENTS AND REMAINS OF THE NEOLITHIC PERIOD

The county of Lancaster has yielded no evidence of man in that primitive stage of development which is defined from the rough implements of stone which he used as palæolithic. Rough implements of stone are found, indeed, but from their association generally with objects

¹ E.g. the urn at Winwick, near Warrington, containing a bronze dagger and small stone axe-hammer, p. 240.

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of more elaborate workmanship, such as delicate arrow-heads with barbs, it is plain that these are merely the ruder implements of man who had already attained the neolithic culture. This in itself would not be evidence of a stone age, purely defined, for the use of stone for implements continued down to historic times, and some of the best products of the art of stone-working were fashioned during the Bronze Age which succeeded; but in regard to a variety of these, which are both very numerous and confined to a particular region, there is evidence in the absence of metal among the stone, as well as the intrinsic testimony of the finds themselves, that they were produced by a Stone-Age people settled in the locality. The region indicated is the range of moorland that forms the south-eastern boundary of the county and separates it from Yorkshire; and the objects found freely on hilltops denuded by the wind, and in other places from 4 to 5 (sometimes 10) ft. below the surface, are the cores of flint, the chippings and flakes, 'borers and gravers,' scrapers and small hammer-stones, which the flint worker of the neolithic age lost or rejected. In one place, on March Hill, have been found 'innumerable minute chippings of flint,' and on the same hill a 'half-made arrow-head.'

On Knoll Hill again was found a core amidst numerous chippings, one of which, identified by its patina, fitted exactly in the place whence it had been struck. It is interesting to read the account of what students of these remains see of the life of neolithic man himself in the traces of his handiwork. 'He was undoubtedly a hunter, from the arrow-heads and spear-heads he has left behind him. He clothed himself in skins, for we find the flaying knives which he used to separate the skin from the carcase, the scrapers with which he removed the fat and hair from the hides. We also find the perforators used for boring the eyes in his bone needles with which he made his clothes. We find his graving tools for ornament or possibly tattooing, and we find the reddle and graphite which he used for personal adornment. We have found his hearth or dwelling-place, a rubble of millstone grit; the ruins of rude sandstone shelters; the iron pyrites and the hard hæmatite by which he got his light, and the charcoal, the remains of his long extinct fire.'¹

The burial places of these people, which are usually the more sure indication, are in this case less easy to identify from the accounts which have been published. Of the many burial mounds which are found along the same range of hills it seems probable that the majority at least belong to a later age.

The area through which these remains are found is fairly extensive. The town of Rochdale is about its centre. Southward it reaches by the heights above Oldham almost to Ashton-under-Lyne. Westward it is bounded only by the edge of the moorland which spreads out beyond Bury towards Bolton-le-Moors. Northwards it follows the high crest of the Pennine range as far as Burnley, while towards the east it passes beyond the Yorkshire border. The small objects themselves are so numerous that it is not possible to describe them in detail in the manner subsequently adopted for the classes of larger antiquities. A few types of worked flints are

¹ *Vid. Trans. Rochdale Lit. and Sci. Soc.* 1897. 'Flint Implements,' W. H. Sutcliffe; also various contributions by Dr. Colley March.



UPPER ROW :—BROWN WARDLE HILL (four).
 SECOND ROW :—MARCH HILL—RUSH HILL—BLACKSTONE EDGE—MARCH HILL—CUPWITH HILL—KNOWL HILL—
 BLACKSTONE EDGE—BROWN WARDLE HILL.
 THIRD ROW :—FOXSTONE EDGE—BROWN WARDLE—RUSH HILL—MIDDLE HILL.



UPPER ROW :—BROWN WARDLE—MARCH HILL (two)—BROWN WARDLE—MARCH HILL—KNOWL HILL—BROWN WARDLE
 SECOND ROW :—BROWN WARDLE—ASHWORTH MOOR—ROUGH HILL—BROWN WARDLE (two)—HUNGER HILL.
 THIRD ROW :—MARCH HILL—BROWN WARDLE—MARCH HILL—ROUGH HILL—BROWN WARDLE—
 ROUGH HILL—WORTHORNE MOOR.

PLATE I.—ARROWHEADS AND MISCELLANEOUS SMALL-WORKED FLINTS FROM THE NEOLITHIC FLOOR OF SOUTH-EAST LANCASHIRE.

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selected as illustration, and the distribution of them is indicated by lists of 'findspots.' The arrow-heads, however, are few in number and of special interest: they are not altogether peculiar to this area, being found also at Manchester, and even towards the mouth of the Mersey at Wavertree near Liverpool.

The flint chippings of the Pennine range, from their very numbers, combined with the absence of metal among the deposits, constitute the only definite evidence of habitation during the neolithic period. The stone implements described below, classified as celts and perforated implements, adzes, axes, hammers, and the like, are not necessarily to be considered as the product of a purely Stone Age, though of neolithic character.

I. ROUGHLY-WORKED STONES

Cores and flakes, and evidences of flint-working associated with these early inhabitants of the South Lancashire moors, have been found at many sites. Among them, in the main or central area, Brandwood Moor, Brown Wardle Hill, Cow Heys, Crow Knoll, Culvert Clough, Flower Scar Hill, Foxton Edge, Great Winning Gulf, Hades Hill (on the border), Haulgh, Helpet Edge, Hunger Hill, Longden End Moor, Lower Moor, Rushy Hill, Robin Hood's Bed, Ramsden, Rough Hill, Todmorden (on the border), Turnshaw Hill, Wardle Moor, Well i' th' Lane; especially also at Besom Hill, Blackstone Edge, Bull Hill, Knoll Hill, Middle Hill (Wardle), Readycon Dean, Tooter Hill, Trough Edge, and Wardle. From Bolton-le-Moors comes a 'flint-polisher;' and from Hollingworth Lake, as from Trough Edge, Knoll Hill, Middle Hill, etc., roundish hammer-stones, and 'thumb-stones.'

Further south, in the Manchester area, similar finds are recorded: at Broughton, Cheetham, Chorlton-upon-Medlock, Kersal Moor, Moss Side, and Radcliffe, near Bury.

From the Irwell House grounds, Lower Broughton, is an interesting specimen with serrated edges, found in the gravel about 5 ft. deep.

To the north the boundary of the settlement seems to be reached at the Worsthorpe Moor, though isolated finds of small workings have been made at Mellor, Clitheroe, Longridge, Chipping, Bleasdale, and elsewhere as previously mentioned. A selection of typical worked flints from the moors around Rochdale is seen in Plate I. Other discoveries of miscellaneous worked flints have been made in association with interments and funeral deposits, and as such will be referred to in a later section.

2. ARROW-HEADS

With a few exceptions the finds of shaped arrow-heads are associated with the same area of neolithic settlements. The small pointed flints which might have been used as tips of arrows have been freely found wherever flint-working has been evidenced. A series of these is illustrated in the upper photograph of Plate I.

Arrows fashioned with a definite form, lozenge-shaped, leaf-shaped, and winged, are also common: Tooter Hill and Culvert Clough have yielded good examples. A fine class of barbed arrow also was produced by these

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flint workers. On Bull Hill, near Bury, one measuring $1\frac{1}{2}$ in. in length and 1 in. across the barb was found in the vicinity of numerous flakes and chips and small shaped flints. Others are recorded from Blackstone Edge, Foxton Edge, Great Winning Gulf, Hunger Hill, Knoll Hill, Middle Hill, and Walsden Moor.

Barbed arrow-heads of similar workmanship have been found but rarely elsewhere. Such cases are, therefore, the more interesting. One of these comes from the hilly ground north of the Ribble, where a barbed flint arrow-head, $1\frac{3}{4}$ in. in length and $1\frac{3}{8}$ in. across the barbs, was picked up on Longridge Fell.

A more notable instance is that found at Wavertree, near Liverpool, a beautiful specimen, which was near to and apparently associated with some cinerary urns and interments of the Bronze Age. The explanation of this as a survival of flint usage among the population during the Bronze Age would be possible; but there is some suggestion of even earlier interments in the vicinity, and while the sum of present evidence indicates only the one moorland region as certainly inhabited during a neolithic age, that was not necessarily the only area so occupied. Even on those moors and uplands, at an average height of 1,300 ft. above the sea, the peat covers this 'neolithic floor' to an average depth of 4 ft., which in some instances is much increased. But on lower ground, in the great excavations made, for instance, for the Ribble Docks and the Manchester Ship Canal, objects of bronze were found even more than 20 ft. below the surface. Hence it is possible that the cultivated tracts below still cover the traces of the earliest population.

In Lancashire over Sands, though not apparently connected in any way with the local settlements on the Pennine Hills of south-east Lancashire, there seems to be indication of neolithic population, particularly in some remains found high up in the indent between the boundaries of Cumberland on the one hand and of Westmorland on the other. Here in the vicinity of lakes and hills and wooded valleys was a region likely to attract early settlement. At Hawkshead and at Torver, on either side of Coniston Water, have been found remains of burial places associated with small objects and implements of flint; in the former case a 'beautifully-worked flint knife.'¹ As before, the presence of stone implements alone is not a sufficient criterion in itself for the determination of the date of the burials; but in the same region other signs of flint-working have been noticed. Southward, at Broughton-in-Furness have been found flakes and cores, scrapers, small arrow-heads, and the general indications of neolithic habitation, which is traced as far to the south as Grange-over-Sands on the east and Kirkby Ireleth on the west.

3. STONE CELTS

Among the more interesting stone implements of the county must be placed several great stone celts, of polished surface, two of them found in the south of the county at Newton-le-Willows and Flixton respectively, and other two on the hill slopes of Pendle. A fifth was found just over the Yorkshire border at Saddleworth; while a sixth of analogous character is exhibited in the museum at Preston.²

¹ See p. 245.

² There is reason to doubt the accuracy of the label which states that this object was found at Longridge.

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These implements, which are of the form illustrated by the figure No. 1, were probably used as hoes, and the purposely flattened sides characteristic of them seem to have been designed to better secure the implement from lateral movement in its haft. The polish upon the broad ends, and occasionally small chips, show them to have been considerably used in hoeing and digging the soil.

The greatest of these, from Newton-le-Willows, where it was found near the Vulcan Foundry, now preserved in the museum at Warrington, was described when found as a club, owing to its remarkable length of $17\frac{1}{2}$ in. It is $3\frac{3}{4}$ in. in greatest width and $2\frac{1}{4}$ in. broad. The material seems to be smoothed flint, which has become coated with a calcareous skin. It was found about 2 ft. below the surface, in cutting a drain in a field near the Vulcan Foundry at Newton. (See photo on Plate II. No. 3.)

The flattened sides, a conspicuous feature in the Newton celt, are not apparent in that found at Shaw Hall, Flixton, now in the Blackmore Museum at Salisbury. This object also has the comparatively great length of $12\frac{1}{2}$ in. One of the Pendle celts, now in the museum of Blackburn, with a length of $11\frac{3}{8}$ in. is next in point of size. Its width is $3\frac{1}{4}$ in., thickness $1\frac{3}{8}$ in. Its material is described as felspathic porphyry. One side is smoothly polished as if by continued use in soil. It was found at Wiswell near Whalley in 1835. The other celt from Pendle, the subject of the figure No. 1, is the most remarkable for its appearance, though least of the four in size. Its length is 10 in. and breadth 2 in. It was found in a turf pit near Windy Harbour Farm on the north end of the hill.¹

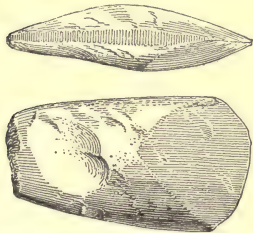


FIG. 2.—CELT WITH FLATTENED SIDES FROM LEAGRAM HALL. Scale, 1 : 2.

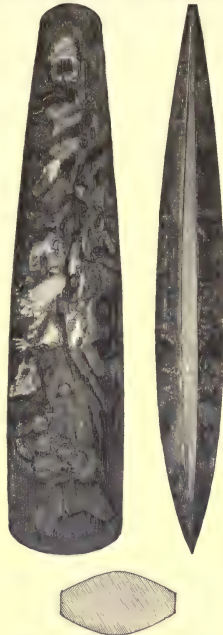


FIG. 1.—MOTTLED STONE CELT FROM WINDY HARBOUR, PENDLE. Scale, 1 : 2.

The material is a kind of green-stone, mottled, and the surface is beautifully polished.

Among the small class of stone celts some of them retain the flattened side. Two very good specimens were found at Leagram,² the one under the Hall itself, and the other northward in the Pale Farm, near the Loud. The former, which is illustrated by fig. 2, is $4\frac{1}{2}$ in. by $2\frac{1}{4}$ by 1, and the latter somewhat

¹ Evans, *Stone Implements*, 2nd ed. p. 117—from which the figure is taken by kind permission of Sir John Evans.

² Where they were preserved in the Hall by the late John Weld, Esq., from whose MSS. this information is derived by courtesy of his daughter.

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larger, with a length of $5\frac{1}{2}$ in. These two celts are similar in general character, being worked on the side in three main triangular curved faces, of which one includes the cutting edge. A curious example is a celt from Royton Park, of which one side only is flattened. The material is a green-stone, and its size is somewhat great, being 9 in. in length by $2\frac{1}{2}$ in. wide. 'It is well polished and has a fine edge.'¹

The other celts of the county fall chiefly under two classes, those which are smoothed all over, and those which, though worked with care, are not actually of smooth surface except near the cutting edge. Of the smooth kind that from Orford, seen in the photo No. 1 of Plate II. is a remarkable example. Its size is $5\frac{5}{8}$ in. by $2\frac{1}{2}$ by $1\frac{1}{4}$; and its material is a 'hornstone flint.' The surface curves truly and is smoothly polished, while the cutting edge is continuous, smooth, and sharp. It is now in the museum at Warrington, near to where it was found.

Another typical celt is seen in the photo, Plate II.—2. It is of rough polished body which is smoothed towards the edge. Its length is 4 in., width $1\frac{5}{8}$ in., and thickness $\frac{3}{4}$ in. The material is light-coloured limestone. This celt was found in Parliament Fields, Toxteth Park, Wavertree, and it remains appropriately in the public museum of the city of Liverpool. Most of the Lancashire celts, which are somewhat numerous, tend towards the last-named type. Two from the vicinity of Rochdale are examples. One of these from Wardle is $4\frac{3}{4}$ in. in length;² the other from Milnrow is somewhat larger, being 5 in. long by $2\frac{3}{4}$ broad: the material is black and very hard.³ A polished flint celt was found at Morecambe in 1878, 5 ft. deep in the clay.⁴ It seems to have been about 5 in. long by 2 broad. Another celt, found on Pilling Moss, also in North Lancashire, seems to have been of curious size, measuring 7 in. by $3\frac{3}{4}$ in breadth.

Other celts, of which no complete description is available, were found near Blackpool in the sandhills toward Lytham, at Chorlton-cum-Hardy in Back Lane, at Droylesden in the Moss, at Lancaster, and apparently at 'Sawick' in the Moss, about nine miles from 'Martin Mere.'⁴

A stone celt $8\frac{1}{2}$ in. long by $2\frac{1}{2}$ wide was found near Weeton in the Fylde, the site of some British interments probably of the Bronze Age. A flint celt of smaller size was found at Walmsley near Bolton, in a tumulus of boulders containing a skeleton and an urn, which from its decoration seems to be of the Bronze Age. This association lends to the celt an historical importance. Small flint instruments have been found in tumuli and interments at Cliviger, Littleboro,' and Stonyhurst also.

Three curious implements should be mentioned. One of them is specially of interest, and seems to be unique among the records of the celts found in the county. This is a stone celt, or 'axe,' found in the Liverpool Docks,⁵ with the rare feature of a groove down the sides for the better fitting or fixing of the handle.⁶ The second is a roughly chipped

¹ Information of Mr. S. Andrew.

² Fishwick, *History of Rochdale*, p. 4.

³ Weld MSS.

⁴ Leigh, *Natural Hist. of Lanc., Ches., and the Peak*, Bk. i. pp. 17, 181. Sawick is generally identified with Salwick in the Fylde: though Martin Mere is variously identified with Marton Mere in the Fylde, and Martin Mere near to Southport.

⁵ *Trans. Hist. Soc. of Lanc. and Ches.*, 1867, p. 15.

⁶ Two similar implements of interesting character are exhibited at Ashton-under-Lyne, in the Stanford Park Museum, but the probability is that they were imported. It is interesting to compare these with those used in the mines of Alderley Edge (Roeder: L.C.A. xix. 1901).



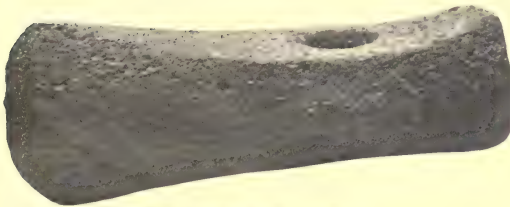
1. POLISHED CELT OF HORNSTONE, FROM ORFORD. 2 : 5.



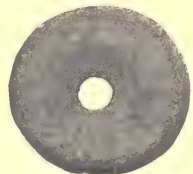
2. CELT WITH SMOOTH EDGE, FROM WAVERTREE (LIVERPOOL CITY MUSEUM). 3 : 4.



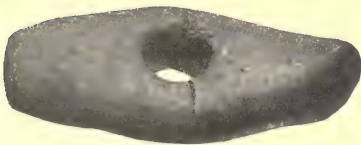
3. GREAT CELT OF FLINT, FROM NEWTON-LE-WILLOWS (WARRINGTON MUSEUM). 2 : 5.



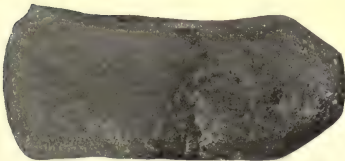
4. AXE-HAMMER, FROM DEAN, NEAR BOLTON. 2 : 5.



7. ROUND HAMMER OR SPINDLE-WHORL, FROM HAYDOCK. 2 : 5.



5. SMOOTH AXE-HAMMER, FROM WINWICK. 2 : 3.



6. SMOOTH AXE-HAMMER, FROM CLAUGHTON. 2 : 3.



8. LARGE ROUND HAMMER-STONE, FROM IRLAM. 2 : 3.

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implement probably used as a pestle,¹ which seems to resemble a celt in general outline; and the third is an implement of the form of a rough celt. This is in the museum at Preston, where it is described as 'a stone-hammer found at Longridge, composed of Yoredale grit.' Its dimensions are 7 in. by $2\frac{1}{2}$ by $1\frac{1}{4}$.

In Lancashire over Sands the finds of stone celts are curiously localized in an interesting manner to the central district of Furness, with the exception of some implements found deep in the peat at Wray Hill near to Ambleside on the northern boundary of the county. From Furness Abbey, it is said, comes a celt nearly 9 in. in length, with a width of $2\frac{3}{4}$ in. and thickness $1\frac{1}{2}$ in. Other celts are reported to the east at Roosebeck near Aldingham and to the north at Stainton near Dalton. Further to the north-east again the area of finds embraces Ulverston, where a polished celt was found in some old workings of a hæmatite ore mine. At Pennington near Conishead a little way to the south was found a celt somewhat peculiar in form. It is of a green-stone, and is described as resembling 'the butt end of a long celt of a common north country type, broken off short, then roughly chipped to a new edge. The edge thus formed has never been polished like the rest of the weapon.' Its present length is about $3\frac{1}{2}$ in., breadth $1\frac{1}{2}$ in., and thickness 1 in. It was turned up by the plough in a field on Castle Hill. The area of stone celts reaches eastward as far as Cartmel, where an implement of grey schist, measuring $8\frac{1}{2}$ in. by $3\frac{1}{2}$ in., was found on Winder Moor.

4. PERFORATED STONE IMPLEMENTS

(a) *Adze-like in form, with the hole transverse to the plane of the cutting edge.*—The city of Manchester furnishes the best example of adze-like stone implements. Those preserved in the University Museum are shown in the following diagrams, Nos. 3–5, as they well illustrate the form and character of this class. The first of them, fig. 3, was found at Greenheys, in a brickyard in Upper Lloyd Street. It is interesting typologically from its resemblance in plan to the rounder stone hammers described as mace-heads, etc., and in section to the rougher axe-hammers, having one end sharp and the other blunt. It has obviously been considerably used. It is $4\frac{1}{4}$ in. in length by $2\frac{3}{4}$ in. in width, with a thickness of $1\frac{1}{4}$ in.

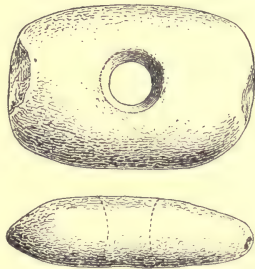


FIG. 3.—STONE ADZE FROM GREENHEYS, MANCHESTER. 1 : 2.

The second example, fig. 4, shows a more clearly adze-like implement, longer in proportion, which has been used obviously as an adze-hammer. It was found in 1870, in Corporation Street, 25 ft. below the surface, and is of a smooth glacial rock. It measures 5 in. by $2\frac{7}{8}$ in., with a thickness of $1\frac{1}{4}$ in. It has the feeling of a well-advanced Bronze Age implement.

¹ Described as from near Blackpool. Weld MSS.

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The third illustration of this class, fig. No. 5, shows a larger and rougher stone, unfortunately broken. It was found in clay which was 'undisturbed,'

at a depth of 13 ft., in Cheetwood, near Manchester. The preserved portion, however, well shows the general character of the implement, which though larger than the foregoing is pierced with only a small hole, measuring $\frac{5}{8}$ in. diameter. The width of this implement is $3\frac{1}{4}$ in.; in thickness it narrows slightly from near the end ($1\frac{3}{8}$ in.) towards the centre ($1\frac{1}{8}$ in.). It measures 4 in. from hole to end. The end is roughly dressed to an edge towards one side, and the faces seem to show patches of the original surface of the stone. The form of the implement indeed seems to have been suggested very largely by the shape of the original stone

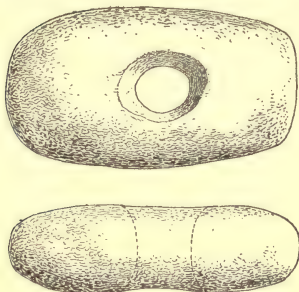


FIG. 4.—STONE ADZE FROM CORPORATION STREET, MANCHESTER. 1 : 2.

before dressing. The material is a fine gritstone.

A fourth example of this class found at Preston in or near the docks resembles the latter somewhat closely, not only in the fact that it also is broken in half, but that it has been fashioned to a similar form which seems to have been suggested by the original stone. The end is dressed to an edge. Like the last described its thickness decreases from near the end, where it is $1\frac{1}{2}$ in. to 1 in. in the middle, being about $3\frac{1}{2}$ in. wide throughout. From hole to end it measures $4\frac{1}{2}$ in., and it was presumably about twice that length.

In this classification there naturally occur forms which cannot be strictly separated, but rather link the types naturally. In addition to that already described from Greenheys, Manchester, which links with the class hereafter described under 'round hammers and mace-heads,' there may be noted particularly the rounded hammer from Goosnargh, fig. 12, which merges with both types, and might be regarded also as a small adze-like implement.

(b) *Axes with one end rounded.*

—The double axe proper is not represented among the stone implements of the county. The specimen figured on Plate III. No. 1 simulates the double axe in section, but is seen to belong to the next class of axes with one end rounded—as classified by Sir John Evans. It was found near Mode Wheel, Salford, in cutting the Ship Canal, 1890. Its length is $6\frac{1}{2}$ in., and greatest width 3 in.; its weight is 1 lb. 13 oz. The photograph shows the character of this interesting implement, which in one respect

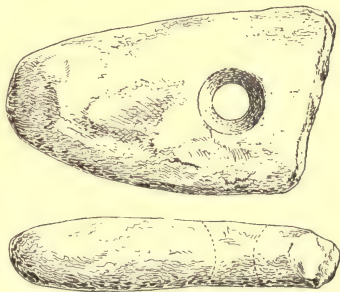


FIG. 5.—LARGE ADZE FROM CHEETWOOD, MANCHESTER. 1 : 2.

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again links the varieties of axes, in that it seems to have been used to some extent as an axe-hammer, though not fashioned for that purpose.

A smaller implement of similar form was found in the old bed of the Roch [formerly *Roach*] stream, near Oakenrod, Rochdale, and is thus described by its former owner: 'It is 4 in. long, and the hole for the handle is unusually large, being nearly an inch in diameter. The clearly-marked ridge which runs on two sides of the stone would seem to indicate that the implement was made in imitation of a cast metal one.'¹ The surmise is more than possible. The smoothed perforated implements of stone are for the most part indubitably of the Bronze Age; indeed Sir John Evans shows good reason to believe that perforated stone implements in general belong to a time subsequent to the introduction of metal-working.

A third example also from near Manchester, shown in fig. 6, is typical of this class. It was found near Turkey Lane, Queen's Park, Harpurhey, 3 ft. from the surface, in clay. It is of gritstone, described as 'grained sandstone, with decomposition on the surface.' Its length is $6\frac{1}{2}$ in., width $2\frac{3}{4}$ in., and greatest height 3 in. The top surface is gently hollowed towards the socket hole; and the lower side is partly chipped and broken away. At the one end the sides curve rapidly to the sharpened edge, while the other end preserves its original curved form unbroken. It is a good specimen. The annexed diagram is due to the courtesy of the curator of the Queen's Park Museum at Manchester, where the object is preserved.

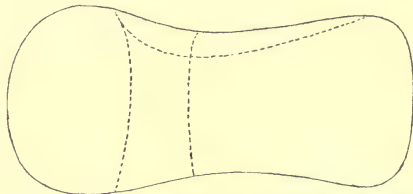


FIG. 6.—SECTION OF STONE AXE FROM HARPURHEY, MANCHESTER. Scale, 1 : 2 linear. (Queen's Park Museum, Manchester.)

To this class must be referred also a series of implements of larger and rougher character, all of them from North Lancashire. The record of them² is fairly clear, and in some cases the implements themselves have been preserved. From Bowland is a specimen $10\frac{1}{2}$ in. long, with a width and depth respectively of $3\frac{1}{2}$ in. The perforation varies from $1\frac{1}{8}$ in. to $1\frac{1}{2}$ in. in diameter, and is placed far back from the sharp edge, dividing the implement at $\frac{1}{4}$ to $\frac{1}{3}$ of its length. The edge is very chipped and the opposite end preserves a well-rounded form. The object is heavy and massive in appearance; it was obviously designed as a single axe and was used as such. It was found, it is related, in 1860, in draining near Cow Ark in Bowland, 'a short distance from the Roman Road.'

A second specimen is from Claughton. It was found near the surface of the ground in a field near the Hall, where it now remains. It is of a more solid and smaller design than the last. Its length is $7\frac{1}{2}$ in., with a width, however, of 4 in. and height of about $3\frac{1}{2}$ in. The hole, which is more centrally placed, is unusually large, varying from $1\frac{1}{2}$ in., in the middle, to $2\frac{1}{4}$ in. in diameter. As in the previous instance, the broad cutting edge

¹ Fishwick, op. cit. p. 13, with figure. The object is now in the Rochdale Museum.

² Weld MSS.

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is much chipped, while the after part, though originally rounded, shows also from the wear of its surface that it had been used as a hammer.¹

A third specimen was found near Lancaster, and is more nearly of the design of that first described from Bowland, being $9\frac{3}{4}$ in. in length, and divided very unequally by the perforation. Though chipped at each end, it was designed as a single axe with one end rounded, and the surface hollows slightly towards the hole. It is $3\frac{1}{2}$ in. wide, and $2\frac{1}{2}$ in. deep at the cutting edge, which does not expand as in the former cases. The hole is placed at $\frac{1}{3}$ of the length from the rounded end.¹

The fourth specimen, fig. 7, is from further to the south, near the Ribble valley, having been found at Wilpshire near Blackburn. It somewhat resembles in form the axe-hammer, described in the next section, which was found in the Lune near Lancaster (fig. 8). It has the same curious projections to the already great width, and the same lack of special character in the section. The edge, however, is better marked, while the opposite

end, instead of being flat for use as a hammer, is rounded and well preserved. The perforation is near the centre and varies from $2\frac{1}{2}$ in. to $1\frac{1}{2}$ in. in diameter.

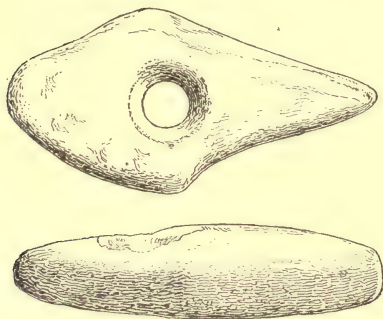


FIG. 7.—STONE AXE FOUND AT WILPSHIRE NEAR
BLACKBURN.

(c) *Axe-hammers of stone.*

—The distinction drawn between axes rounded at one end and axes flattened at one end is one of original form rather than of usage. The former, it has been seen, though not so conveniently shaped for the purpose, were commonly used as hammers. The latter class, which it remains to describe, is more numerous represented

in Lancashire than any other variety of implement.

The rough and larger stone hammer characteristic of the northern counties is frequent in Lancashire, particularly in the northern part of the county. Other large axes are noticeably shaped with broadened cutting edge. Others again have peculiar flanges and projections; while not uncommonly there occur the small smooth hammers often associated with bronze or metal tools.

The implements from Lancaster and Tatham are excellent examples of the rough axe-hammer of the north. The Lancaster specimen, found in the bed of the Lune, is $9\frac{1}{2}$ in. long, with a width of $4\frac{3}{4}$ in. and depth of $2\frac{3}{4}$ in. The material is a fine gritstone. The edge, as seen in the diagram, fig. 8, is very much dulled, and the flat hammer end also shows signs of use. A photograph is shown on Plate III. No. 4.

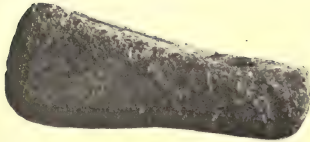
A similar implement seems to have been found at Barnacre near Lancaster 'by a farmer while ploughing at Carter Houses. It must have been originally about 12 in. in length, and weighs 6 lb.'²

¹ Weld MSS.

² Trans. Lanc. and Ches. Antiq. Soc.



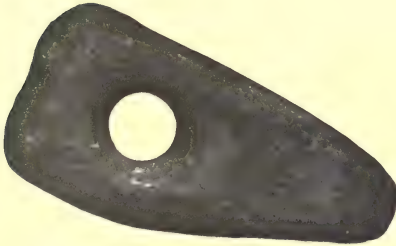
1



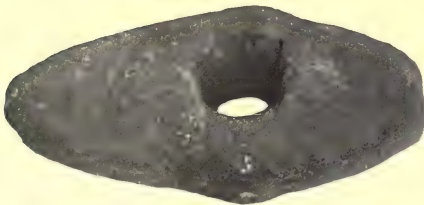
2^A



2^B



3



4



5

- 1. FROM MODE WHEEL (SALFORD MUS.).
- 2. " MELLOR (BLACKBURN MUS.).
- 3. " TATHAM (SALFORD MUS.).

- 4. FROM NEAR LANCASTER (BOLTON MUS.).
- 5. " ST. HELENS (ST. HELENS MUS.).

PLATE III.—PERFORATED STONE AXES AND AXE-HAMMERS OF LANCASHIRE.

Scale, 2 : 5 (nearly).

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An axe-hammer found at Low House, Milnrow,¹ might be cited as a further illustration of this class, though smaller, smoother, and generally of more finished appearance. It is $6\frac{1}{2}$ in. long, and broad in proportion to its length.

Another rough implement, from Tatham, is shown in Plate III. No. 3. It was found at Green Hill Farm, 10 miles east of Lancaster. It is 8 in. in length and 4 in. in width, with a depth of about $2\frac{1}{2}$ in. The perforation is large and placed well back. The material is 'grey trap.' A feature of some special interest in connexion with this object is the appearance of the surface, which suggests that the stone was naturally formed and had been dressed down only on one side to this shape and pierced with a handle hole. A somewhat similar implement is recorded also from Lindale (over Sands).

In the examples previously considered there is an absence of definite attempt to fashion the implement to a standard pattern; rather it appears from the sections figured that the form of the natural stone in those cases determined the ultimate shape. The county, however, provides a good series of axe-hammers of a special form, which is distinguished by the widening of the implement, in section, towards the offensive edge, giving to its contour a curve outwards rather than inwards in that direction. A typical example was found in 1855 at Mellor, a small village lying some 3 miles westward of Blackburn. A photo of this specimen may be seen on Plate III. No. 2. It is just over 8 in. in length and 3 in. in breadth. Its depth varies from 2 in. at the narrowest part, about the hole, to $3\frac{1}{2}$ in. near the edge. The head is broad and flat and the perforation is placed at about $\frac{1}{3}$ of the length from that end. The material is an igneous rock from the north.

Several implements not proportionately so broad resemble the Lancaster and Tatham hammers as regards their section and general appearance. That found at Heaton Chapel, 5 miles south-east of Manchester, now preserved in the museum of that city, is a good example. It is about $7\frac{1}{2}$ in. long by $3\frac{1}{2}$ in. wide and 3 in. deep. The material is familiar fine gritstone. The surface from patination has almost the appearance of being original and undressed, but the sides incurve uniformly towards the edge and the head is fairly hammer-like. Its general features are indicated in the diagram, fig. 9.

A great stone-hammer in the museum at Preston, of similar general character, is described as having been found at Longridge, a village 7 miles north-east of that town. Its length is $10\frac{1}{2}$ in., width 4 in., and depth $3\frac{1}{2}$ in.; and its weight 5 lb. 1 oz. The hole is small, the head rough

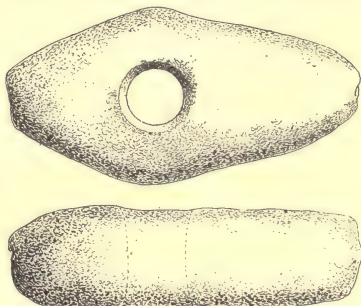


FIG. 8.—AXE-HAMMER FROM THE LUNE, NEAR LANCASTER. Scale, 1 : 3. (Chadwick Museum, Bolton.)

¹ Roch. L. and Sc. Soc. vol. vi.

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and roundish; and the general appearance is not that of the Lancashire implements.

A nice specimen, smaller, and better finished, was found, as it seems,¹ near Blackpool, in 1881. Its dimensions are $8\frac{1}{2}$ in. by 4 in. by 3 in. in depth, and it weighs 5 lb. It hollows slightly on the surface about the hole, which seems well cut; while the hammer end seems especially to have been squarely dressed.

Several good implements preserved in the county museums are of the same type as that from Mellor (see Plate III). At Chipping, which is not far distant to the north, was found one of 9 in. length and 4 in. breadth. Its depth increases from $2\frac{1}{2}$ in. near the hole to $3\frac{1}{4}$ in. towards the edge. Its weight is 5 lb. 11 oz. The head is broad but not truly flat, and the perforation is rather central. This specimen is in the museum of Preston. In the museum at Bolton there is to be seen another interesting example, found in 1897 while ploughing near the church at Blackrod, which is not far from

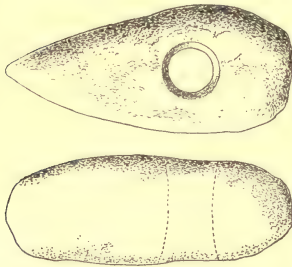


FIG. 9.—AXE-HAMMER FROM HEATON CHAPEL
(Manchester Museum). 1 : 3.

Wigan. It measures $8\frac{1}{2}$ in. in length, about 3 in breadth, with a depth varying from $2\frac{1}{4}$ to $2\frac{3}{4}$ in. In form it is not symmetrical, having on one side a conspicuous flattening where the original surface of the stone has been used without dressing. The material seems to be a fine local gritstone. In the same museum is a portion of an instrument which seems from its preserved part to have been almost the largest of its kind in the county, measuring $7\frac{1}{2}$ in. from edge to perforation and 4 in. in width. It belongs also to the type of the foregoing, with a depth which increases from $2\frac{1}{2}$ in. at the hole to $3\frac{1}{2}$ towards the edge. It was found at Silverdale in North Lancashire in 1871.³

A specimen with non-expanding edge, $10\frac{1}{2}$ in. long, $4\frac{1}{2}$ in. wide, and $2\frac{3}{8}$ in. deep, was found in 1903 on the Burnley side of Pendle Forest in Ogden Clough. The perforation divides the length in the proportion of 2 : 5 from the hammer end, and measures about $1\frac{1}{2}$ in. across. The weight of the object is 6 lb. 10 oz., and the material seems to be a fine gritstone, with polished surface.³ There is a slight smooth longitudinal depression, like a groove, running down towards the edge from the hole, in the middle of one face. This seems to have been worn by use, for the edge also shows signs of greater wear and redressing towards that side.

Among the axe-hammers of the county are three or four of special interest. That found at Dean, near Bolton, as the photograph reproduced on Plate II. No. 4 suggests, has a broad flange to the head when viewed at the side. It is a nicely shaped implement, $9\frac{1}{2}$ in. long and $3\frac{1}{2}$ in. broad, with a depth which gradually increases from 2 in. near the perforation to $3\frac{1}{2}$ in. at the edge. The head is $2\frac{1}{2}$ in. across the surface, and $2\frac{3}{4}$ in. over the

¹ Weld MSS.

² Journ. Brit. Arch. Assoc. xxix. p. 304 (No. 2).

³ Information of John Allen, Esq.

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flanges by the side. It is an excellent specimen, now in the museum at Warrington.

A second special form is in the museum at St. Helens, where it was found about 12 ft. from the surface near the corner of Corporation Street and Hall Street in 1879. It is about 9 in. long, with a depth increasing from $2\frac{1}{2}$ in. at the hole to $3\frac{1}{2}$ in. at the edge and $2\frac{1}{2}$ in. at the head. Its special features are the lateral flanges on opposite sides of the hole, which increase its breadth from 3 in. to $3\frac{1}{2}$ in. over all. The photograph of Plate III. No. 5 shows this feature, which is not common.

A hammer of similar form seems to have been found at Throstle Nest, near Manchester, having a length of 12 in., but there is some obscurity about the record: ¹ the description indicates a large double hammer, with side flanges as before.

Another very unusual form shown in fig. 10 is described as found near Lancaster.² It is of massive appearance, 9 in. long and 3 in. wide, with a depth of 3 in. at the cutting edge and $2\frac{1}{2}$ in. at the butt. It seems to have one side almost flat, while the other inclines suddenly just beyond the hole towards the edge, giving the appearance of an angle in the side and a general lack of symmetry. The edge is chipped, and the head curved and somewhat rounded.

Two excellent examples of the small smooth stone axe-hammers of the Bronze Age are recorded, the one from Winwick, now in the museum at Warrington, the other from Claughton, where it remains in the Hall. The former was found in an urn which lay 'in some soft black stuff inside a tumulus' at Middleton, Winwick. With it was associated a bronze dagger, described on page 235 (Plate IV. No. 7). In length it measures $4\frac{3}{4}$ in. by $1\frac{7}{8}$ in. width. Its depth varies from 1 in. to 2 in. over the outcurved edge, and $1\frac{1}{2}$ in. across the flanges of the head, which are shown in the photograph of Plate II. No. 5. The hammer face itself is about $\frac{3}{4}$ in. across, and the weight of the implement about 9 oz.³

The second example, from near Claughton Hall, is said to have been found in 'cutting through a tumulus in 1882, in a wooden cist, together with an iron axe, spear-head, sword, and hammer. There must, however, be an error in this account, and as an urn containing burnt bones was found in the same tumulus with this Saxon and Danish interment, it seems probable that the objects belonging to different burials, primary and secondary in the barrow, became mixed during the 27 years that elapsed between their discovery and

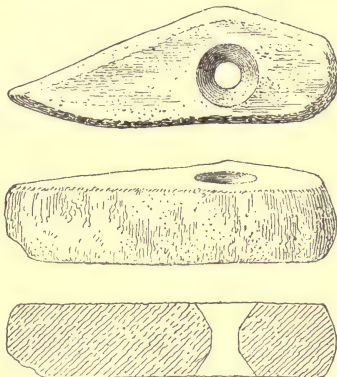


FIG. 10.—AXE-HAMMER FOUND NEAR LANCASTER. 1 : 3.

¹ See a sketch hung in the Salford Museum.

² *Arch. Journ.* 1860, xvi. 295, plate 25.

³ Weld MSS.

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the communication to the Archæological Institute.¹ The implement itself, as seen in the photograph on Plate II. No. 6, is the best of its kind which the county has provided, being true of finish, smooth of surface, and symmetrical in form. Its upper and lower surfaces are hollowed towards the hole, which is centrally placed as regards the body of the implement. The sides curve round uniformly, at the one end drawing in to the edge, which is regular, at the other end inclining more directly towards the head, which is dressed in a circle and presents a disc-like surface as a hammer. This end is partly chipped by use, and there is a small modern break in one end of the cutting edge; the implement is now broken in two halves but accurately joined. It measures about $4\frac{1}{2}$ in. in length, 2 in. in depth, and $2\frac{1}{2}$ in. in breadth. The perforation measures $1\frac{1}{2}$ in. across at each end, diminishing to $\frac{3}{4}$ in. about the middle.²

In addition to the implements described others have been found but less completely recorded. From Clitheroe, for instance, were 'a stone hammer and two axes'; from Hopwood a 'stone axe-hammer'; from Martin Mere 'a hatchet of dark stone found in peat'; from Turton, in Charters Moss, a 'perforated stone hammer'; from Heaton and Quernmore, near Lancaster, 'a rude stone hammer-head.'

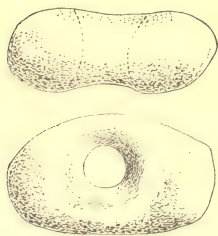


FIG. 11.—SMALL HAMMER FROM
QUEEN'S PARK, BOLTON. 1 : 2.
(Chadwick Museum, Bolton.)

(d) *Round perforated hammers, mace-heads, etc.*—In grouping together all the perforated stone hammers of roundish form, there are necessarily included several which it is hardly possible to separate from the adze-like implements on the one hand, and the smaller stone hammers just described on the other. That from Bolton Park is an instance, fig. 11. It is of quartzite, nicely formed. Its length is $3\frac{3}{4}$ in., width about $2\frac{1}{2}$ in., and depth $1\frac{1}{2}$ in. One end is somewhat adze-like, the other is hammer-like. It was found buried in sand at the east end of the promenade in Queen's Park, Bolton, where it now remains in the Chadwick Museum. It is an interesting object.

The maul-head from Silverdale, in North Lancashire, preserved in the same museum, is of similar general character. It is more definitely flat in form, but without any edge, being hammer-like at both ends.

The hole is very much aslant in the section of this implement. Its length is $3\frac{1}{2}$ in., breadth $2\frac{1}{2}$ in., and depth in general $1\frac{1}{4}$ in.

A further instance may be cited. There was found in 1879 while draining at the Stakes, Bowland, a perforated implement more round in form than the foregoing, and in this case clearly of adze-like section. Its extreme length is $4\frac{1}{2}$ in., width $3\frac{1}{2}$ in., and depth $1\frac{1}{2}$ in.³

An implement found, as it seems, at Goosnargh, near to Longridge, north of Preston, is described by a sketch in the museum at Salford. It seems to be definitely rounded and of adze-like section, fig. 12. Its length is $3\frac{3}{4}$ in., and breadth $2\frac{1}{2}$ in.: the perforation is small. It links in type

¹ Evans, *Stone Imp.* p. 108.

² By courtesy of W. Fitzherbert Brockholes, Esq. of Cloughton Hall.

³ Weld MSS.

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the roundish hammers just described with those definitely round in form which follow.

Of these round perforated implements, that from Irlam, in the museum at Warrington, and two from Alexandra Park, in the Queen's Park Museum at Manchester, are typical illustrations. The first-named is shown in the photograph on Plate II. No. 8. It is about $4\frac{1}{2}$ in. by 4 in., with a perforation $1\frac{1}{2}$ in. by $1\frac{3}{8}$ in. The outer edge is chipped all around, but the hole remains smoothly polished. It is of grey gritstone, and was found in the Ship Canal works at Irlam in 1890. The two stones from Manchester are not quite similar. They were found in laying out Alexandra Park in that city. The one is $4\frac{3}{8}$ in. by 4 in., with a thickness of $\frac{3}{4}$ in., and a perforation $1\frac{1}{2}$ by $1\frac{3}{8}$ in. as in the former instance. The other is nearly round, being $4\frac{1}{2}$ in. across, except where it is chipped; in thickness it just exceeds 1 in., and its perforation is $1\frac{1}{2}$ in. Both implements are badly chipped all around their outer edge, preserving, however, a good surface to their perforations. Another large round perforated stone is illustrated in the Salford Museum, where it is described as a 'stone fishing-net weight.' It is apparently $6\frac{1}{2}$ in. in diameter, and was found at Stalybridge, on the border of the county.

The beautifully rounded specimen of a hammer, or more probably a spindle-whorl, shown on Plate II. No. 7, is in the museum at Warrington. It was found at Haydock, which is about two miles north-east of Newton, in a pit, 2 ft. below the surface, in clay. 'Beneath was every appearance of a paved way.'¹ The object is of 'light grey burr stone,' and measures $2\frac{3}{8}$ in. in diameter, with a thickness of $\frac{3}{4}$ in. The perforation measures $\frac{7}{16}$ in. across, and is countersunk from each side. It is a well-finished specimen, and for the county of Lancashire apparently unique. An example is shown in a museum at Ashton-under-Lyne, but its provenance is doubtful. Another, rough and small, but fairly round, was found at Hollingworth Lake, near Rochdale.

(e) *In Lancashire over Sands*: Stone hammers have been found through much the same area as that already indicated in the case of stone celts and other implements.

Isolated instances, indeed, occur in the region of the Lakes, as at Wray Hill, near the head of Windermere, and at Torver, which is east of Coniston Water. At Rusland also, which lies between Coniston Water and the pool of Lake Windermere, was found in 1881 a comparatively large implement, measuring $9\frac{1}{2}$ in. by $3\frac{1}{2}$ in., with a depth at the hole of $2\frac{3}{4}$ in. An even larger hammer is recorded from Rampside, in the extreme south of Furness, with a length of 10 in. and breadth $4\frac{1}{2}$ in. It was found there in the churchyard.

In the eastern part of the county, at Ayeside, near Newby Bridge, was found in a wood a perforated hammer $8\frac{3}{4}$ in. in length, with a width of $3\frac{3}{4}$ in. and depth of 3 in., weighing $4\frac{1}{2}$ lb. 'It is considerably rounded in both

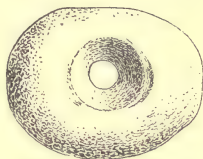


FIG. 12.—ROUND STONE HAMMER FROM GOOSNARGH.
Scale, 1 : 2.

¹ *Arch. Journ.* xv. 233.

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directions at the butt ; the edge is narrower, and one side is much more rounded than the other. The edge is carefully ground, but further up the face the surface shows that it has been picked into form.¹

A little to the south another stout axe-hammer was found at Lindale. The implement has considerable breadth, and the butt is square. A perforated stone hammer 6½ in. long was found at Cark, in a ploughed field. Its width was 3⅞ in. and depth 2¼ in. It shows considerable signs of abrasion at the pointed end. Still further south, at Flookburgh, several stone hammers are reported to have been found.

In the Furness peninsula a number of stone hammers are recorded. One from Harbarrow, near Dalton, now in the museum at Warrington, has a length of 7¾ in., being 3½ in. wide and about 2½ in. thick. It bears evidence of use at its shaped end. A hammer found in 1886 at Barrow-in-Furness, measuring 10¼ in. in length and 4¼ in. in width, is the largest yet found in the district. Further south, at North Scale, in the Island of Walney, a perforated stone hammer was found as recently as 1901.²

A curious implement comes from Bank Ground, on the east margin of Coniston Water. It is about 8 in. long, broad and heavy at one end and narrow at the other. The thick end is perforated with a narrow hole. One side is flat, the other is formed into two rounded ridges. It is suggested that this implement, which was hardly a hammer of usual character, may have been carried and used suspended by a cord to the waist. It has been considerably used.³

5. CLASSIFICATION OF LOCALITIES

Flint chippings, and small worked flints.—Bleasdale ; Besom Hill, Blackstone Edge, Bolton-le-Moors, Broadwood Moor, Brown Wardle Hill, Broughton ; Bull Hill, Bury ; Cheetham, Chorlton upon Medlock ; Chipping, Clitheroe ; Cow Heys, Crow Knoll, Culvert Clough, Flower Scar Hill, Foxton Edge, Great Winning Gulf, Hades Hill, Haulgh, Helpet Edge, Hollingworth Lake, Hunger Hill, Kersal Moor, Knoll Hill, Longden End Moor ; Longridge ; Lower Moor ; Mellor ; Middle Hill ; Moss Side, Radcliffe ; Readycon Dean, Rushy Hill, Todmorden, Tooter Hill, Trough Edge, Turnshaw Hill, Wardle Moor, Well i' th' Lane.

OVER SANDS.—Broughton, Cartmel, Dendron, Gleaston Castle, Grange-over-Sands, Hawkshead, High Haume, Kirkby Ireleth, Torver.

Arrow-heads.—Blackstone Edge, Bull Hill, Culvert Clough, Foxton Edge, Great Winning Gulf, Hunger Hill, Knoll Hill ; Longridge Fells ; Middle Hill, Tooter Hill, Walsden Moor ; Wavertree.

Stone celts.—Blackpool, Castleshaw, Chorlton cum Hardy, Droylesden, Flixton, Lancaster, Leagram (2), Liverpool Docks, Longridge, Milnrow, Morecambe, Newton-le-Willows, Orford, Pendle (Windy Harbour), Pilling, Royton, Saddleworth, Salwick, Walmsley, Wardle, Wavertree, Weeton, Wiswell.

¹ Evans, *Stone Imp.* p. 178.

² Described in the *Antiquary*, Nov. 1901, p. 323.

³ *Proc. Soc. Antiq. Ser. II.* xii. 229.

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OVER SANDS.—Cartmel, Conishead, Dalton-in-Furness, Furness Abbey, Pennington, Roosebeck, Stainton, Ulverston, Wray Hill.

Perforated stone implements :

Adzes : Manchester (three, Cheetwood, Corporation Street, and Greenheys), Preston (R. Ribble).

Axes : Mode Wheel, Oakenrod.

Axe-hammers : Barnacre, Blackpool (near), Blackrod, Bolton Park, Bowland, Chipping, Claughton (two), Clitheroe, Dean, Heaton, Hopwood, Lancaster (Quernmore), Lune R., Longridge, Manchester (two, Throstles Nest, Withington), Martin Mere, Marton, Mellor, Milnrow, Preston (Saddleworth), Silverdale, St. Helens, Tatham, Turton (Charters Moss), Walton-le-Dale, Wilpshire, Winwick.

Round-hammers : Ashton-under-Lyne, Bowland, Haydock, Irlam, Silverdale (Stalybridge), Torver.

OVER SANDS.—Ayeside, Barrow-in-Furness, Cark-in-Cartmel, Conis-ton Lake, Dendron, Flookburgh, Harbarrow, Lindale, Rampside, Rusland, Torver, Walney Island, Wray Hill.

II. BRONZE IMPLEMENTS AND REMAINS OF THE EARLY CELTIC PERIOD

The title of this section, as was previously explained, does not exclude from classification as objects of the Bronze Age implements other than those of bronze, as for example many of the perforated stone hammers already described ; nor is it intended to imply on the other hand that all the implements described hereafter were made before the introduction of iron.

The implements of bronze from Lancashire are not so numerous as those of stone, but they form an interesting series, which to some extent illustrates in itself the sequence and development of the various types. The difficulty experienced in the earlier chapter in separating the different classes of objects is not met with in this section, for though some types of implements are seen to be transitional, as for instance those which mark the evolution of palstave from celt, yet none are so markedly intermediary that they cannot be assigned readily to one or other of the standard classes of bronze implements as defined by Sir John Evans in his *Ancient Bronze Implements of Britain*.

I. FLAT CELTS

Three flat celts of bronze apparently complete the record for the county. Two of these are in the museum at Warrington, near to where they were found, while the third, from Read, is in the British Museum.

The first of these, from Risley, is plain and typical of a simple celt. It is $4\frac{1}{2}$ in. in length, and measures 2 in. across the broadest part of the curved edge. It is somewhat corroded, but was probably $\frac{1}{4}$ in. in thickness.

The second example is similar in form, but decorated. It is said to have been found with two others at Read in Lancashire. It is about 8 in. in length. The illustration¹ (fig. 13) shows its form and decoration. 'The

¹ Taken by kind permission from Sir John Evans, *Ancient Bronze Implements*, fig. 6, p. 47.

central space between the two series of ridges, and also the margins of the faces, are ornamented with shallow chevrons punched in. The sides have been hammered into three facets, and this has produced slight flanges at the margins of the faces. The facets are ornamented with diagonal lines.¹

The Read celt is seen to have tended towards side flanges. The third, from Rixton, shows also an incipient feature, in a low ridge, just perceptible to the touch, about midway of the tang, obviously designed to resist the thrust of the handle in use. See the photograph in Plate IV. No. 1. The Rixton celt is plain, though it has been erroneously described as 'decorated with punctured lines.' There seems to be no information as to its discovery. Its length is $6\frac{3}{4}$ in. The tang widens gradually from $1\frac{1}{2}$ in. towards the cutting edge, which outcurves, having an extreme width of $3\frac{3}{4}$ in.

The development of ridge and flange illustrated by the foregoing leads directly to the evolution of the palstave.²



FIG. 13.—BRONZE CELT WITH SLIGHT FLANGES FROM READ. Scale, 1 : 2. (British Museum).

2. PALSTAVES

Perhaps the simplest form of palstave, nearest allied to the flat celt, is that found at Southworth near Warrington. It is not in good preservation, but it seems to be without side flanges, and almost of flat section, broken only by the definite ridge which was designed to hold back the handle. Its length is 3 in. from edge to ridge, and $4\frac{1}{2}$ in. over all the preserved portion. The edge is not outcurving, measuring only $1\frac{1}{8}$ in. at its greatest width. It is possible that the portion of the tang which is broken was pierced for a rivet

hole, a very unusual feature. See Plate IV. No. 2.

The second of these implements, which is also in the museum at Warrington, illustrates a further stage of development, revealing the palstave in its simple form. The edge is still hardly outcurving, but the other end is grooved for reception of the handle, showing a narrower section than the blade at that point, and it is supported on each side by simple flanges and ridge, against which to fix the handle. The length of the blade is $3\frac{1}{2}$ in., and of the whole 6 in., with a width at the edge of $2\frac{1}{8}$ in., and at the ridge of 1 in. The thick-

¹ Evans, *Bronze Imp.* 47 and Fig. 6.

² An instrument which from the picture given, Leigh, *Nat. Hist. Lancs.*, Plate iv. No. 4, seems like a palstave, is recorded to have been found in a moss at Salwick, Martin Mere; but it is not possible from the illustration to define its precise nature, nor from the description to identify the site.

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ness of the blade is about half an inch, and over the flanges one inch. See Plate IV. No. 5. This implement is said to have been found with a small bronze ring (Plate IV. No. 4) at Winwick, which is the site of other discoveries associated with the interments in Highfield Lane and elsewhere.

A very similar implement¹ seems to come from Martin Mere, west of Southport. It is somewhat timeworn, but seems to have measured about $4\frac{1}{2}$ in., the blade being $2\frac{1}{2}$ in. long. The width of the edge is $1\frac{3}{4}$ in., and of the haft and blade $1\frac{1}{2}$ in. The thickness at the ridge was about $\frac{3}{4}$ in.

The museum at Bolton contains one of the best palstaves of the county, found in 1810 in Charters Moss at Turton, four feet below the turf. It bears the definite trace of ornamentation upon its face, as shown in the photograph on Plate IV. No. 3. In other respects it is simple in design. The edge is widened by the broadening of the blade itself, being $2\frac{3}{4}$ in. across at its widest point, and the blade 1 in. at the ridge. From ridge to edge measures nearly 4 in. The groove and flanges are well defined.

A palstave described² as found at Ainsworth near Bolton on Cockey Moor has special features. A loop is provided at the side near the ridge for fixing the implement to the handle by a loose thong for security in case the hafting should give way. The cutting edge outcurves, measuring $2\frac{1}{2}$ in. from tip to tip. The implement is nearly 6 in. in length. Down the middle of the face runs a low rib, which gives way on each side to a lower facet or panel which constitutes the chief decoration, as shown in fig. 14.

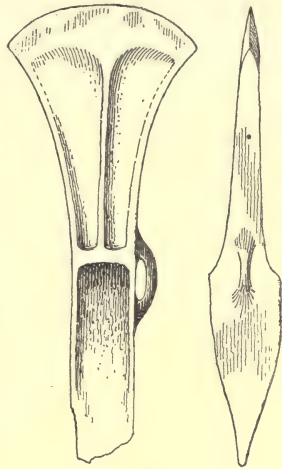


FIG. 14.—PALSTAVE FOUND AT AINSWORTH.
(From a Drawing.) 1 : 2.

A second palstave from Martin Mere¹ is shown in the annexed sketch, fig. 15, because of a special feature. Unlike those previously described, the grooves for fitting the handle are placed in the plane of the cutting edge, that is to say at the sides, as shown in the figure. The object is also unusual in shape. It is 5 in. in length, the blade being $2\frac{3}{4}$ in. The width is $\frac{7}{8}$ in. over the flanges and $\frac{5}{8}$ in. on the blade, which is of prolonged form, widening suddenly to the edge, where it measures $1\frac{7}{8}$ in. across. The thickness uniformly decreases from $\frac{3}{4}$ in. at the end and $\frac{1}{2}$ in. at the top of the blade to the edge, which is sharp.



FIG. 15.—PALSTAVE FROM
MARTIN MERE. 1 : 2.

¹ Now in possession of Mr. H. Taylor.

² *Lanc. and Ches. Ant. Soc.* xii. 209.

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The palstave latest found is also among the most interesting (fig. 16). 'A bronze palstave was found in February, 1905, under 9 in. of soil about five miles to the north-west of Rochdale, at about 900 ft. above ordnance datum, during the excavations of the Ashworth Moor Reservoir, and is now in the possession of the Board in their offices at Heywood near Manchester. The implement is encrusted with various salts of copper and is of an olive-green colour. It measures $5\frac{7}{8}$ in. in length, with a maximum breadth of $2\frac{1}{8}$ in. across the blade. There is a well-marked stop $3\frac{1}{2}$ in. from the anterior extremity of the blade. The ridged wings are continued as moulding on the face of the blade, but curved in a contrary direction so as to enclose a space below the stop ridge, thus producing a semi-elliptical ornamentation. The thickness of the metal at this point is $\frac{3}{4}$ in., whereas it is $\frac{3}{8}$ in. above the stop ridge. The sides are slightly concave and are roughly diamond shape, measuring $1\frac{3}{8}$ in. across at their maxima. There is a slightly defined transverse ridge $2\frac{1}{2}$ in. from the anterior extremity. The joint of the two moulds in which it was cast can be traced upon the sides of the instrument, and appears as if one of the moulds had been somewhat deeper than the other. There is no loop.'¹

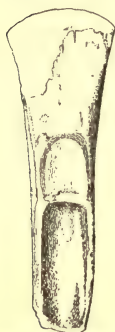


FIG. 16.—BRONZE PALSTAVE FROM ASHWORTH MOOR.

A further palstave, of simple type, with well-preserved edge, is said to have been found in excavating for a reservoir in 1884 at Cant Clough, which is $3\frac{1}{2}$ miles north-east of Burnley.

Bronze palstaves are reported also from Egbert Dean, Sharples, and from Weeton in the Fylde, but descriptions are wanting.

3. BRONZE SOCKETED CELTS

Five examples of socketed celts preserved in the museum at Warrington well illustrate the varieties of this class of implement found within the county. Four of them indeed come from the same site, Winmarleigh near Garstang, in North Lancashire, where two finds, possibly from the same source, disclosed eight socketed celts with two spears and a dagger of bronze, which constitute by far the most striking deposit of the age. These objects are all preserved in the same museum: they are illustrated by photograph on Plate V., and are described together in connexion with the spears in Section 4. The first sketch, fig. 17, shows the simplest of these celts, without rim or decoration. The implement is hollowed to receive the handle, and is provided with a loop whereby to attach it to the staff. It is $2\frac{7}{8}$ in. in length, $1\frac{3}{8}$ in. across the mouth, and $1\frac{1}{4}$ in. across the edge at its widest point. This celt was found with the dagger and two other celts at Winmarleigh, as described in the next section.

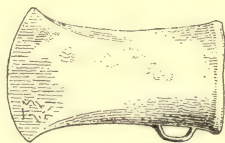


FIG. 17.—PLAIN SOCKETED CELT FROM WINMARLEIGH. 2 : 3.

¹ From MSS. of Mr. W. Baldwin, by courtesy of Mr. W. H. Sutcliffe.



1. FLAT CELT FROM RIXTON.
 2. PALSTAVE FROM SOUTHWORTH.
 3. PALSTAVE FROM TURTON (BOLTON MUS.).
 4. RING FOUND WITH NO. 5.

5. PALSTAVE FROM WINWICK.
 6. SOCKETED CELT FROM WINWICK.
 7. DAGGER FROM WINWICK.

PLATE IV.—BRONZE IMPLEMENTS OF LANCASHIRE.
 (Chiefly in the Museum at Warrington.)

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A number of socketed celts are recorded¹ as having been found in the River Ribble, the locality not being stated. They seem to have been five in number, mostly looped. Of these, one was quite plain like the above, 2½ in. in length, but was provided with a rim around the mouth, to which the loop was attached at one end.

The next sketch, fig. 18, shows a difference of feature in the double rim about the mouth of the implement and the three elementary ribs along the length. The blade is not outcurving to widen the edge. Its extreme length is 3¼ in., breadth at mouth 1½ in., and across the edge 1¾ in. This implement was found at Winmarleigh with two spears and four other celts, as described in the next section. One other of the celts from the same site is of this character.

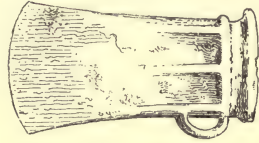


FIG. 18.—RIBBED SOCKETED CELT FROM WINMARLEIGH. 2 : 3.

Quite similar, too, is one found at Walton-le-Dale, on the Ribble near to Preston (in the parish of Cuerdale). This one is 3½ in. in length, with a breadth of 1½ in. across the mouth and 1¾ in. across the edge.

There is a feeling to the touch that the ends of the decorative ridges are very slightly bulbed, as in the case of the Winwick celt, Plate IV. No. 6. The marks of the casting are quite plain around the sides of the weapon. This celt is in the museum at Preston, and it seems to correspond with that described² as having been found at Cuerdale in 1838 by men in deepening a ditch, between three and four feet from the surface, about three or four yards from a spear-head described in the next section.

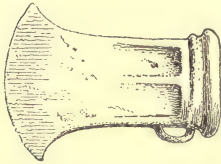


FIG. 19.—CELT WITH OUTCURVING EDGE FROM WINMARLEIGH. 2 : 3.

The next figure, fig. 19, shows a third of the Winmarleigh celts, varying from the former examples in the broad outcurve of the sides towards the edge, which is 2 in. across. The rim is 1½ in. wide, and the implement 2½ in. in length. It is decorated, as before, with three plain ribs. It was found with the spear and four other celts, as subsequently described. Three others of the celts from the same site are of this character.

The fourth of the Winmarleigh celts is an isolated specimen, distinguished by the sharp recurve of the ends of its outcurved edge, as shown in the annexed drawing, fig. 20. In other respects it is similar to those which have been described, and it is ornamented with the same three ribs along the face. Its length is 3 in., breadth across the mouth 1½ in., and across the edge, extreme measure, 2 in. Like the previous example it was found in the deposit of two spears and five celts described on p. 236, and illustrated in Nos. 1-7 on Plate V.

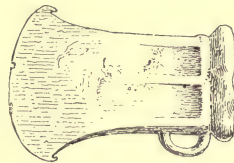


FIG. 20.—CELT WITH RECURVING EDGE FROM WINMARLEIGH. 2 : 3

¹ *Trans. Manchester Lit. and Phil. Soc.* v. 527, 534, with plate.

² *Arch. Journ.* viii. 331-2.

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A fifth celt, also in the museum at Warrington, is shown on Plate IV. No. 6. It is an excellent example of celt elaborately decorated with chevron ornament, the ends of the ribs upon its surface terminating in nodules towards the edge.¹ It was found at Winwick near Warrington.² It is $4\frac{1}{2}$ in. in length, $1\frac{1}{4}$ in. across the mouth, and $2\frac{1}{4}$ in. from tip to tip of the edge. It is certainly the best specimen in the county.

Miscellaneous finds of celts have been made in various places. At Wegber near Carnforth, for example, several bronze celts are reported to have been found with other implements about 17 ft. below the surface, in a fissure in a limestone quarry. Also at Marton in the Fylde, it is said, was found near 'Robbins Row . . . a Celtic axe, lying in the peat about a yard from the surface, with a handle of more than a yard in length, nearly the thickness of a man's wrist. At the side there was a loop.'³ A looped celt or palstave seems to be indicated; and doubtless many others have escaped record.

4. WEAPONS

The county provides a fair series of offensive weapons in bronze, with some of exceptional quality. Some of the accounts of discoveries are meagre and lead to much difficulty in identification. In making a selection for illustration the deposit from Winmarleigh again becomes conspicuous, providing in the great spear-head described last in this section one of the most remarkable objects of bronze in the country.

(a) *Knives*.—Of knives there are two doubtful records, both found in association with decorated pottery in burial mounds of the Bronze Age. The best defined is that from Haulgh, where what seems to have been a bronze knife $4\frac{3}{8}$ in. long and $1\frac{1}{4}$ in. broad is recorded as found in a tumulus about a quarter of a mile south-east from Bolton parish church. The implement is provided with three rivet holes for hafting, which is characteristic, but the point is bent back and the illustration of it leaves its real nature somewhat uncertain.⁴

At Darwen was found a piece of bronze of similar outline in very similar association. The object, however, is very much decayed and twisted, and its real character is uncertain. Its length is $6\frac{1}{2}$ in., with a greatest width of $2\frac{1}{4}$ in.

(b) *Daggers*.—The bronze implement shown in annexed figure No. 21 is of exceptional interest. It was found in 1845 about $2\frac{1}{2}$ ft. from the surface of the ground in a field about half-way between the towns of Burnley and Colne.⁵ It is apparently a dagger with a narrow tang, in which is a rivet-hole. The tang is smooth and the rivet-hole seems to have been

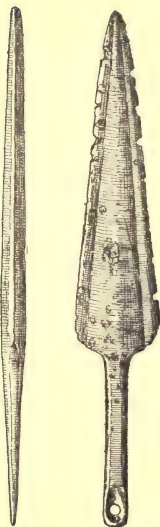


FIG. 21.—BRONZE DAGGER
FROM NEAR COLNE. 1 : 2.

¹ See also *Bronze Imp.* p. 123, fig. 136.

² Thornber, *Blackpool*, 18, 328.

³ Information of W. Farrer, Esq.

⁴ *Arch. Journ.* xv. 236.

⁵ *Hist. Soc. Lanc. and Ches.* iv. 132.

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wrought. The mid-rib is rounded. The surface of the implement is corroded in places, and the edge also chipped. It is just over 9 in. in length, the tang is 3 in. long, and the greatest width $1\frac{1}{2}$ in. Tanged daggers are extremely rare, being known chiefly from the Arreton Down deposit, in the Isle of Wight. There, in 1735-7, some nine blades of the class (though differing in detail) were found near Newport, upon the Down, with other objects of the same material.¹ Though rare, the geographical distribution of this class is somewhat wide. A specimen comes from Matlock, Derbyshire, a second from Burwell Fen (both in the possession of Sir John Evans), another from Swaffham Fen, Norfolk (now in the Cambridge Museum), and another from Plymstock, in Devon. Ireland and the Continent also have yielded examples.² The class is difficult to distinguish from a type of spear-head, to which Sir John Evans and Mr. Franks seem disposed to assign it.³

A fine offensive weapon, sharp at both edges and point, was found at Winmarleigh in association with three celts previously described. The details of its discovery are somewhat dubious, but it is said to have been 'found in a box near Garstang' with the other implements. Its length is $9\frac{1}{2}$ in. over all, with a $7\frac{1}{2}$ in. blade. In width near the handle it measures $1\frac{1}{8}$ in. ; it then narrows slightly and recurves outwards, as shown in the photo, Plate V. No. 11, measuring $1\frac{3}{8}$ in. before turning again to the point. The handle was made firm by a longitudinal ridge on the tang which it enclosed.

The photograph on Plate IV. No. 7 illustrates a third dagger of interesting character, though much smaller in size. It was found with an urn and stone hammer (Plate II.-5) in a tumulus at Highfield Lane, Middleton, Winwick. The end of the handle or tang is broken near and partly through a rivet-hole. Over all the weapon measures $4\frac{1}{2}$ in., with a blade of length 3 in., and breadth near the handle of $1\frac{1}{2}$ in. In shape, as may be seen from the illustrations, it differs from the foregoing. From its association it seems to be definitely a relic of the Bronze Age, and it is characteristic also of the deposits placed with interments early in the Bronze Age. A bronze dagger, with spear-head and arrow-head, is vaguely reported from burials on Lancaster Moor.

(c) *Spear-heads*.—Three excellent spear-heads are preserved in the museums of Preston and Warrington.³ The former is shown in fig. 22. It is the plain leaf-shaped type, with long socket and a rivet-hole for fixing the shaft. It measures 9 in. over all, with a $6\frac{3}{4}$ in. blade, which is $1\frac{1}{8}$ in. across at its widest point. The mouth of the socket is $1\frac{1}{2}$ in. in diameter. It is recorded to have been found with many other remains, human and

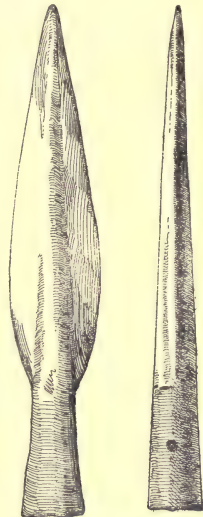


FIG. 22.—BRONZE SPEAR-HEAD FROM PRESTON. 1 : 2. (Preston Museum.)

¹ *Archæologia* xxxvi. 326.

² Evans, *Bronze Imp.* p. 260.

³ *Manc. Lit. and Phil. Soc. Trans.* v. 527, No. 6.

animal, in the excavations made in the Ribble in 1885 for construction of the Preston Docks. It therefore seems to be distinct from an entirely similar implement described as a Roman spear-head found within three yards of a bronze celt (previously mentioned) in 1840,¹ at Cuedale (Walton-le-Dale) by some men in deepening a ditch, at 4 ft. from the surface.

Another spear-head is recorded as found with other bronze implements, socketed celts, etc., in the River Ribble, but the details are wanting.²

A finer example is that from Winmarleigh, found with the great looped spear described below. It is of similar general character, but with a regular deep sharpened edge along both sides. It measures $8\frac{3}{8}$ in. over all, with a blade of $6\frac{1}{2}$ in., and width $1\frac{1}{2}$ in. The socket is just over an inch in diameter at the mouth, and as in the former case tapers gradually in straight convergence to the point. It is in excellent preservation. See the photograph of Plate V. No. 6, which illustrates this object among its deposit.

An interesting socketed spear-head was found at Irlam, near Manchester, in digging the Ship Canal, at a depth of 20 ft., and is now preserved in the Warrington Museum. The blade is small, 3 in. in length, $1\frac{1}{2}$ in. in width, and the socket for the most part is external to it, the implement measuring over all $5\frac{1}{2}$ in. The socket is rimmed at its end, and provided on each side with a prolonged loop for securing to the shaft. Between the loop and the blade on the side are a series of notches (fig. 23).

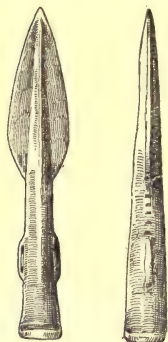


FIG. 23.—SPEAR-HEAD
LOOPEO ON SHAFT, FROM IRLAM.
Scale, 1 : 2.
(Warrington Museum.)

A double looped spear-head is reported to have been found near Leigh,³ but the record is deficient.

The spear-head from Piethorne, near Rochdale, where it was found at the waterworks, is double-looped in the blade, and though weather-worn is an interesting object. It measures over all $6\frac{3}{8}$ in., with a blade 5 in. long and $1\frac{3}{4}$ in. wide across the loops. The socket is very wide in proportion, measuring $1\frac{3}{8}$ in. at the mouth. The implement is otherwise leaf-shaped, as seen in fig 24, and converges in section uniformly as in the other instances.

The great spear-head from Winmarleigh, now in the museum at Warrington, is of similar type, leaf-shaped, with loops in the blade. This weapon surpasses all others of the county not merely for its size and preservation, but for the fine workmanship and finish of detail. The photograph Plate V. No. 7 shows this splendid specimen with the other implements found on the site. It measures $19\frac{1}{2}$ in. over all, with a blade about 16 in. long and $3\frac{1}{4}$ in. wide. The loops are symmetrical curves from the socket in the width of the blade. The socket is somewhat slender, being $1\frac{1}{4}$ in. wide at its mouth, and it tapers elegantly to the point. A rivet-hole is provided for fixing the shaft.

This spear-head and that described previously (No. 6) are recorded to have been found, together with the five celts (Nos. 1-5 in Plate V.), in 'a strong, rude, oaken box, with pins of the same, at Winmarleigh near Garstang.'

¹ *Journ. Brit. Arch. Ass.* viii. 332

² *Manc. Lit. and Phil. Soc. Trans.* v. 527, No. 6.

³ *Ibid.* v. 531.



PLATE V.—BRONZE IMPLEMENTS FROM WINMARLEIGH, NORTH LANCASHIRE.

Scale 1 : 3 (Warrington Museum).

FIRST GROUP.—FIVE SOCKETED CELTS (1-5). TWO SPEAR-HEADS (6, 7). SECOND GROUP.—THREE SOCKETED CELTS (8-10), AND DAGGER (11).

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The dagger described above (No. 11), with reported verbally to have been found 'in a Garstang,' whence they were secured. It seems very possible that they form part of the same deposit, and that the latter were retained by those who handed over the former. Otherwise the latter were a distinct deposit, and the tradition of the other discovery clings to them. However that may be, they form from one site a group of implements and weapons of excellent quality and exceptional interest, including one of the best spear-heads of the country, a second which is smaller, a dagger, and eight socketed celts, of which seven are ornamented with ribs. The group is shown in Plate V.

the celts (Nos. 8-10), is box at Winmarleigh, near



FIG. 24.—SPEAR-HEAD LOOPED IN BLADE FROM PIETHORNE, NEAR ROCHDALE. 1 : 2.

5. BRONZE IMPLEMENTS FROM NORTH OF THE SANDS

Several small hoards of bronze implements are recorded from this district. At Kirkhead, near Allithwaite, in the floor of Kirkhead Cave, which has yielded implements of the preceding ages also, were found with some pieces of rude pottery, a fluted earthenware bead, three bronze rings, a bronze pin 'enamelled,' a piece of a fibula, a bronze palstave and spear-head, a large bronze celt; also a flake of flint, a bone amulet (carved from the head of a human femur), and a quantity of human bones. At Little Urswick also, near Stone Walls, some workmen discovered under a flat stone a deposit which seemingly included several examples of the later bronze work. The record mentions a long spear-head (or possibly a sword), which was deliberately broken; and near to this four or five 'celts or axes of brass,' which were probably bronze socketed celts, though described as axe-hammers; also four or five rings. The latter were 'large enough to go over the hand, and had an external eye to them as if for the purpose of being strung.' Some interesting finds of isolated implements or groups are also recorded. Two or three bronze palstaves were ploughed up at Flookburgh; a bronze celt and armet have been traced to Furness, and in Cartmel parish several bronze implements there found seem to resemble socketed celts from the description given. A great bronze celt, 9 in. long and 8 in. broad, is recorded as found in the ruins of Gleaston Castle: and the find of two bronze celts from Stainton, near Dalton, was recorded in the newspapers of 1894. A bronze spear-head is reported from Dalton in Furness; and an implement described as found with the fragments of a cinerary urn at Stainton simulates a spear-head also. A bronze dagger was found at Page Bank, near Leece.

6. CLASSIFIED LIST OF LOCALITIES

Flat Celts.—Rixton, Read, Risley (Martin Mere).

Palstaves.—Ainsworth, Martin Mere, Southworth, Turton, Winwick, Sharples, Weeton.

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Socketed Celts.—Marton, Ribble, Walton-le-Dale, Winmarleigh, Winwick.

Weapons.—(a) Knives : Darwen, Haulgh.

(b) Daggers : Colne Winmarleigh, Winwick.

(c) Spear-heads : Irlam, Leigh, Piethorne, Walton-le-Dale, Winmarleigh.

OVER SANDS.—(a) Palstaves : Flookburgh, Kirkhead.

(b) Celts : Cartmel, Furness, Gleaston Castle, Kirkhead, Little Urswick, Stainton.

(c) Weapons : Dalton, Kirkhead, Leece, Little Urswick.

III. INTERMENTS AND BURIAL URNS

Without considering the whole subject of Bronze and Stone Age burials it would not be possible with the evidence accessible to discriminate between the periods of the early interments in Lancashire of which there is record. Those who have given to this branch of the subject their closest attention find in it great difficulties, and differ among themselves in their interpretation of the results. In general there is a disposition to draw hard and fast lines between different types of interment as representing different and distinct epochs of culture and development, which the evidence of observation does not warrant. The Lancashire burials do not help to solve the great problem, but partake fully of its difficulties. The great area of flint chippings in the south-east of the county, which we have accepted as evidence of a settled stone-working people in a neolithic age, is still without any representative and analogous class of recorded burials. A number of burial mounds, indeed, with interments apparently all by cremation, are found about these hills, but the urns found in these, the stone circles, and other features, are for the most part of the type usually assigned to the Bronze Age, and indeed here and there a small pin or other object of bronze has confirmed the date. But not even small pieces of metal are found upon these 'neolithic floors.' Looking at the problem of the settlements and culture-phases of early man in Lancashire with due regard to the physical features of the county, the possibility must be admitted of an even broader overlap of Bronze and Stone Age than is usually conceded. The aboriginal workers of stone may have still retained their homes upon the eastern hills, while elsewhere, nearer the coast or upon the river valleys, bronze-using man gradually made his way; possibly the use of bronze might find its way without ethnical movement. However that may be, unfortunately we can only admit the insufficiency of local evidence. Hence in regard to these interments, those which bear trace only of stone implements are distinguished from those showing bronze, as belonging possibly but not necessarily to an earlier phase of culture development and an antecedent population.

I. INTERMENTS WITH ASSOCIATED STONE DEPOSITS

On Hades Hill, near Rochdale, in a depression which separates that hill from Rough Hill, 1,380 ft. above sea level, an approximately round, but deformed, barrow has been explored. Its dimensions give 52 ft. north to

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south and 45 ft. east and west, with a rise of 3 ft. above the surface : being placed upon a slope it has probably slipped and suffered slight change of form. 'It was constructed as follows: a circle of large and rough native sandstones was laid on the surface of the ground, marking the extent of the supposed mound. Near the centre of this circle the urn was placed, mouth upwards, probably in a cairn of stones ; then a quantity of rough sandstone was thrown in, and afterwards covered with sandy clay or loam.'¹ The urn was of the two-tier variety, hand-made, decorated on the outside, on the apex, and on the interior by rope pattern in chevron designs. The contents were burnt human bones, burnt flint implements and flakes, and a 'broken nodule of jasper flint.' In the barrow itself were found also the burnt tooth of an ox, animal bones, charcoal, numerous flint flakes and implements, among them a barbed arrow-head, pieces of coal and quartz pebbles.

This is a characteristic interment. Technically this mound and urn must be assigned to the Bronze Age ; but the deposit itself is significantly suggestive of the neolithic area amid which it is placed.

The excavation of a barrow at Littleboro', further to the east, showed it to contain a similar interment, consisting of an urn, calcined bones, and small pieces of flint. But it is further to the north, on the moorland hills that lie away towards Burnley, that interments of this character are more numerous recorded. These are almost homogeneous, and the single discrepancy of a bronze pin occurring in one instance, only strengthens the suspicion that the real age of these neolithic sites may have been contemporary with the incipient use of bronze, and reciprocally, that these 'round barrows' were fashioned by a people accustomed to the use of flint and to whom bronze was rare. To quote a few examples : At Worsthorpe, near Black Hameldon Hill, was a barrow 30 ft. in diameter and 4 ft. in height, in which were found 'flint flakes and arrow-heads,' the centre was occupied by stones arranged like a long sarcophagus with two large stones as cover ; on the same site a tumulus 21 ft. in diameter yielded an unglazed urn ; a third mound was surrounded by a stone circle, and in it were found calcined human remains ; at Briercliffe, in the same region, was a tumulus and earth circle, 27 ft. in diameter, with a 'food-vessel' ; near it was a circle of seven stones, from which came 'unglazed urns, human remains, and flint arrow-heads' ; at Hellclough was another circle of seven stones, an urn, and the bones of two persons, with the bronze pin previously mentioned ; a third circle of seven stones yielded, in addition to an urn and bones, a flint axe.

Further again to the north, on the hillside which forms the northern bank of the Ribble near Stonyhurst, there was examined a circular tumulus which was 115 ft. in diameter, with the result that a 'small flint knife or scraper' was found with 'crushed bones in charcoal,' a bone hone 4 in. long, and the handle of a vessel (seen subsequent to the excavation), the edge of which was crimped. The bone hone was worn as by the sharpening of a metal instrument upon it.

At Wavertree, near Liverpool, there have been made finds of no less importance. Some cinerary urns, reported to be eight in number, containing burnt human bones and ashes, seem, from those which are preserved in the City Museum of Liverpool, to have been possibly of very early date,

¹ In *Rech. Lit. and Sci. Soc.* 1898. Sutcliffe, 'Hades Hill Barrow.'

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lacking the decoration characteristic of the advanced Bronze Age. With them were found two small scrapers and other objects of flint, including a barbed arrow-head, an excellent specimen. Apparently near to these urns was another tumulus of sand with a chamber of hewn stones. These vary in size from about 3 ft. by 2 ft. to about 6 ft. by 5 ft. There may have been more of them, but early last century they were removed to their present position¹ where by the name of the Calderstones they are preserved at the foot of Druids' Cross Road. The arrangement of the stones, as has been suggested,² must have been dolmen-wise. The large flat stones probably formed the cover of a chamber or chambers formed by the smaller ones. Within, there is record of the discovery of several urns and general evidence of burials by cremation. The suggestion of tradition implies that the urns found did not and would not contain all the ashes uncovered. An additional interest is lent to these stones by the 'cup and ring' markings, designs of spiraloid form, incised upon them. It is difficult to believe that these are earlier than a Celtic age, but they are not necessarily contemporary with the construction of the tomb. The general character of the burial and construction of the tumulus accords with an early date, based upon the results of study in other places of Britain and the Continent. Considering the local history also, probably there is no error in assigning it to a date at least as early as the overlap of Neolithic Age and Bronze Age.

Some burials found at Stretton, near Warrington, seem somewhat analogous. 'The bodies lay in sand, each surrounded with ashlar placed at the side and head and feet, the bones being 16 in. below the surface. The side bones had not been placed perpendicularly, but inclining to one another like the roof of a house.' Two small urns of baked clay, about 4 in. deep and 3 in. in diameter, were found, with black ashes, charcoal, and general indications of firing. One of the urns had a pinched ornament on the neck, and another is quite plain.

2. INTERMENTS WITH ASSOCIATED BRONZE DEPOSITS

Winwick, in the neighbourhood of Warrington, has yielded up, in some of the interments which have been recorded, evidence of real importance to archæology. That period early in the Bronze Age when as yet only simple weapons and implements were fashioned of that material seems to be indicated by a deposit found in one of the tumuli at Highfield Lane. In it were found a small bronze dagger, with rivet-hole in tang (described above in Plate IV. No. 7), and a small polished stone hammer (Plate II. No. 5), both within an urn. The decoration of some pottery from the site shows a simple linear design resembling parallel veins of a leaf. The dagger is of a type found in the Yorkshire 'Round Barrows,' and the association of a polished stone implement is not uncommon. The Bronze Age has certainly begun, and it provides a better example of a stone implement than anything of the Neolithic age. The terminology is obviously not adequate; the word 'chalcolithic' might be used to represent this phase. At Winwick also, and

¹ E. W. Cox, *Lanc. and Ches. Ant. Soc.* x. 252 (1892).

² Prof. Herdman, 'The Calderstones' 1896, in pamphlet.

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possibly associated with the tumuli of the place, were found a flanged bronze palstave and flat ring about 2 in. in diameter (Plate IV. Nos. 4, 5). Unfortunately the evidence concerning this find is not clear. On accepted theory, the palstave should belong almost to a second phase of the Bronze Age, and it is an object rarely found in funerary deposits: a bronze socketed celt with chevron ornamentation (Plate IV. No. 6) found in the same vicinity seems to indicate a continuous Bronze Age population in the locality.

Not more than a mile from Winwick, at Kenyon, there have been found other funerary mounds apparently of this same age. One of the most recently discovered was disturbed in making a diversion of a road, but a description of the tumulus and its contents has been skilfully rescued.¹ The mound was about 33 ft. in diameter and 3 ft. 6 in. in height, of the form shown in the annexed section (fig. 25). Portions of two urns were recovered. On one of these 'the outside surface of the lower portion for a depth of 3 in. is plain. An equal width above this is ornamented with small triangular indentations and short incised lines, forming chevrons in encircling rows. The upper portion is divided by three angular cordons into two hollow grooves, the lower of which is evenly marked with incised chevrons, and the upper one filled with a zig-zag moulding, dotted over with similar triangles and chevrons. The top of the everted rim is likewise covered with chevron markings in

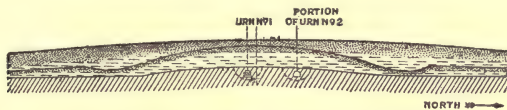


FIG. 25.—SECTION OF A BRONZE AGE TUMULUS AT WINWICK.

three rows.' Nearly eighty years ago fragments of an urn were found in the same vicinity decorated with 'large triangular or lozenge-shaped grating, marked with incised lines,' and with the urn a bronze pin or small implement with a flat tang.

Further north, at Bolton, a tumulus was opened about a quarter of a mile south-east from Bolton parish church. It proved to be a Bronze Age 'barrow, about 30 ft. in diameter and 4 ft. deep, made of small boulders. About the centre was a cist urn, 4 ft. 6 in. long by 12 in. deep, of four upright stones and a coverer, lying nearly north and south. The skeleton lay in a contracted attitude, with head to the north. Near to the head lay an incense cup $4\frac{1}{2}$ in. by $3\frac{1}{2}$ in. high, and a bronze spear-head $4\frac{3}{8}$ in. long by $1\frac{3}{8}$ in. broad.' The bowl was in excellent condition, with three rows of pattern incised, of which the first and third were adjoining triangles of parallel lines enclosed, with the interstices marked with lines in the complementary direction; the second tier has a deviation of vertical dotted lines. The bronze implement is a knife or knife-dagger, apparently with two sharp edges, having three rivet holes at the base for affixing it to its handle.² The vicinity bears other traces of burials, not only in tumuli which are preserved or recorded, as that at Walmsley, which contained a skeleton, urn, and flint celt, but in the

¹ *Lanc. and Ches. Ant. Soc.* xxi. (1904). Thos. May, Notes on a Bronze Age Barrow.

² *Hist. Soc. Lanc. and Ches.* iv. p. 132.

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stone circles which here and there, as at Anglezarke and in places on the Extwistle and Lancaster moors, give indication of tumuli which have disappeared from the surface.

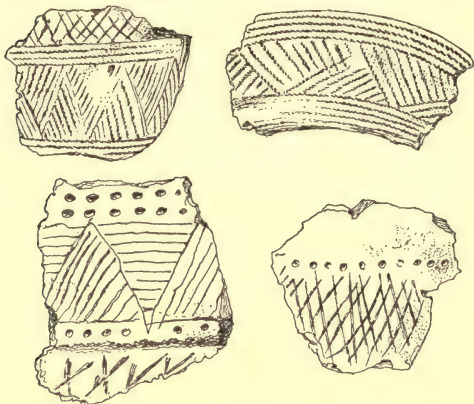


FIG. 26.—PATTERNS UPON CINERARY URNS FROM DARWEN.

in urns, one of which was in an inverted position. On the top of each of the cinerary urns was a rough flat stone surrounded and covered by small stones carefully filled in. The cinerary urns are mostly of the two-tier variety, with rectilinear decoration. The variety of designs found in association is of some special interest, and is illustrated in the sketch appended, fig. 26. One of them with punctuated decoration is less common, and shown in fig. 27. An incense-cup, plain, and bronze implement, presumably a knife-dagger, much corroded, were found in the same place.

From the height of Revidge, above Blackburn, comes also a characteristic burial of the early Bronze Age, with a simple urn of two decorated tiers and overhanging rim (fig. 28), a bone pin about 2 in. long, and a bronze pin-head. The whole seems to have been enclosed as usual below a mound, while the urn was found inverted in a bed of sand.

Further north again, upon the moors around Lancaster, burials of the Bronze Age are even more numerous than elsewhere recorded. In one spot were found a number of urns, about 2 ft. below the surface, lying in pairs at intervals of a yard, in a row which extended east and west. One was enclosed in four flag-stones, with a fifth at the top. A bone pin, 'bronze arrow-head and spear-head,' are recorded among the deposit. The same alignment was noticed in another instance, at a place distant about a quarter of a mile, where one of the urns has two

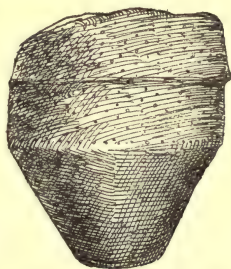


FIG. 27.—URN WITH PUNCTUATED DECORATION FROM DARWEN.

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tiers, with the designs shown in the urn from Revidge, only with the triangular motive on the upper tier. There was found in this instance also an 'ornament of limestone, 4 in. long, convex in front, and flat at the back,' with the ends punctured—apparently an armlet.

But all these yield in point of interest and detail of discovery to that found on the moors at Bleasdale, in the same district of north Lancashire. There the late Mr. Jackson recently discovered and explored a group of prehistoric remains, placed in a striking position on a knoll of boulders in the middle of an amphitheatre of moorland hills, about 650 yards due west from Higher Fair-snape Farm. Of these he has handed down an exact and careful record,¹ which Professor Boyd Dawkins has supplemented with some illuminatory notes. In the construction of the circles which enclosed some cinerary urns, wood was found in this case to have supplied the place of stone. There were two circles, one enclosed by and touching the other towards the east. The diameter of the smaller was 75 ft., and of the larger circle twice that

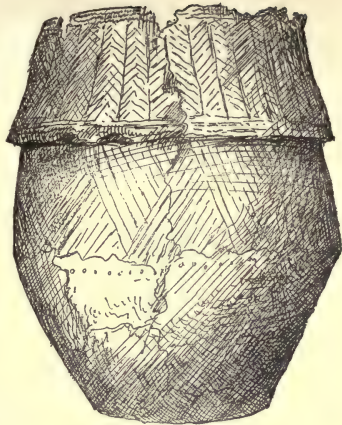


FIG. 28.—URN FROM BLACKBURN.

¹ *Lanc. and Ches. Ant. Soc.* xviii. 1900, pp. 114-124.

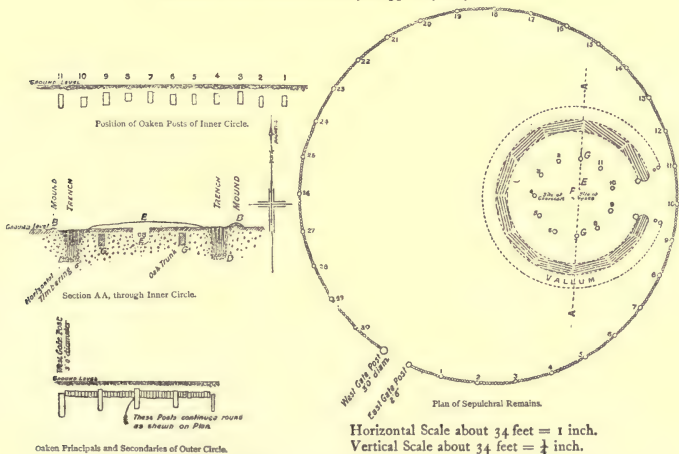


FIG. 29.—PLAN AND SECTION OF TIMBER BURIAL CIRCLE, &c. AT BLEASDALE. FROM L. C. A. xviii.

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figure, which, it is pointed out, is in its turn half the diameter of Stonehenge.

The outer circle (see fig. 29) consisted of round logs of oak, placed closely side by side. The lower ends of some of them have been noticeably trimmed with a metal axe or adze; a fact which serves as a useful criterion in assigning a date to the remains.

The inner circle is more complex in structure. It is formed of an outer ring of earth, the 'vallum,' about 5 ft. wide and 9 in. high, composed of clay thrown out of the ditch on the inside, which latter is about 5 ft. deep. Inside this again was a low mound, formed also of clay out of the ditch, in which lay concealed a circle composed of eleven rounded oak logs, forming a circle 34 ft. in diameter. In the centre of this were found a group of urns, lying with wooden ashes, in a small rectangular hole. The urns contained calcined bones, and inside one of them was a third smaller vase; these are shown by photograph on Plate VI.

The pottery and the cuts upon the wooden parts are evidence which lead Professor Dawkins to conclude that 'this remarkable burial place falls into line with the large series of burial mounds of the Bronze Age which lie scattered, not only over the area of the British Isles, but over by far the greater portion of Europe.' In other places the material employed for the circles and fences is stone. Here, in place of stone, wood was employed. In this respect the Bleasdale burial place is unique.¹

In the vicinity of Manchester also have been observed traces of interment by cremation, in the survival of cinerary urns, unaccompanied, however, by any deposit of metal or stone. At Redbank was found an urn 'of late British period' in 1830. At Clifton, on the banks of the Irwell, some workmen in making a trench through gravel came upon part of a skull, with signs of cremation also. A small 'incense cup,' decorated in three tiers, was found on the spot. In 1873, in the grounds of Broughton Hall, in the course of excavation, a V-shaped trench was observed, 3 ft. wide, which descended 7 ft. below the surface. An urn was lying in the middle of the trench filled with mixed materials. It was of coarse clay of a reddish colour, hand made. Its height was 5 in. and 6 in. across its widest parts; the pottery is 1 in. thick all over. The ornamentation is composed of lines lying diagonally, incised with a pointed stick.

In the northernmost part of the county also, at Yealand, which is 2½ miles west of Carnforth, have been found traces of 'neolithic settlement,' and among them 'many barrows of earth and stone.' In one of them was recently found about 'three or four quarts of human bones calcined,' and adjoining the urn a human skeleton and a large (? glass) bead of blue colour.

3. INTERMENTS IN LANCASHIRE OVER SANDS

Passing north of the Sands a remarkable series of barrows and burial urns give evidence of the habitation of early man, for the most part, so far as can be judged, during the Bronze Age. In the nearer district of Cartmel, at Allithwaite, has been found a small earthen urn containing calcined bones in Yew Tree Field. In Cartmel itself, on the site of the new burial ground, an

¹ *Lanc. and Ches. Ant. Soc.* xviii. 1900, p. 123.



1. WOODEN DUG-OUT CANOE, FROM PRESTON.



2. CINERARY URNS AND INCENSE CUP, FROM TIMBER CIRCLE AT BLEASDALE. Scale, 1 : 3. (Preston Museum.)



3. SMALL POTTERY VASE, FROM WADSWORTH MOOR.
Scale, 2 : 3. (British Museum.)



4. INCENSE CUP, FROM CLIFTON, MANCHESTER.
Scale, 2 : 3. (British Museum.)

PLATE VI.—WOODEN CANOE AND POTTERY VESSELS OF BRONZE AGE FROM LANCASHIRE.

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urn containing bones and ashes; and in Aynsome Lane, an urn 14 in. high containing a quantity of half burnt bones and ashes.

For the same geographical reason, probably, which results in a scarcity of all antiquities in the eastern portion of this district, where it abuts upon Westmorland, no burials are recorded between Cartmel and the head of Lake Windermere. At the latter place, in Hawkshead Hall Park, a little to the south-east of the mill-pond, was a cairn; and a stone circle occurred east of Knipe Ground plantation, with more cairns a little more than half a mile south-south-west of this last. Interments seem to have been made in the first instance in a small square hole, which had been covered with a boulder. Amongst the burnt human remains was a small flint knife.

West of Coniston Water at Torver (Bleaberry Hawes) is recorded a cairn 29 ft. in diameter, amongst others, with a burial cist and cremated interments, among the remains of which were found fragments of pottery and of worked flints. In the first case stones showing the action of fire were found all the way through, as well as small quantities of charcoal.

From this place southward there is a continuous area of prehistoric interments. Just north of Knapperthaw, which is near to Lowick, are remains of a stone circle, which has been erected upon a stone ring platform or embankment. On the north-west side still remain five stones of small size, while the position of others is traceable. Probably the circle was about 90 ft. internal diameter. There was sign of an inner chamber on the north-west, and, to the south-west, of an entrance or gap in the ring, supposed to be ancient. Near Kirkby Ireleth, at Heathwaite, were two small barrows, close to two stone circles, called the 'Giants' Graves,' which on being excavated about two years ago were found to contain the bones of men covered by a flat stone. 'In one was a fragment of a stone ring about two inches in diameter.' At Ireleth Mill, also, were found eight urns without tumuli, arranged in a line north-east to south-west, each containing human bones.

At Stainton, near Dalton, where some direct evidences of the Bronze Age have been found, there has been discovered also a large cinerary urn, with upper band, and 'rudely ornamented with diagonal lines forming a pattern.' A small bronze implement was found within. Another similar urn found at hand contained a smaller vessel, which is said to have held the calcined remains of a child.

At Birkrigg Common, which is east of Dalton, on a part overlooking the village of Bardsea, was a circle about 10 ft. in diameter surrounded by ten unhewn stones, each about 3 ft. in height. It has long been called the Druids' Temple. This does not seem to have been explored. But on Kirkby Moor there has been found evidence of interments in association with stone circles and cairns.

Further south, at Scales, near Aldingham, as long ago as 1803 there were found remains of cremated interments in an urn under a small cairn. Near to this spot was found also 'a tomb in which two persons had been interred, having a broad, flat limestone laid over it, upon two upright stones at the end.' At Baycliff, near to the same place, are recorded some sepulchral urns from near the Moat and Colt Park; while in the southern limit of the peninsula, at Roose, has been found a burial by cremation, accompanied by vases of pottery deposited. The body seems to have been

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burnt upon the site, then covered over by a pool or mere of earth, upon which 'two or three hundred cartloads of earth' had been piled. The vases, with their punctured and incised chevron patterns, may have belonged to the Bronze Age; but some features of the burial are apparently very early.

4. CLASSIFICATION OF LOCALITIES

Bleasdale, Broughton Hall, Broughton (Manchester), Clifton, Cliviger, Darwen, Haulgh, Kenyon, Lancaster, Littleborough, Manchester (Red Bank), Revidge (Blackburn), Stonyhurst, Walmsley, Warton, Wavertree, Weeton, Winwick, Yealand.

Over Sands: Aldingham, Allithwaite, Aynwine Lake, Rawcliffe, Birk-rigg, Cartmel, Ireleth Mill, Knapperthaw, Roose, Scales, Stainton, Torver.

IV. IRON IMPLEMENTS AND REMAINS OF THE LATE CELTIC PERIOD

It is hardly possible to see evidence in surviving remains of an Iron Age proper in Lancashire, intervening between the Bronze Age and the Roman occupation. Our record of iron implements of Celtic fabric is small indeed; but to these must be added other implements or their attachments, recognized by their art as belonging to the Later Celtic phase of culture. There is nothing apparently which special criticism would date earlier than the first century B.C.; but in the paucity of evidence the origins of this new phase of civilization remain obscure. The subject, however, is of special interest, and a reasonable inference may be made from the condition of the county as revealed when the first light of history dimly penetrates the darkness that hitherto has enfolded early man in all respects, except the general characters of his art in making weapons. If the account of Ptolemy is to be regarded as evidence, it seems clear that there was at least one settled and organized community in Lancashire at the time the observations were being made from which his notes were derived. Its name, *Rigodunum*, which is also essentially Celtic,¹ suggests the headquarters of a considerable community. There is reason to believe it possible that the situation of this place was at or near to Lancaster;² and it was precisely in that vicinity that such evidence of Late Celtic art as exists is mostly to be found. It must not be forgotten, also, that the best bronze implements, already described, come from the same region; and that while they suggest at least an earlier Celtic settlement, there is no reason to suppose they are the tokens of a purely bronze-using population. Looking again at the map, and considering also the general principle involved in the slow movement of culture waves and of people, it must be conceded as probable that in our northern county, open as it is to the south, while shut off to the north and west by its hills and the sea, the successive ages merged completely, culturally and ethnologically. That, in a word, the development of a full Iron Age, as technically defined, by no means eradicated the blood and art even of the Neolithic Age, much less of the first Celtic people of the Bronze Age, which was nearer and more akin.

¹ *Rix rigos*, a king; *Dunon*, a town or fortress.—Prof. Rhys.

² *Lanc. and Ches. Ant. Soc.* vol. lii. 'On the *Rigodunum* of Ptolemy.'

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Our first example is an iron sword, with bronze hilt and sheath, from Warton, near Lancaster. The two portions, sword and sheath, have become adherent and worn by corrosion, but the annexed restoration, in fig. 30, is courteously supplied by the Ethnographical department of the British Museum, where the object is preserved. It is a simple type. The handle is distinguished by the circular ball enclosed in the triangular end, in which circles and lines are blended with the characteristic geometrical and symmetrical effect. The grasp is embellished by three nicked, rounded ridges which run around it, one at each end, and one in the middle, where the thickness is somewhat greater. Opposed pear-shaped ornaments complete the decoration of the hilt. The sheath is much worn; but down the attachment, which is fixed by pins, may be recognized a fine rope pattern, lying vertically down the middle. The date of this interesting relic, if the product of normal development, should be the first century B.C.

Another relic of late Celtic work is a dagger-sheath from Pilling Moss, south of Lancaster, now in the museum at Salford. The figure, fig. 31, illustrates this object in every detail. The position of the attachment, and the binding rings, are of interest; and the circular ornament of the tip is apparently unique in character. There seems to be no record of its discovery. It was found in Pilling Moss, near to Garstang. Its length is 11½ in. Its date might be as late as the first century.

Some bronze fittings, enamelled, but without decoration, said to have been found at Walton-le-Dale, and now in the museum at Preston, may be assigned to Celtic workmanship.

Passing from the implements of war, the most striking object is a bronze-beaded torque, or necklet, found near Handle Hill, at Mow Road, near Rochdale, where it now remains in possession of the lord of the manor. It is figured in fig. 32.¹ A workman found it beneath a flagstone at the root of an oak tree. Technically this object belongs to the class of beaded torques:—“Rather more than one half the collar is composed of bronze beads of two

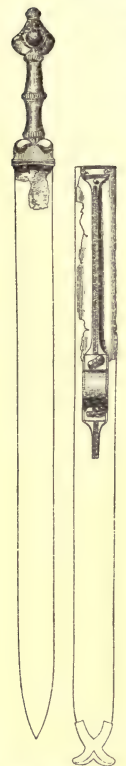


FIG. 30.—SWORD AND SHEATH FROM WARTON. (BRITISH MUSEUM.) Scale, 1 : 4.

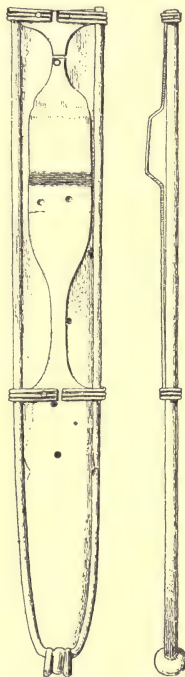


FIG. 31.—LATE CELTIC DAGGER-SHEATH FROM PILLING MOSS. (Salford Museum.) 1 : 3.

¹ Taken from Fishwick, op. cit., by courtesy of the author.

different shapes (one convex and the other concave) strung alternately on a piece of iron of square cross section, so as to prevent the beads from revolving. The remaining segment consists of a bronze tube of rectangular cross section ornamented with the Late Celtic design.¹



FIG. 32.—BRONZE BEADED TORQUE FROM MOW ROAD (ROCHDALE). Scale, 1 : 2.

The two halves of this necklet are dowed together with iron pins, fixing an iron tooth at each end which fits into an appropriate socket in the other half. It weighs about 5 oz. and is about 4 in. in diameter. It is a splendid specimen.

A torque of three beads, the material bronze and of Late Celtic fabric, was exhibited by the Lancashire and Cheshire Historic Society in their collection now placed in the Liverpool Museum. Unfortunately much local archæology is lost together with the descriptive papers of the Society.²

From Liverpool also comes a bronze coin of British workmanship. The description³ is as follows:—*Obv.* Two boars back to back; beneath each an amulet; in the centre behind them a wheel with a line carried on between their backs. *Rev.* A horse to the right above, and below uncertain objects. The character of the coin is allied to those which may be assigned to the Icenian district.

Naturally the list of the Late Celtic remains is longer than is here represented. But the history of Late Celtic art in the county is interwoven with the Roman occupation, and later also the Anglo-Saxon period; hence the description of further remains of these dates, though Celtic in original motive, may be sought in the special sections dealing with those periods.

V. CANOES

There remains an interesting series of wooden canoes or boats, among other miscellaneous remains, which cannot be ascribed in the present state of knowledge to any particular place in the history of Early Man. There is little or nothing in these objects intrinsically whereby to date them: some of them may indeed have been fashioned after the coming of the Anglo-Saxons; hence evidence derived from the circumstances of the dis-

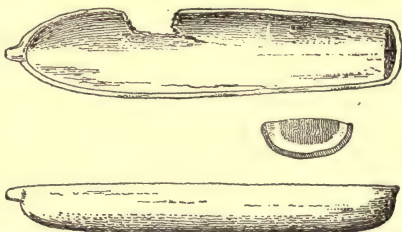


FIG. 33.—WOODEN DUG-OUT CANOE FROM BARTON-UPON-IRWELL (Manchester Museum, Owens College. 1 : 96.)

¹ Romilly Allen, *Celtic Art*, p. 111, w. photo to face p. 110.

² *Hist. Soc. Lanc. and Ches.* xxxi. 117, pl. xii.

³ Sir John Evans, *Ancient British Coins*, p. 120, with fig.

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covery becomes of special importance. It is known that dug-out canoes were used as late as the sixteenth century for special purposes.

They have been found in various places, generally at considerable depths below the ground. That found at Barton-upon-Irwell (Manchester Museum) was excavated at a depth of 27 ft.; that from Irlam (Salford Museum) about the same; those from Martin Mere were found 'in the peat' (one from Crossens is at Cambridge Hall, Southport); two from Preston (in the Harris Museum) at about 14 ft.; while two were found near Warrington (in the public museum of that place) at about 18 ft. below the surface. These depths alone, whether caused by accumulation, or less often by the object itself settling in marshy ground, indicate in each case a proportionate antiquity.

The canoe at Barton-upon-Irwell lay about 400 yds. from the present bank of the river at a depth of 27 ft. It is 13 ft. 8 in. in length, with a breadth of 2 ft. 7 in. fore and 2 ft. 2 in. aft. It has suffered considerable damage, but its form may be gleaned from the accompanying diagram, fig. 33.

There is a hollowed log or small trough, sometimes thought to be a dug-out canoe, from the same site, also in the Manchester Museum. It was found in 1889 in the Trafford Hall cutting of the Manchester Ship Canal, about six or seven hundred yards east of Barton Bridge. It is presumably modern.

The canoe from Irlam, fig. 34, now in the Salford Museum, is somewhat similar in general character. The stem is more curved: the bow does not project as a nose like the former example, and it has been pierced at some time for a painter. Its greatest length is 9 ft. 6 in., width 2 ft. 4 in., and depth 11 in. It was found in cutting the Manchester Ship Canal, 25 ft. from the surface.

Eight canoes were recorded by Leigh¹ to have been found in the peat of Martin Mere. One from this vicinity is in the Cambridge Hall at Southport. It is longer than those previously described, measuring 16½ ft. over all, with a greatest width of 3½ ft. and depth of 1 ft. It differs also in form (see fig. 35), tapering regularly towards one end. Both ends are narrowed, and the bottom is round. It seems to have been patched at some time with pieces of lead, and it has been suggested that the monks of Burscough, whose house stood on the lake, may have used

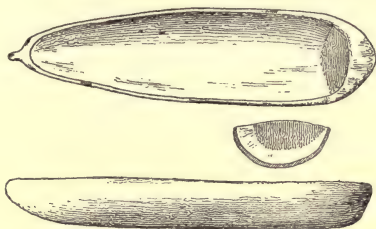


FIG. 34.—WOODEN DUG-OUT CANOE FOUND AT IRLAM. (Salford Museum.) 1 : 108.



FIG. 35.—DUG-OUT FOUND AT CROSSENS. (Cambridge Hall, Southport.) 1 : 216.

¹ Leigh, op. cit. bk. 1, pp. 17, 181.

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and repaired it. It was dredged up near Crossens: there is no evidence in this case of great antiquity.

The two canoes from Preston are of greater interest, not only because they differ somewhat in construction from those previously described, but also because the circumstances of their discovery are known and have been carefully recorded.

In a considerable excavation made for the construction of the Ribble Docks at Preston, various objects of antiquity were come upon at levels which varied from 10 to 20 ft. below the surface, including a bronze leaf-shaped spear-head, shown in fig. 22, and animal remains of the urus or wild ox. Associated with these were a series of human skulls, described in a later section, p. 256, which, though too few in numbers to warrant any general conclusion, suggest by their range of indices that mixing of races which, as the evidence of art also shows, took place at the uprising of the Bronze Age with the incoming of a Celtic element among the population. The great antiquity of this stratum is well substantiated, and is of importance in considering the date of unknown types. The first of these canoes lay, when found, on a bed of gravel 14 ft. below the surface, at a distance of 130 ft. from the present river bank. It is 8 ft. 9 in. long, 2 ft. 6 in. across in extreme width, and has a greatest depth of 1 ft. Its stern was closed by a stern-board inserted in a groove, cut in the sides and bottom. The prow projects 10 in. forward of the dug-out portion. The stern is hollowed from the root of the tree-stem.

The second of the Preston canoes (see Plate VI.—1.) is smaller and less elaborate. Its length over all is 7 ft. 8½ in., with greatest width 2 ft. 8 in., and width at the stern 2 ft. 2 in. Its depth is 1 ft. 2¼ in., while the bottom remains 1¼ in. thick in the middle and 4½ in. thick at the stern. In the bow is an irregularly-shaped hole. There are traces of clean cutting produced by sharp metallic tools. It was found at a depth of 13 ft., about a quarter of a mile east of Penwortham Church.

Hitherto there has been found no criterion for assigning a date to such dug-out canoes from intrinsic evidence. The mere fact of simplicity of construction must not be taken alone as a sign of great antiquity. Movable stern-boards, also, are found alike in association with lake dwellings of the Bronze Age,¹ and in a deposit of Late Celtic times at Buxton.² The only satisfactory dating of these canoes must be separately done from the special associations of each example. The Preston canoes seem to be as early as the Bronze Age, and the oldest in the county; while that from Crossens may not be as old as Norman times.

There remain two canoes,³ found near Warrington in the Arpley Fields, each found about 20 to 25 yards northward from the former bank of the Mersey at that place before the cutting of the Ship Canal, and at a depth of about 18 ft. below the surface of the ground. One canoe is ribbed in two places and of considerable elaboration. It is furnished with a seat in the broader end, and several pegs are fitted regularly around the gunwale. Each one is rounded, and several plug holes are provided

¹ *Proc. Soc. Antiq. Scot.* xi. 21.

² *Ibid.* 206.

³ Admirably described and illustrated, *Hist. Soc. Lanc. and Ches.* N.S. x. 97, Madeley on 'Two Ancient Boats found near Warrington.'

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centrally. The whole length is 12 ft. 4 in., width 2 ft. 10 in., and depth 12 to 15 in.

The other canoe is smaller and less elaborated, with a length of 10 ft. 8 in., breadth about 2 ft. 6 in. towards the prow and 1 ft. 10 in. nearer the stern. The prow is beaked while the stern is rounded. There is again a suggestion of peg holes, but the canoe is very poorly preserved. The evidence of association takes these canoes back to considerable antiquity, certainly before the urus became extinct in the locality.

TOPOGRAPHICAL AND BIBLIOGRAPHICAL LIST OF PREHISTORIC ANTIQUITIES FOUND IN LANCASHIRE

The complete bibliography on the subject of Early Man in Lancashire may be found in *The Archaeological Survey of Lancashire*, edited by W. Harrison, Esq. and issued under the auspices of the Society of Antiquaries, which constitutes the essential preliminary index to the antiquities of the county. Recent finds and researches made since 1895 have augmented this list, and are incorporated below. Much information not separately acknowledged has naturally been derived from correspondence with archaeologists in the county and from personal inspection of the various museums and numerous private collections.

- AINSWORTH, COCKEY MOOR.—Bronze looped palstave [*Lanc. and Ches. Antiq. Soc. Trans.* x. 249], p. 231. fig. 14.
 ANGLEZARKE.—Stone circle [*Ibid.* x. 249], p. 242.
 ASHTON-UNDER-LYNE, MUSEUM.—Perforated round stone hammer or mace-head, p. 227.
 ASHWORTH MOOR, near Rochdale.—Bronze palstave [at Heywood Waterworks], p. 232, fig. 16.
 BARNACRE, near Garstang.—Stone axe-hammer [*Ibid.* xii. 135], p. 222.
 BARTON-ON-IRWELL.—Dug-out wooden canoe [*Manx. Lit. and Phil. Soc. Trans.* xxxii. 243; Manchester Mus.; Owens College], p. 249, fig. 33.
 Hollowed log [*Lanc. and Ches. Antiq. Soc. Trans.* x. 249; Manchester Mus.], p. 249.
 BESOM HILL, near Oldham.—Flint chippings, etc. [*Ibid.* x. 251] p. 215.
 BICKERSHAW HALL, near Wigan.—3 celts [*Lanc. C.* iv. 308].
 BLACKBURN, Revidge.—Tumulus, urn, interment, bone pin, bronze pinhead [*Lanc. Local Gleanings*, iii. 382; *Lanc. and Ches. Antiq. Soc. Trans.* v. 272, Plate 4; Blackburn Mus.], p. 242, fig. 28.
 BLACKPOOL.—Stone polished celt [Weld MSS.; *Lanc. and Ches. Antiq. Soc. Trans.* vi. 180] p. 218.
 Stone axe-hammer [Weld MSS.], p. 224.
 BLACKROD, near Wigan.—Axe-hammer of stone [*Lanc. and Ches. Antiq. Soc. Trans.* xvi. 158; Bolton Mus.], p. 224.
 BLACKSTONE EDGE.—Neolithic flints, arrow-heads, etc. [Fishwick, op. cit. 3, 4; *Rechd. Lit. and Phil. Soc.*], pp. 215, 216.
 BLEASDALE, near Garstang.—Flint implement [*Lanc. and Ches. Antiq. Soc. Trans.* x. 249]; tumulus, timber circles, urns, interments [*Ibid.* xvii. 254-280], p. 243, fig. 29, Plate VI.
 BOLTON.—Roundish perforated hammer [Bolton Mus]. Neolithic chippings, flint implement, etc. [*Ibid.* v. 329; x. 249], p. 226, fig. 11.
 BOWLAND.—Perforated stone axe [Weld MSS.; *Lanc. and Ches. Antiq. Soc. Trans.* iv.], p. 221.
 Perforated round stone hammer [Weld MSS.], p. 226.
 BRANDWOOD MOOR, near Rochdale.—Neolithic chippings, etc. [Fishwick, op. cit. 314], p. 215.
 BROUGHTON.—Mound, urn, interment [*Lanc. and Ches. Antiq. Soc. Trans.* v. 296; Salford Mus.], p. 244.
 BROUGHTON (LOWER), Manchester.—Neolithic chippings, flint implement, etc. [*Ibid.* v. 330; x. 250], p. 215.
 BROWN EDGE.—Flint chippings, etc. [*Ibid.* vi. 139].
 BROWN WARDLE HILL, near Rochdale.—Neolithic chippings, etc. [Fishwick, op. cit. 3, 4], p. 215.
 Flint knife [MSS. of W. Baldwin].
 BULL HILL, near Bury.—Neolithic chippings [*Lanc. and Ches. Antiq. Soc. Trans.* iv. 304. Arrow-head and flakes [*Ibid.* iv. 305-6; v. 328-9], pp. 215, 216.
 BURNLEY, Cant Clough.—Bronze palstave [Information of J. Allen, Esq.], p. 232.
 CASTLESHAW.—Two stone celts. [Mr. W. Andrew.] See also Royton Park and Milnrow.
 CHARTERS MOSS.—See Turton.
 CHEETHAM, Manchester.—Neolithic chippings, etc. [*Ibid.* x. 251], p. 215.
 CHEETWOOD, Manchester.—Perforated stone adze [Manchester Mus.], p. 220, fig. 5.
 CHIPPING, near Preston.—Stone axe-hammer; small worked flint [Preston Mus.], pp. 215, 224.
 CHORLTON CUM HARDY, Manchester.—Stone celt [*Ibid.* x. 250], p. 218.
 CHORLTON UPON MEDLOCK, Manchester.—Neolithic chippings, etc. [*Ibid.* v. 328], p. 215.
 CLAUGHTON HALL.—Perforated stone axe [Weld MSS.], p. 221; tumulus, small polished axe-hammer of stone [Evans, *Stone Imp.* p. 188; *Arch. Journ.* vi. 74], p. 225, Plate II.-6.

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- CLIFTON, Manchester.—Urn, ashes [*Arch.* ix. 191 ; xliii. 362], p. 244.
- CLITHEROE.—Neolithic chippings, etc. [*Lanc. and Ches. Antiq. Soc. Trans.* v. 331], p. 215 ; stone hammer and two axe-hammers (?) [*Manc. Geol. Soc.*], p. 226 ; bronze celts, looped [*Hist. Soc. of Lanc. and Ches.* iii. p. 26, pl. 1.].
- CLIVIGER.—Tumuli, stone circles, urns, interments, small flint implements [*Lanc. and Ches. Antiq. Soc. Trans.* xi. 156 ; *Burnley Lit. and Phil. Soc.*], p. 218.
- COLNE.—Bronze dagger [Information of Mr. W. Farrer], p. 234, fig. 21.
- COW HEYS, near Rochdale.—Neolithic chippings, etc. [Fishwick, op. cit. 3, 4], p. 215.
- CROSSENS (Martin Merc).—Wooden dug-out canoe [*Lanc. and Ches. Antiq. Soc. Trans.* xvii. 264 ; Southport, Cambridge Hall], p. 249, fig. 35.
- CROW KNOLL, near Oldham.—Neolithic chippings [Fishwick, op. cit. 3, 4].
- CUERDALE.—See Walton-le-Dale.
- CULVERT CLOUGH, near Rochdale.—Neolithic chippings [*Ibid.* 3, 4], p. 215 ; leaf-shaped arrow-head [*Roche. Lit. and Phil. Soc.*], p. 215.
- DARWEN, OVER.—Tumulus, urns, bronze dagger [Alrum, *Hist. of Blackburn*, 23 ; Liverpool Mus.], pp. 234, 242, figs. 26, 27.
- DEAN, near Bolton.—Stone axe-hammer [Evans, *Stone Imp.* 128 ; *Journ. Brit. Arch. Assoc.* xv. 232 ; Warrington Mus.], p. 224, Plate II.—4.
- DROYLESDEN.—Stone celt [Higson, *Droylesden*, 29, 30] ; [? hafted bronze axe, *Ibid.*], p. 218.
- EGBERT DEAN.—See Sharples.
- FILIXTON.—Large stone celt [Evans, *Stone Imp.* 107 ; *Arch Journ.* vii. 389 ; Blackmore Mus.], p. 217.
- FLOWER SCAR HILL, near Rochdale.—Neolithic chippings [Fishwick, op. cit. 3, 4], p. 215.
- FOXTON EDGE, near Rochdale.—Neolithic chippings, barbed arrow-head of flint [*Ibid.* 3, 4], p. 215, 216.
- GARSTANG.—See Barnacre, Cloughton, Pilling, Winmarleigh.
- GOLDSHAW BOOTH, Pendle.—Perforated stone hammer [Baines, *Lanc.* iii. 234].
- GOODNARGH, near Preston.—Rounded stone hammer, perforated, pp. 220, 226, fig. 12.
- GREAT WINNING GULF.—Flint chippings, arrowhead, etc. [*Lanc. and Ches. Antiq. Soc. Trans.* v. 328], p. 215.
- HADES HILL, near Rochdale.—Neolithic chippings, etc. [Fishwick, op. cit. 3, 4], p. 215.
- Barrow, urn, tumulus, and flint objects [*Roche. Lit. and Phil. Soc.* vii. 56-63], p. 238.
- Arrow-head, barbed, from near the barrow.
- HAMELDON HILL, BLACK (Worsthorne).—Barrow [*Burnley Lit. and Phil. Soc.*], p. 239.
- HAULGH, near Bolton.—Barrow, stone chamber, urn, interment, bronze knife [*Hist. Soc. of Lanc. and Ches.* iv. 130], pp. 234, 241.
- HAYDOCK.—Round hammer or spindle-whorl [*Journ. Brit. Arch. Assoc.* xv. 233 ; Evans, *Stone Imp.* 206 ; Warrington Mus.], p. 227, Plate II.—7.
- HEATON CHAPEL.—Stone perforated hammer [Baines, *Lanc.* iv. 484 ; Manchester Mus.], p. 223, fig. 9.
- HELPEY EDGE, Rochdale.—Neolithic chippings, etc. [Fishwick, op. cit. 3, 4], p. 215.
- HIGH HODDER BRIDGE, near Clitheroe.—Stone hammer (?) [Blackburn Mus.].
- HOLLINGWORTH LAKE, near Rochdale.—Flint chippings and worked stones [Rochdale Mus.], p. 216.
- Rounded perforated hammer [Rochdale Mus.], p. 227.
- HOPWOOD.—Stone axe-hammer (?) [*Journ. Brit. Arch. Assoc.* xv. 232 ; Evans, *Stone Imp.* 178], p. 226.
- HUNGER HILL, near Rochdale.—Neolithic chippings, arrow-head [Fishwick, op. cit. 3, 4], p. 215.
- IRLAM.—Rounded perforated hammer of stone [*Lanc. and Ches. Antiq. Soc. Trans.* x. 250 ; Warrington Mus.], p. 227, Plate II.—8.
- Bronze looped spear-head [*Ibid.* x. 250 ; Warrington Mus.], p. 236, fig. 23.
- Wooden dug-out canoe [*Ibid.* x. 250 ; Salford Mus.], p. 249, fig. 34.
- KENYON.—Tumulus, urn, bronze pin [*Ibid.* x. 250 ; Warrington Mus.].
- Bronze Age barrow, urns, interments, [*Ibid.* xxi.], p. 240, fig. 25.
- KERSAL MOOR.—Neolithic chippings, etc. [Salford Mus. ; *Ibid.* v. 238, x. 250, xii. 118], p. 215.
- KNOLL HILL, near Rochdale.—Neolithic chippings, etc., arrow-head [*Ibid.* xxi. v. 328], pp. 214, 216.
- LANCASTER.—Perforated stone axe-hammer [Weld MSS.], p. 225, fig. 10.
- Perforated stone axe [Weld MSS.], p. 222.
- Stone celts [Watkin, *Roman Lanc.* 164-5].
- Armet of stone [Evans, *Stone Imp.* 427 (2nd ed.)].
- Urns, interments [*Journ. Brit. Arch. Assoc.* xxxiii. 125 ; *Antiquary*, May 1901], p. 242.
- LANCASTER (near, in bed of the River Lune).—Axe-hammer of stone [Chadwick Mus. Bolton], p. 222, fig. 8.
- LEAGRAM.—Two stone celts [Weld MSS.], p. 217, fig. 2.
- LEES (Thornley), near Oldham.—Bronze spear-head, broken [*Lanc. and Ches. Antiq. Soc. Trans.* xix. 240].
- LEIGH.—Bronze looped spear-head [*Manc. Lit. and Phil. Soc.* v. 531], p. 236.
- LITTLEBORO'.—Tumulus, urn, interment, flint implement [Rochdale Mus.], pp. 218, 239.
- LIVERPOOL.—Stone axe, grooved [Evans, *Stone Imp.* 151 ; *Hist. Soc. Lanc. and Ches.* xx. 15], p. 218.
- Stone implements [Evans, *Stone Imp.* 87 ; *Hist. Soc. Lanc. and Ches.* xix. 168].
- British coins [Evans, *Coins*, 120], p. 248.
- LONGDEN END MOOR, near Rochdale.—Neolithic chippings [Fishwick, op. cit. 3, 4], p. 215.
- LONGRIDGE, near Preston.—Perforated axe-hammer [*Lanc. and Ches. Antiq. Soc. Trans.* v. 329 ; Preston Mus.], p. 223.
- Stone implement (rough celt), p. 219.
- Barbed arrow-head [Weld MSS.], pp. 215, 216.
- LOWER MOOR, near Todmorden.—Neolithic chippings [Fishwick, op. cit. 3, 4], p. 215.

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- MANCHESTER.**—See Cheetham, Cheetwood, Chorlton-cum-Hardy, Chorlton upon Medlock, Clifton, Heaton, Lower Broughton, Kersal, Moss Side, Salford, Withington.
- MANCHESTER, Alexandra Park.**—Two round perforated stone hammers [Queen's Park Mus.], p. 227, Plate II.—8.
 Corporation Street.—Stone adze-hammer [Queen's Park Mus.], p. 219, fig. 4.
 Greenheys.—Stone adze-hammer [Manchester Mus.], p. 219, fig. 3.
 Red Bank.—Neolithic chippings, etc. [*Lanc. and Ches. Antiq. Soc. Trans.* iii. 254]; arrow-head [Manchester Mus.]; urn [*Ibid.* v. 295], p. 244.
 Queen's Park.—Perforated stone axe [Queen's Park Mus.], p. 221, fig. 6.
- MARTIN MERE.**—Stone hatchet, (?) eight wooden canoes [Leigh, op. cit. i. 17, 181], p. 249.
 Two bronze palstaves [*Lancs. and Ches. Antiq. Soc. Trans.* xxi.], p. 231, fig. 15.
 Canoe found at Crossens [Southport, Cambridge Hall], p. 249, fig. 35.
- MARTON (Fylde).**—Stone celt, looped bronze celt or palstave [Thornber, *Blackpool*, 8, 328], p. 234.
- MELLOR, near Blackburn.**—Stone axe-hammer, small worked flint [Blackburn Mus.], pp. 215, 223, Plate III.—2.
- MIDDLE HILL, near Rochdale.**—Neolithic chippings, arrow-head [*Lanc. and Ches. Antiq. Soc. Trans.* v. 328].
- MIDDLETON.**—See Winwick.
- MILNROW, Rochdale.**—Stone axe-hammer [*Ibid.* xviii. 186; Rochdale Mus.], p. 223.
 Stone celt [private information], p. 218.
- MODE WHEEL.**—Perforated stone axe [*Ibid.* x. 251; Salford Mus.], p. 220, Plate III.—1.
- MORECAMBE.**—Flint celt [Weld MSS.], p. 218.
- MOSS SIDE, near Manchester.**—Neolithic chippings [*Lanc. and Ches. Antiq. Soc. Trans.* x. 251], p. 215.
 Portion of bronze collar.
- MOW ROAD, near Rochdale.**—Bronze torque, with iron pins [*Arch.* xxv. 595], p. 247, fig. 32.
- NEWTON-LE-WILLOWS.**—Stone celt [*Journ. Brit. Arch. Assoc.* xv. 231—2; Evans, *Stone Imp.* 107; Warrington Mus.], p. 217, Plate II.—3.
- OAKENROD.**—Perforated stone axe [Fishwick, op. cit. 13], p. 221.
- OGDEN CLOUGH, Pendle Forest, near Burnley.**—Perforated stone axe-hammer, p. 224 [Information of J. Allen, Esq.]
- OLDHAM.**—See Besom Hill, Crow Knoll, Piethorne.
- ORFORD, near Warrington.**—Stone-celt [*Journ. Brit. Arch. Assoc.* xv. 231; Warrington Mus.], p. 218, Plate II.—1.
- PENDLE.**—See Goldshaw Booth, Ogden Clough, Windy Harbour, Wiswell.
- PIETHORNE, near Oldham.**—Bronze spear-head [*Lanc. and Ches. Antiq. Soc. Trans.* xix. 271; Oldham Mus.], p. 236, fig. 24.
- PILLING, near Garstang.**—Stone celt [*Ibid.* v. 328], p. 218.
 Bronze celt [*Ibid.* xix. 248].
 Bronze dagger-sheath [*Hist. Soc. Lanc. and Ches.* iv. 105; *Lanc. and Ches. Antiq. Soc. Trans.* xiii. 134; Salford Mus.], p. 247, fig. 31.
- PRESTON.**—Stone celt, p. 219. Bronze spear-head [*Ibid.* v. 343; Preston Mus.], p. 235, fig. 22.
 Two wooden dug-out canoes [*Ibid.* v. 344; Preston Mus.], p. 250, Plate VI.—1. Skulls, pp. 250, 256.
 Ribble, near.—Portion of stone adze [*Ibid.* v. 329; Preston Mus.], p. 220.
- QUERNMORE, near Lancaster.**—Stone hammer-head (?) [Baines, *Lanc.* iv. 484], p. 226.
- RADCLIFFE, near Manchester.**—Neolithic chippings and worked flints; arrow-heads [*Lanc. and Ches. Antiq. Soc. Trans.* v. 328], p. 215.
- RAMSDEN, near Todmorden.**—Neolithic chippings [Fishwick, op. cit. 3, 4], p. 215.
- READ.**—Bronze celt [*Lanc. and Ches. Antiq. Soc. Trans.* xiii. 127; Evans, *Bronze Imp.* 47], p. 229, fig. 13.
- READYCON DEAN, near Rochdale.**—Neolithic chippings [Fishwick, op. cit. 3, 4], p. 215.
- REVIDGE, see Blackburn.**
- RIBBLE, River.**—Five bronze celts and spear-head [*Manc. Lit. and Phil. Soc.* v. 527, 534], p. 233, 236.
- RISLEY, near Warrington.**—Flat bronze celt [*Proc. Soc. Antiq.* (Ser. 2) v. 423; Evans, *Bronze Imp.* 46; Warrington Mus.], p. 229.
- RIXTON, near Warrington.**—Flat bronze celt [*Arch. Journ.* xviii. 154; Evans, *Bronze Imp.* 46; Warrington Mus.], p. 230, Plate IV.—1.
- ROBIN HOOD'S BED, Blackstone Edge.**—Neolithic chippings [Fishwick, op. cit. 3, 4], p. 215.
- ROCHDALE.**—See Ashworth Moor, Brown Wardle Hill, Brandwood Moor, Culvert Clough, Cow Heys, Foxton Edge, Flower Scar Hill, Great Winning Gulf, Hunger Hill, Helpet Edge, Hades Hill, Knoll Hill, Longden End Moor, Middle Hill, Rushy Hill, Rough Hill, Readycon Dean, Robin Hood's Bed, Turnshaw Hill, Trough Edge, Well i' th' Lane, Wardle Moor, Tooter Hill, p. 215.
- ROYTON.**—Stone celt [*Lanc. and Ches. Antiq. Soc. Trans.* viii. 180], p. 218.
- ROUGH HILL, near Rochdale.**—Neolithic chippings [Fishwick, op. cit. 3, 4], p. 213.
- RUSHY HILL, near Rochdale.**—Neolithic chippings [*Ibid.* 3, 4], p. 215.
- SADDLEWORTH (on the Yorkshire border).**—Stone celt.
- SALFORD.**—See Broughton, Mode Wheel.
 Neolithic chippings [*Lanc. and Ches. Antiq. Soc. Trans.* v. 329].
- SALWICK.**—Stone celt [Leigh, Bk. i. 181], p. 218.
- SHARPLES, Egbert Dean.**—Bronze palstave [*Hist. Soc. Lanc. and Ches.* iv. 131], p. 232.
- SILVERDALE.**—Roundish perforated hammer [Bolton and Leicester Museums; *Lanc. and Ches. Antiq. Soc. Trans.* v. 329; Evans, *Stone Imp.* 320], p. 226.
 Stone axe-hammer, broken [*Journ. Brit. Arch. Assoc.* xxix. 304—5; Bolton Mus.], p. 224.
- SOUTHWORTH (Croft) near Warrington.**—Bronze palstave [Warrington Mus.], p. 200, Plate IV.—2.

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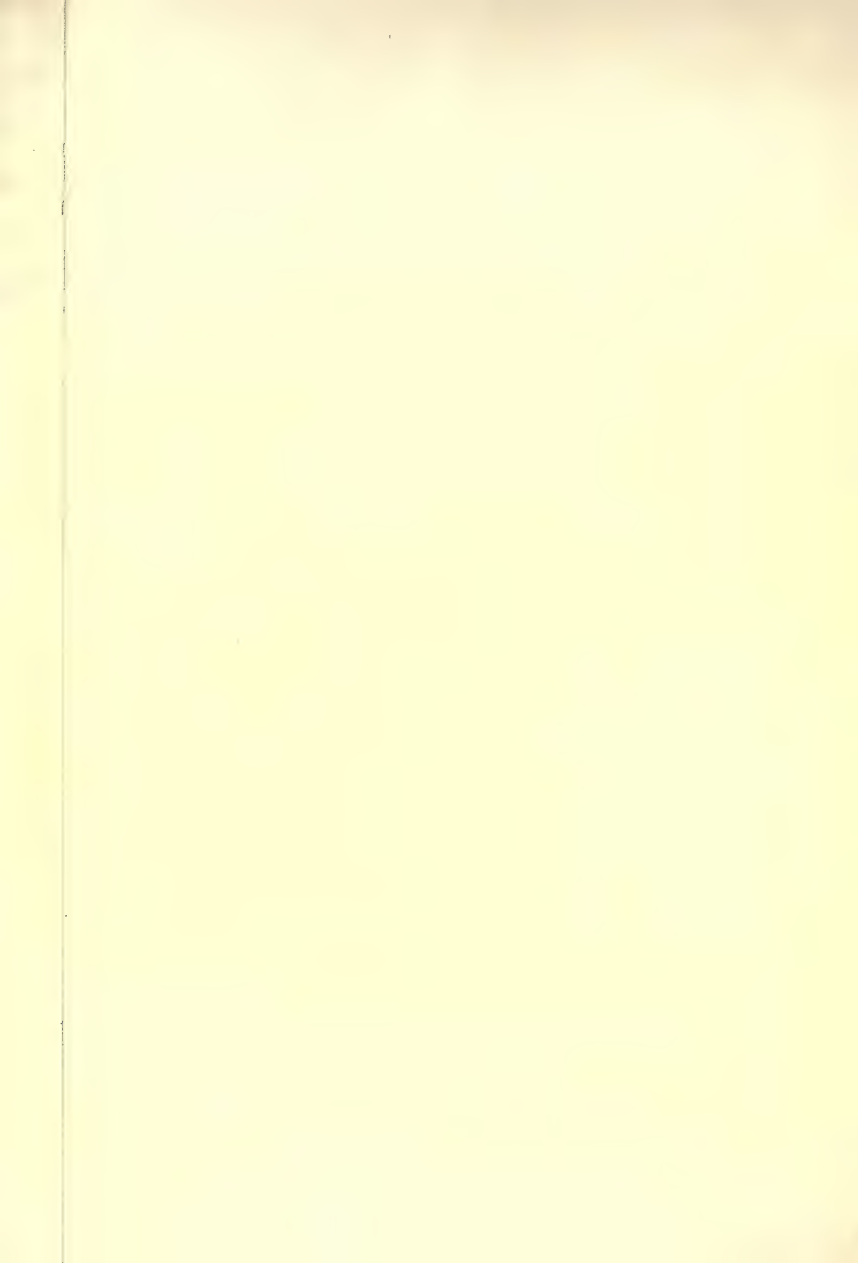
- SNODDLE HILL.**—Circle of stones: cist; flint objects; circular ornament perforated [MSS. of W. Baldwin, Esq.; Manchester Museum].
- STALYBRIDGE** (Cheshire border).—Perforated round stone hammers [Salford Mus.].
- ST. HELENS.**—Stone axe-hammer [St. Helens Mus.], p. 225, Plate III.—5.
- STONYHURST.**—Tumulus, urns, interments, flint implement [*Lanc. and Ches. Antiq. Soc. Trans.* xii. 30; xiii. 27], pp. 218, 239.
- STRETTON, WARRINGTON.**—Fragment of urns [*Hist. Soc. Lanc. and Ches.* i.—ii. 33], p. 240.
- TATHAM.**—Stone axe-hammer [*Lanc. and Ches. Antiq. Soc. Trans.* v. 329; Salford Mus.], p. 223, Plate III.—3.
- THROSTLE'S NEST, MANCHESTER.**—Stone hammer [Salford Mus.], p. 225.
- TODMORDEN.**—See Lower Moor, Ramsden, etc. Neolithic chippings [*Ibid.* x. 252], p. 215.
- TOOTER HILL.**—Neolithic chippings, arrowheads [*Ibid.* iv. 305], p. 215.
- TOXTETH PARK, LIVERPOOL.**—See Wavertree.
- TROUGH EDGE, ROCHDALE.**—Neolithic chippings, arrowhead, etc. [Fishwick, op. cit. 3, 4], p. 215.
- TURNSHAW HILL.**—Neolithic chippings, etc. [*Ibid.* 3, 4], p. 215.
- TURTON, CHARTERS MOSS.**—Stone axe-hammer (?), bronze palstave [*Journ. Brit. Arch. Assoc.* xxvii. 526; *Lanc. and Ches. Antiq. Soc. Trans.* xii. 48], pp. 226, 231, Plate IV.—3.
Chetham's Close.—Stone circles [*Hist. Soc. Lanc. and Ches.* iv. 131—2; *Lanc. and Ches. Antiq. Soc. Trans.* xi. 155, xii. 42].
- WALMSLEY, near BOLTON.**—Tumulus, urn, interment, stone celt, flint [*Hist. Soc. Lanc. and Ches.* iv. 131], p. 218.
- WALSDEN MOOR.**—Arrowhead, p. 216.
- WALTON-LE-DALE** (Cuerdale, near Preston).—Bronze socketed celt [Evans, *Bronze Imp.* 119; *Journ. Brit. Arch. Assoc.* viii. 332], p. 233, Plate IV.—6.
Bronze spear-head [Evans, *Bronze Imp.* 314; *Lanc. and Ches. Antiq. Soc. Trans.* xiii. 130, 155].
Bronze trappings [Preston Mus.], p. 247.
- WARDLE, near ROCHDALE.**—Neolithic chippings, etc. [Fishwick, op. cit. 3, 4], p. 215.
Stone celt [*Ibid.*], p. 218.
- WARRINGTON.**—Wooden dug-out canoes [Warrington Mus.], p. 250. See also Kenyon, Orford, Risley, Rixton, Stretton, Southworth, Winwick.
- WARTON.**—Tumuli, urns, interments [*Arch.* ix. 211, 217].
Iron sword with bronze handle [B.M.], p. 247, fig. 30.
- WAVERTREE.**—Remains of tumuli, urns [*Arch.* xliii. 347], p. 239.
Calderstones, disturbed dolmen or chamber of tumulus [Herdman, *The Calderstones*], p. 240.
Flint arrow-head and flake, stone celt [Evans, *Stone Imp.* 347; Liverpool Mus.], pp. 216, 218.
- WEETON.**—Tumulus, urns.
Stone celt [*Lanc. and Ches. Antiq. Soc. Trans.* v. 328], p. 218.
Bronze palstave [Fishwick, *Kirkham*, 5], p. 232.
- WEGBER, near CARNFORTH.**—Stone hammer, bronze celts and spear-heads [*Lanc. and Ches. Antiq. Soc. Trans.* ii. 116; v. 327], p. 234.
- WELL 1' TH' LANE, near ROCHDALE.**—Neolithic chippings, etc. [Fishwick, *Rochdale*, 3, 4], p. 215.
- WILPSHIRE, near BLACKBURN.**—Perforated stone axe [Weld MSS.], p. 222, fig. 7.
- WINDY HARBOUR, PENDLE.**—Stone celt [Evans, *Stone Imp.* 106; Horae Ferales, ii. 7, B.M.], p. 217, fig. 1.
- WINMARLEIGH.**—Five bronze celts and two spearheads [*Arch. Journ.* xviii. 158], p. 236, Plate V.—1—7, figs. 18—20.
Three bronze celts and dagger [*Journ. Brit. Arch. Assoc.* xv. 234], p. 235, Plate V.—8—11, fig. 17.
Bronze tubes [Warrington Mus.; Evans, *Bronze Imp.* 118, 314, 335, 466].
- WINWICK.**—Tumuli, urns, stone axe-hammer and bronze dagger; palstave and ring; bronze socketed celt [Warrington Mus., *Journ. Brit. Arch. Assoc.* xiv. 269; xv. 236; xvi. 295; *Arch. Journ.* xviii. 158; Evans, *Bronze Imp.* 118, 314, 335, 466; *Hist. Soc. Lanc. and Ches.* xii. 190], p. 225, Plate II.—5; p. 231, Plate IV.—4; p. 234, Plate IV.—6; p. 235, Plate IV.—7; p. 240.
- WISWELL, near PENDLE.**—Stone celt [Blackburn Mus.], p. 217.
- WITHINGTON, near MANCHESTER.**—Axe-hammer of stone [*Lanc. and Ches. Antiq. Soc. Trans.* x. 251].
- WORTHORNE.**—Neolithic chippings, tumuli, urns, ring mounds, etc. [Booth, *Grave Mounds, Burnley Lit. and Phil. Soc.*], pp. 215, 239.
- YEALAND.**—Urn, interment [*Arch.* vii. 414], p. 244.

LANCASHIRE NORTH OF THE SANDS

- ALDINGHAM.**—Urn [West, *Antiq. of Furness*, 389], p. 245.
- ALLITHWAITE.**—Urn, interments [Watkin, *Roman Lanc.* 215; Baines, *Lanc.* iv. 718], p. 244.
- AYSIDE.**—Stone implements [Evans, *Stone Imp.* 178], p. 227.
- AYNSOPE** (Cartmel).—Urn, interment [Stockdale, *Ann. of Cartmel*, 251], p. 245.
- BARROW-IN-FURNESS.**—Stone axe-hammer [*Lanc. and Ches. Antiq. Soc. Trans.* v. 328; *Cumb. and Westmld. Antiq. Soc. Trans.* xiv. 442], p. 228.
Perforated pebble [*Barrow Nat. Field Club*, xv. 117].
- BAYCLIFFE** (Aldingham).—Interments [Jopling, *Furness and Cartmel*, 96], p. 245.
- BIRKBRIGG COMMON.**—Stone circle [*Arch.* xxxi. 450], p. 245.
- BROUGHTON-IN-FURNESS.**—Stone implement, flint flakes, and arrowheads [Baines, op. cit. iv. 641; *Lanc. and Ches. Antiq. Soc. Trans.* v. 328], p. 216
- CARK-IN-CARTMEL.**—Perforated stone hammer [*Cumb. and Westmld. Antiq. Soc. Trans.* ix. 203], p. 228.

EARLY MAN

- CARTMEL, Winder Moor.—Urn, interment, stone celt, stone implements, bronze implements [Stockdale, op. cit. 250, 255; Baines, op. cit. iv. 712], pp. 219, 237, 245.
- CONISHEAD.—Stone celt (curious) [B.M.].
- CONISTON LAKE.—Stone implements [*Cumb. and Westmld. Antiq. Soc. Trans.* ix. 203-4], p. 228.
- DALTON IN FURNESS.—Bronze spear-head [*Lanc. and Ches. Antiq. Soc. Trans.* xiii. 139].
Weapons [West, op. cit. 345; Sword, *Cumb. and Westmld. Antiq. Soc. Trans.* xv. 165].
Stone celt [*Barrow N. F. Club*, xv. 117].
- DENDRON.—Stone implements [*Cumb. and Westmld. Antiq. Soc. Trans.* ix. 504].
Two flint implements.
- FLOOKBURGH.—Stone implements [Stockdale, op. cit. 250]; bronze palstaves [*Cumb. and Westmld. Antiq. Soc. Trans.* viii. 265], p. 237.
- FURNES ABBEY.—Stone celt [Ibid. xv. 168], p. 219.
- FURNES.—Stone implement [*Arch.* xxxi. 452]; bronze celt and armllet [*Lanc. and Ches. Antiq. Soc. Trans.* 252], p. 237.
- GLEASTON CASTLE.—Stone implement [*Lonsdale Mag.* iii. 383]; bronze celt [*Arch.* v. 106], p. 237.
- GRANGE-OVER-SANDS.—Stone implement, flint implements [*Lanc. and Ches. Antiq. Soc. Trans.* x. 250], p. 216.
- HARBARROW, near Dalton.—Stone hammer [Ibid. xii. 146; Warrington Mus.], p. 228.
- HAWKSHED.—Tumulus, urn, interment, flint implement [*Cumb. and Westmld. Antiq. Soc. Trans.* iii. 254].
Stone implement, pp. 216, 245.
- HEATHWAITE.—Interments [*Arch.* xxxi. 452], p. 245.
- HIGH HAUME.—Stone implements [*Lonsdale Mag.* iii. 383; Barber, *Prehistoric Furness*, 20].
- IRELETH MILL.—Urns, interments [Ibid. 30; *Cumb. and Westmld. Antiq. Soc. Trans.* ix. 202; *Arch.* liii. 414], p. 245.
- KIRKBY IRELETH.—Flint implements, p. 216.
- KIRKBY MOOR.—Stone circle, cairn, flint implements, etc. [*Arch.* xxxi. 450].
- KIRKHEAD.—Bronze celts and miscellaneous [*Arch. Journ.* xxv. 324; Evans, *Bronze Imp.* 168], p. 237.
- KNAPPERTHAW.—Stone circle [Barber, op. cit. 23; A. liii. 418].
- LINDALE.—Stone axe-hammers [*Arch.* xxxi. 452; Evans, *Stone Imp.* 204], p. 228.
- MOOR HEAD.—Two stone implements [*Cumb. and Westmld. Antiq. Soc. Trans.* xv. 169].
- PAGE BANK.—Bronze dagger [*Lanc. and Ches. Antiq. Soc. Trans.* x. 251], p. 237.
- PENNINGTON, near Conishead.—Stone celt [*Cumb. and Westmld. Antiq. Soc. Trans.* ix. 503], p. 219.
- RAMPSIDE.—Stone axe-hammer [*Lanc. and Ches. Antiq. Soc. Trans.* v. 328], p. 227.
- ROOSE.—Tumulus, urns, interments [*Arch. Journ.* iii. 68], p. 245.
Stone adze [*Barrow N. F. Club*, xv. 117].
- ROOSEBECK, near Aldingham.—Stone implement [*Fur.* ii. 17], p. 219.
- RUSLAND.—Stone axe-hammer [*Cumb. and Westmld. Antiq. Soc. Trans.* ix. 203], p. 227.
- SCALES.—Urns, interment [West, op. cit. 392; Barber, op. cit. 26], p. 245.
Two stone celts [*Barrow N. F. Club*, xv. 118].
- STANTON.—Urn with bronze weapon [*Fur.* ii. 37], p. 245.
Urn, stone celts, iron implements [Barber, op. cit. 31].
Two bronze celts, p. 237.
- STATION (BARROW).—Stone celt, stone axe-hammer [*Barrow N. F. Club*, xv. 117-118].
- TORVER.—Stone hammer, p. 227.
Tumuli, urns, interments, bone and flint objects [*Cumb. and Westmld. Antiq. Soc. Trans.* ix. 502], p. 245.
- ULVERSTON.—Stone celt, stone implements [*Cumb. and Westmld. Antiq. Soc. Trans.* ix. 204; Salford Mus.].
- URSWICK.—Bronze sword (?) [Barber, op. cit. 18].
Six socketed celts [Pres.], p. 237.
- WALNEY ISLAND.—Stone axe-hammer [*Barrow N. F. Club*, xv. 117], p. 228.
North Scale.—Urn.
- WINDER MOOR.—See Cartmel.
- WOODLANDS.—Stone implement [*Lanc. and Ches. Antiq. Soc. Trans.* x. 252].
- WRAY HILL.—Stone implements, celts and hammers [*Cumb. and Westmld. Antiq. Soc. Trans.* ix. 204].





THE VICTORIA HISTORY OF THE COUNTIES OF ENGLAND

71. Transverse

10'

3

50

100

200

300

400

500

50

40

30

20

I R I S H

F L I M

R I V E R D E C

H E R J E R S E Y

H A M P S H I R E

H A R T F O R D

H A M P S H I R E

H A M P S H I R E

H A M P S H I R E



ANGLO-SAXON REMAINS

THE existing Anglo-Saxon remains in Lancashire are few: they consist chiefly of hoards or isolated finds of coins, some interesting ornaments, and sculptured Christian monuments. The coins alone afford any dates, but none of these apparently are earlier than the ninth century. Most of the other remains may be deemed as late or even later, but in the present state of local evidence an appearance of exactitude as to date could only be misleading. Hence archaeology can offer little direct help to history in the study of this period. The evidence of place-names, if this were available, coupled with what is known of the condition and natural features of the county reflected in the account of the Domesday Survey, might enable the historian and archaeologist together to unravel the story of this period almost stage by stage. While the etymological section of this evidence is still to be furnished by special research, some points of interest may nevertheless be elucidated by an examination of the monuments themselves, having due regard both to their nature and to their disposition.

The sites of these remains are indicated on the map which accompanies this section. The county itself requires no further geographical description.¹ At the close of the period that portion which lies between the Ribble and the Mersey contained, as Mr. Farrer has shown from the account of the Domesday Book,² 246,480 acres of wood in a total area of about 700,000 acres, of which about 56,865 acres were cultivated. The area of woodland according to this account was thus more than a third of the whole when the survey was made. The greater part of this woodland lay in the hundreds of Newton and Salford, with the forests of Rossendale and Pendle in the hundred of Blackburn, and it embraced also a considerable area in the hundred of Leyland. The lowlands around the coast, with extensive tracts higher up the Mersey, were probably marshy.

To judge from the scanty notes of the survey, the area of forest-land in the tract which lies between the Ribble and the Sands (particularly in the middle and north) must have been even larger in proportion, as it is to-day. The most habitable portions were the fertile plains of the modern Fylde, in which possibly the work of reclamation had been already begun during the Roman occupation. The district around Lancaster also, and thence along the coast, seems to have early attracted settlement.

Beyond the Sands the land of hills and lakes to the north was still closely wooded, but in the promontory of Furness and the vicinity of Cartmel there seem to have been attractive sites for settlement. Here, at any rate, in a naturally defended home the Celtic element certainly survived.

¹ See Article on the Domesday Survey in this volume.

² *Lanc. and Ches. Antiq. Soc. Trans.* xvi.

A HISTORY OF LANCASHIRE

COINS

The evidence afforded by literature as to the history of this county will be discussed in the article on the Political History, but there is one entry in the Anglo-Saxon Chronicle which must be mentioned here as it throws light upon an archaeological discovery of considerable importance. In 911 the Chronicle records that the Danish army among the Northumbrians broke the peace and overran the land of Mercia. When the king learned that they were gone out to plunder he sent his forces after them, both of the West Saxons and the Mercians; and they overtook the army as they were on their way homewards, and they fought against them and put them to flight, and slew many thousands of them; and there were slain King Eowils, and King Halfdene, and Ottar the Earl, and Scurfa the Earl, and Othulf the Hold, and Benesing the Hold, and Anlaf the Black, and Thurforth the Hold, and Osferth the collector [i.e. of the revenue], and Guthferth the Hold, and Agmund the Hold, and Guthferth.

There is good reason to believe, as Mr. W. J. Andrew shows,¹ that the famous Cuerdale hoard of silver coins, which was found in 1840 in a leaden chest buried near a difficult ford of the Ribble on the river bank about two miles above Preston, represents the treasure chest of this Danish army, overtaken in its retreat to Northumbria at this ford and destroyed. For amongst the English coins contained therein² were nearly a thousand of Alfred the Great, and forty-five of Edward the Elder, and as the latter reign was the latest in date of any in this hoard the time of deposit may be inferred as lying between 901 and 925. It is no difficult task for this numismatist to assign an even closer date. The fact that only three issues of Edward's coinage are represented, allowing an average of three or four years for each issue, brings the date approximately to 911, which is the year of the record quoted. Incidentally it is noteworthy that the presence of some continental money, apparently gathered from the west coast of France, including many coins issued from the district at the mouth of the Seine, is found to tally with two earlier records of the Chronicle; the one of 897, which relates that the Danish army in England divided, some going into East Anglia and some into Northumbria, and they who were moneyless procured for themselves ships there and went southwards over sea to the Seine; the other of thirteen years later, 910, when 'a great fleet came hither from the south, from Brittany, and greatly ravaged the Severn, but they there afterwards almost all perished.' A supposition that the remnants of this band united with the main Danish army might well account for the proportion of foreign money.

¹ *Brit. Numis. Journ.* i. 9.

² The analysis of the hoard is as follows:—

<i>English</i>		<i>Northumbrian</i>		<i>Continental</i>	
Athelstan of East Anglia . . .	24	Ecclesiastical	2,020	Principally French, but	
Ceolwulf II. of Mercia . . .	2	Earl Sitric	2	some German and Italian	1,047
Ethelred	3	Siefred	238		
Alfred the Great	919	Alwald	1	<i>Oriental</i>	
Edward the Elder	51	Cnut	2,534	Various	31
Archbishop Ceolnoth	1	Halfden	2		
Archbishop Ethelred	1			<i>Illegible</i>	
Archbishop Plegmund	59	Total Northumbrian	4,797	About	65
Total English	1,060			Grand Total Examined	7,000



COINS FROM THE CUERDALE HOARD.

1-14. Pennies of Alfred, 871-901. 1. Burgnoth, *Moneyer*. 2. Heahstan, *Moneyer*. 3. Hereferth, *Moneyer*. 4. Ceneferth, *Moneyer*. 5. Athelulf, *Moneyer*. 6. Sclamund, *Moneyer*. 7-11. London Mint. 12. Tilevine, London, *Moneyer*. 13. Diarvald, Canterbury, *Moneyer*. 14. Bernvald, Oxford, *Moneyer*. 15-16. Edward the Elder, 901-925. 15. Wlfred, *Moneyer*. 16. *Uncertain Moneyer*. 17-20. East Anglia, after 878, 'St. Edmund' type, three pennies and a halfpenny. 21-24. Cnut (of Northumbria), c. 900-910. 21, 22, 24. Pennies. 23. Halfpenny, struck at York.

ANGLO-SAXON REMAINS

The bulk of the coins, however, were Danish, issued by Danish kings of Northumbria, many of them from York. From the circumstances of its discovery it may well be believed that the hoard formed the treasure chest of this defeated and retreating army. The evidence, divested of other stories, is free from discrepancies. By this discovery Mr. Andrew has recovered a page of English history.

The Cuerdale hoard is by far the greatest found in Lancashire, containing 10,000 silver coins and nearly 1,000 ounces of silver ingots. With that find, however, must be classed another, though smaller, and made at a much earlier date. A hoard of some 300 silver pennies was discovered in 1611 at Harkirke, which lies toward the sea-coast between Crosby and Formby. The coins have long since been scattered, but fortunately some thirty-five were engraved in the latter part of the seventeenth century, and from the still extant plate it may be seen that they belonged to Alfred, Edward the Elder, the Danish king Cnut (Guthferth) of Northumbria, and the ecclesiastical coinages of York and East Anglia. There was also a certain number of foreign coins, and the date of deposit must have been within a few years of that of the Cuerdale hoard. There are numerous records of other finds. On Halton Moor, five miles from Lancaster, there was found in 1815 a silver cup containing 860 silver coins of Canute, with certain ornaments which include a torque of silver wire.¹ The coins are described in a letter by Mr. T. Combe, written from the British Museum, as including 21 Danish and 379 of Canute. The latter were nearly all of one type, having on the obverse the head of the king with helmet and sceptre, and on the reverse a cross within the inner circle with amulets in the four angles. They were minted at Exeter (1), Cambridge [GRANT bricge] (1), Leicester (1), Lincoln (4), London (4), Maldon (1), York (366), and Winchester (1). The cup and torque of silver will be described later.

Though isolated finds of coins cannot be relied on as evidence as to the state of the particular district in which they are found, the discovery in northern Lancashire of some of the early Northumbrian coins is of sufficient interest to be noted. Some stycas² of the Northumbrian kings Eanred and Ethelred and of Archbishop Vigmund were found in a cave with miscellaneous objects at Merlewood, Grange over Sands. The cave floor as usual seems to represent several ages. In addition to some black pottery and charcoal were a few fragments of glass. Besides these were two rusted iron objects, perhaps fibulae. Below the deposit, it is said, were suggestions of a rough flooring. The animal remains included bones of a man, of red deer, roe deer, *bos longifrons*, wolf, pig, badger, and cat. In the same vicinity, at Castlehead near Grange, there were found, c. 1775, a number of stycas of Northumbrian kings, stated in one record³ to be ninety-five in all, together with animal remains, rings of silver, iron, and brass, beads of stone, lead, clay, and glass, and numerous Roman coins.

¹ *Arch.* xviii. 197, with plates xvii. xviii.

² *Cumb. and Westmd. Ant. Soc. Trans.* xii. 277. From the description given the stycas are apparently as follows:—1. *Obv.*, Eanred Rex; *rev.*, Gaduteis. 2. *Obv.*, Edilred Rex; *rev.*, Eardulf [retrograde]. 3. *Obv.*, Edred Rex; *rev.*, Fordred. 4. *Obv.*, Erded Rex [inscription blundered]; *rev.*, Leoflegn. 5. *Obv.*, Vigmund Irep.; *rev.*, Coenred. 6. Undecipherable. 7. Broken and undecipherable.

³ Baines, *Hist. Lancs.* (Harland), ii. 676.

A HISTORY OF LANCASHIRE

In south Lancashire there must be mentioned also two finds of such coins, both from sites of earlier Roman fortresses. The one is a stycas of Eanred reported from Ribchester;¹ and the other consists of nine sceattas found c. 1820, in digging foundations for St. Matthew's Church, Campfield, Manchester.²

ORNAMENTS, ETC.

Though belonging to a defensive weapon, the bronze boss of a shield shown on the accompanying plate may appropriately open the list of decorative remains of the Anglo-Saxon period. Archaeologists see in its design certain Celtic elements, and its decoration might be assigned by some to late Celtic rather than Scandinavian art. Even the snake-motive which it embodies is to be found, as Prof. Ridgway shows,³ on objects of the late Bronze and early Iron Age in Britain. This object is in the City Public Museum at Liverpool, and is described as coming from Ribchester, the site of the well-known fortress of Roman times called *Bremetennacum* upon the Ribble. It is a small object of about 3 inches in diameter, and well worthy of close study. It comprises six concentric rings, separated by plain circles, with a broader plain band about all. The outer ring consists of continuous triple spirals in relief, alternating with an open knotwork pattern, being separated at the quarters by a transverse band. The next ring, which lies on the slope, is symmetrically divided into four quarters by portions of circles forming ovoid enclosures filled with snake pattern of graceful form, and the intervening spaces filled alternately with knotwork and spiraloid patterns of symmetrical design. A fillet with radiating lines leads to the outer ring of the central boss, which is decorated with open knots or plaits, sinuous but symmetrical. Two fillets, one plain and one ornamented as before, enclose the centrepiece, which is a geometrical rosette of seven petals.

The silver cup found on Halton Moor contained, in addition to the coins of Canute previously described, a silver torque which had been squeezed into the vessel. Both these silver objects are highly decorative and instructive. The cup weighed just over 10 ounces; the metal was described⁴ as being of silver alloyed with copper in the proportion of about three of the former to one. It appeared to have been originally gilt, some of the gold still remaining, which was of remarkably pale colour. 'The ornaments consist of four circular compartments, separated from each other by branches which terminate in the heads of animals in the arabesque style. In the compartments are a panther and a butting bull alternately. These ornaments are included within two handsome borders, which encircle the cup in parallel lines.'

The torque is equally of interest. It is a characteristic example of wire-work, twisted and plaited, with the ends beaten together for a double-hooked connexion. The face of this portion, which is flattened, was decorated with small triangular pieces fixed by imitation rivets. It was of good silver weighing 6 ounces 6 pennyweights.

With the same deposit were some gold pieces, or thin laminae, struck on one side only, and rudely representing a human head. Similar pieces have

¹ Whittaker, *Hist. Whalley*, i. 37.

² *Early Age of Greece*, fig. 87, etc.

³ *Lanc. and Ches. Ant. Soc. Trans.* iii. 269.

⁴ *Arch.* xviii. 199-200.



BRONZE BROOCHES FROM CLAUGHTON.



BRONZE BOSS OF SHIELD FROM RIBCHESTER.

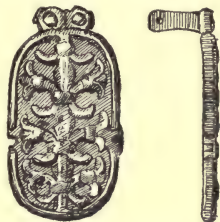
ANGLO-SAXON REMAINS

been found in Denmark, and the Danish element in the whole of the decoration predominates.

A gold torque, apparently plain, but of pure gold, is described by Dr. Whitaker¹ as having been found upon the surface of Red Moss, Rossendale, apparently in the vicinity of other remains probably of Saxon times. The torque weighed about 1½ ounces, but when found it was very much twisted and distorted.

Other ornaments of much interest were discovered at Claughton, and are now in the possession of Mr. W. Fitzherbert Brockholes, of Claughton Hall. They came from a tumulus² formed of sand in which remains of several earlier ages were also discovered. The mound had

covered a burnt burial or burials of uncertain date, the ashes being found within a clay vessel. A number of objects seemed to the discoverers to have been contained in a box which had decayed. Chief among these were two bronze brooches or fibulae, 'joined together, forming a kind of oval box, the outer faces perforated with symmetrical banded patterns with raised bosses.'³ These are similar to examples in the Scandinavian collection at Copenhagen. In the same deposit apparently were two beads, the one of blue glass and the other of red paste; also a small fibula of white metal, with an interesting pattern, of which a sketch is here figured. The box itself appeared to have been lined with a cloth. In the same mound were an axe-hammer, spear-head, and sword, all of iron and apparently of this period, and the stone axe-hammer previously described.



FIBULA OF WHITE METAL FROM
CLAUGHTON.

of iron and apparently of this period, and the stone axe-hammer previously described.

WEAPONS AND MISCELLANEOUS

Other interments of Lancashire may probably, but with less certainty, be assigned to this period, as for example the barrow of river stones on Hasty Knoll, at Blackrod, near Wigan, which was found in 1770 to contain numerous fragments of iron and various military weapons; while under all was a cavity 7 feet in length filled with black earth and decomposed human remains.⁴

Near Stonyhurst, at Bullany Ford, Brockhall, south of the Ribble, a large mound of earth was removed in 1846, revealing a kistvaen formed of rude stones, containing human bones, and the rusty remains of some spear-heads of iron, which crumbled to dust on exposure to the air.⁵

In Lancashire north of the Sands, while excavating some cellars at Pennington a number of bones were found 'in a circular tomb,' and with them an ancient sword which crumbled on exposure. There were also recorded from the same site seven querns, some stone balls, and axes, found 12 feet below the surface.⁶

¹ Whitaker, *Hist. Whalley*, iii. 366.

² See 'Early Man,' p. 225.

³ *Arch. Journ.* vi. 74.

⁴ *Lanc. and Ches. Hist. Soc. Trans.* xxiv. 87.

⁵ Baines, *Hist. Lanc.* (ed. Harland), ii. 86.

⁶ Barbour, *Prehistoric Remains*, 30.

A HISTORY OF LANCASHIRE

Weapons not associated with interments are reported from Rossendale, where, in the Red Moss which formerly lay within the Forest of Rossendale, iron arrow-heads were commonly found in the same vicinity as the gold torque already described. An urn, sword, and dagger are recorded as found at Crossmoor.¹

Two ancient 'chessmen' of fine jet were found in the tumulus known as the Mote Hill at Warrington, and are generally described, without much evidence, as pre-Norman.² Another find of miscellaneous character contains an object which seems more likely to be of Saxon times. This is a wooden drinking cup, with two handles and bronze bands round it, found in the moss at Stalmine, which lies $3\frac{1}{2}$ miles south of Fleetwood. A brass stirrup also is recorded from the same site.³

SCULPTURED CROSSES

The best archaeological evidence of Christian settlements of Anglo-Saxon date is to be gleaned from the occurrence of ecclesiastical or religious monuments which can be assigned to this period. Their character and extent may be appreciated from the papers on this subject which have appeared at various times in the transactions of the Historic and Antiquarian Societies of Lancashire.⁴ As might be expected from the situation of the county, the monuments bear witness to the influence not only of the Anglian school of Northumbria, but also to Irish, Anglo-Saxon, and Norse tradition. It is probable that none of these monuments are earlier than the eighth century, but it may be noted that in the opinion of the late Rev. W. S. Calverley⁵ a few fragments in this corner of England might be survivals from the times of SS. Ninian, Patrick, and Kentigern.

In the hundred of West Derby the most important monument is the fragment of a cross in the churchyard at Winwick. The centre and arms alone remain, but they show that the diameter of the head of the cross was 4 feet 11 inches, and that it was of Irish type, the arms being connected by a circular ring. There is a large boss in the centre of each face, and the whole surface of the best preserved face is taken up with a symmetrical arrangement of two patterns of ornament, one consisting of a double row of Stafford knots, the other a diaper founded on the key pattern. The other face is much worn, but shows remains of beasts with interlacing tails. The ends of the arms show in one case a man carrying two rectangular objects with handles, which have been called bells or buckets, and in the other two men holding a third who is hung up by one foot and seems to have lost his hands. The two men seem to be cutting off the legs of the hanging figure. The dismemberment of the Northumbrian king St. Oswald is probably the subject of the sculpture, for the church and a well, distant only three-quarters of a mile, are both dedicated to that saint. An attractive theory,⁶ indeed, identifies the local Makerfield with the Maserfield where St. Oswald met

¹ Fishwick, *St. Michael's-on-Wyre*, 2.

² *Arch. Journ.* ix. 304.

³ *Lanc. and Ches. Hist. Soc. Trans.* iii. 120.

⁴ 'Pre-Norman Sculptured Stones in Lancashire,' G. F. Browne, *Lanc. and Ches. Antiq. Soc. Trans.* v. 1; papers on the Heysham sculptures, *ibid.* lx. 30-90; 'The Ancient Crosses of Lancashire,' H. Taylor, *ibid.* xviii. 1; xix. 136; xx. 145; xxi. 1; 'The Early Christian Monuments of Lancashire and Cheshire,' J. Romilly Allen, *Lanc. and Ches. Hist. Soc. Trans.* (New Ser.), ix. 1.

⁵ *Notes on the Early Sculptured Crosses in the present diocese of Carlisle*, pp. 3, 12, 23, 302, etc.

⁶ Baines, *Lancashire* (Harland), ii. 205.

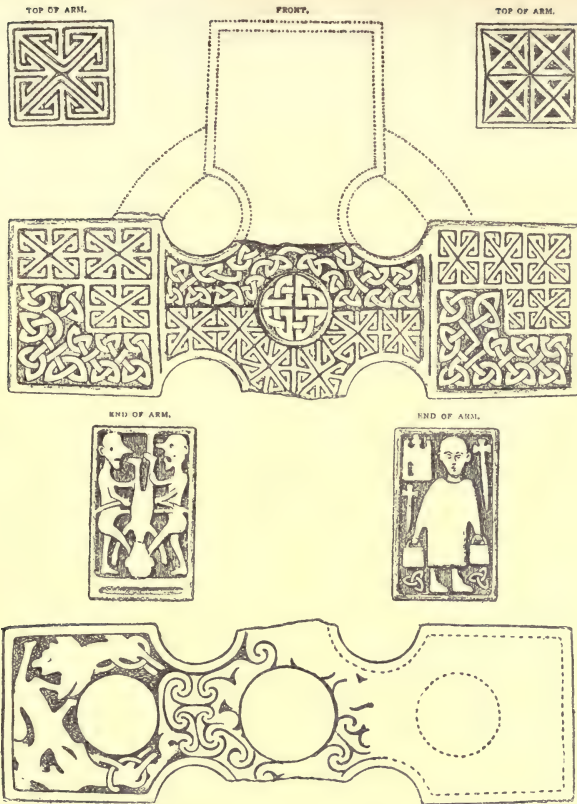


SILVER CUP FOUND ON HALTON MOOR.



SILVER TORQUE FOUND AT HALTON MOOR.

ANGLO-SAXON REMAINS



FRAGMENT OF CROSS-HEAD AT WINWICK, LANCASHIRE.

his death in battle with the Mercian Penda ; and applies to this well the account of the Venerable Bede, who mentions the miracles attributed to the earth carried from the place. But Mr. Romilly Allen considers the subject to be the martyrdom of Isaiah : ¹ Maserfield is generally located at Oswestry ; ² and phonetic science does not warrant the identification with Makerfield.

At Walton on the Hill ³ the existence of a cross is gleaned from the pedestal alone, which was dug up in the churchyard. It is of three steps carved in a single block, 3 feet square at the base, and is much timeworn.

¹ Allen, *Christian Symbolism*, p. 329.

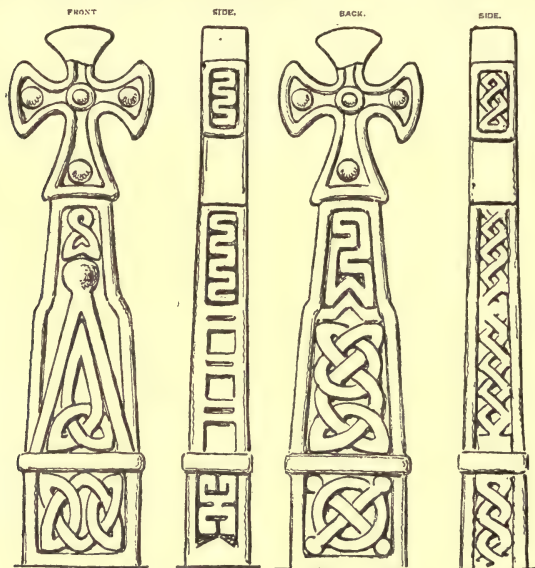
² Worsley, *Winwick* (Lanc. and Ches. Antiq. Soc.), iv. 1886.

³ *Lanc. and Ches. Hist. Soc. Trans.* (1894), 194.

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The analogy of the Halton cross and others indicates a pre-Norman date, which is helped by the mention of the church of this place in the Domesday Book. Mr. Taylor believes that a cross from Simonswood, which is not to be found, may have been pre-Norman.¹ In the east wall of Ormskirk church is part of a cross-shaft, the exposed face showing two human figures side by side.

At Manchester, in the Cathedral Library, is a well-known sculptured stone, believed to be of pre-Norman date, on which is the inscription, 'In manus tuas domine commendo (meum) spiritum.'² The sculpture represents an angel, in archaic fashion, and recalls, as Mr. Taylor points out, those over



CROSS IN BOLTON PARISH CHURCH, LANCASHIRE.

the chancel arch in the pre-Norman church at Bradford-on-Avon. In the Manchester Museum, at the University of that city, there is a fragment of stone found during the excavation of the Ship Canal in the Barton reach. It is recognizably a portion of a Saxon cross-shaft bearing a deeply cut and unusual device.

Elsewhere in this hundred of Salford are a portion of a cross found on the banks of the Irwell near Eccles, and a cross and other early sculptures at Bolton le Moors. The latter cross illustrates some interesting varieties of decoration, as indicated by Mr. Allen, in twisted bands, with and without

¹ *Lanc. and Ches. Hist. Soc. Trans.* (1894), 172.

² *Ibid.* (1905), Phelps.



WHALLEY : CROSS IN CHURCHYARD (FRONT AND BACK VIEWS).



ANGLO-SAXON REMAINS

angular bends, the broken plait of four knots terminating in the Stafford knot, the figure-of-eight knot, the three-cornered knot, and key patterns of single strokes alternating with and without the central zig-zag line.

In the churchyard at Whalley, in the hundred of Blackburn, are three standing cross-shafts, all now upon the south side of the church, and in the church are remains of other crosses.

The first of these shafts here shown is a monolith standing 7 feet 6 inches above the turf, measuring $15\frac{1}{2}$ inches by 10 inches at the bottom, and 9 inches by 10 inches at the top. It carries 'a small mutilated cross-head, which apparently stood a foot or two higher up on a portion of the shaft, which is missing. Thus the total height of the monument from the ground level may have been about 11 feet.'¹ The west front and the sides are much weathered, but the design of the east front may still be made out. It is divided into six panels, the uppermost and the two lowest having interlacing patterns, while the three in the middle have respectively a bird, a nimbed figure with upraised hands having a serpent on each side, and a beast. The head of the cross has clearly been of a type rather Anglo-Saxon than Celtic, with expanded arms rounded at the ends.

The second cross is in fair preservation, although wanting a portion of the shaft—a piece estimated by Mr. Taylor at about 2 feet in length. Its total height would then have been about 9 or 10 feet. The three upper arms of the head, which is of the same type as the preceding, are broken away, but the central boss is preserved. Both faces of the shaft have a central roll ending in a circular boss, below which two rolls curve outwards to the angles of the shaft. The ground is filled with spirals. The shaft stands in a socketed base-stone. The third cross is also fitted into a base-stone, which has holes at each end of it suitable for supporting two other crosses or possibly figures of SS. Mary and John.¹ Much of the shaft is broken away, and the scrollwork which occurs on all four sides is almost obliterated. The designs illustrated by the Whalley crosses are chiefly twisted bands with angular bends, plaits of four and of eight cords, rings and crossbars, the Stafford knot and scroll foliage.

Another cross of pre-Norman work is that at Burnley, known from its former situation as the Godley Lane cross. It 'consists of a tapering chamfered shaft, terminating in a small cross which has been much mutilated.'² In the centre, at the intersection of the arms, which are broken away, is a raised boss similar to that on the cross at Whalley, mentioned above, and the head has had expanded arms with rounded ends. The total height above ground is 8 feet 6 inches, and the estimated width across the arms about 2 feet.

The hundred of Lonsdale, and in particular the vicinity of Lancaster, is that which yields most evidence of pre-Norman times in the remaining early Christian monuments. No church in this region is directly mentioned in the Domesday Book, possibly because there was none which came within the purpose of the survey; but the existence of some may be inferred with certainty.

At Lancaster itself there have been found the remains of nine distinct crosses. Some of these monuments are of surpassing interest; two of them

¹ *Lanc. and Ches. Hist. Soc. Trans.* (1894), xviii. pp. 17-19.

² *Ibid.* 50.

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are inscribed, and nearly all the fragments variously decorated. They are all carefully described by Mr. Taylor.¹ The best known is that which is preserved in the British Museum, bearing the inscription in Anglian runes,

GIBIDÆTHFO ~ RÆCUNIBAL ~ THCUTHBÆRE[HTING]

which is translated, Pray for Cynebalth Cuthbertson.

The cross is in fair preservation, and capable of full restoration as seen from the illustration; its height may have been 6 or 7 feet. In the centre and the centres of the arms are circular bosses, and a characteristic pattern of interlaced ropework surrounds them. The rope terminates below in a curious head. The ornamentation of the reverse is less decorative, being an incised geometrical pattern enclosed in a small incised circle at the centre. The sides are plain.

The next in importance of the Lancaster crosses was found as recently as 1903, built into the north wall of the church. Its shaft only is preserved, the ornamentation being scrollwork of Anglian type. On one face at the top of the shaft is an inscription:—

+ ORATE P[RO] ANIMA HARD . . . I.

A third fragment of a cross-shaft has Anglian scrollwork on all sides; and a fourth is a cross of Anglian type, with two birds above the arms and two figures below which have beasts' heads and human feet. On two sides is the straight-lined interlacing design known as 'cat's cradle,' which is also found on one of the crosses from St. Oswald's, Durham. A fifth stone is part of a standing slab, after the fashion of a modern tombstone, 3 feet high and 5 inches thick, which was originally finished with a crosshead. It has on one side a design of double spiral knots, and on the other a large circular plait, above which is a stag chased by a hound. The decoration is very like that on a similar slab at Melling. Other fragments are (1) the centre of a crosshead, having over the figure of Christ a large circular boss with five balls on it; (2 and 3) pieces of two cross-shafts with Anglian scrollwork; and (4) part of the shaft of a cross of later style than the rest, carved on all four sides, but much defaced. One subject may be Adam and Eve on either side of the Tree of Knowledge.

The village of Bolton-le-Sands, some 3 or 4 miles to the north of Lancaster, contains in some fragments of sculptured stone evidence of its pre-Norman origin. One of these is a portion of a cross decorated with bold interlacing design. Another is a portion of a 'hog-backed' gravestone. One side is decorated with the customary roofing-tile pattern, the other with a design supposed to represent Eve and the serpent.

In the churchyard at Halton, near Lancaster, is a tall cross-shaft, which is of particular interest as a specimen of what has been called the pagan-Christian overlap. The crosshead, of which only part is ancient, was ornamented with interlacing designs. At the top of the shaft are the evangelistic symbols, one on each face. Below are parts of four arched panels containing figures, but this part of the cross has been broken and lost, and a piece of plain stone

¹ *Lanc. and Ches. Antiq. Soc. Trans.* xxi. 44-55.



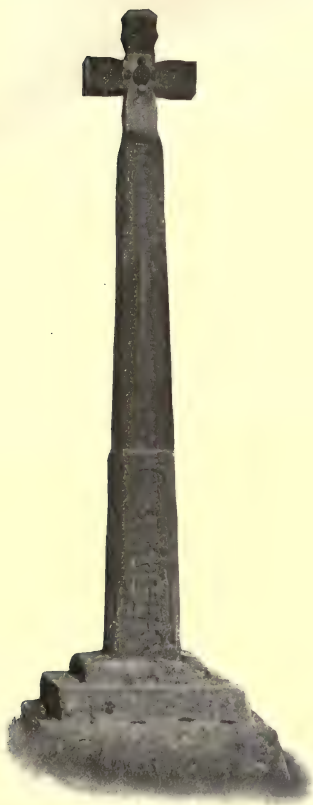
HORNBY: 'LOAVES AND FISHES' CROSS-SHAFT IN CHURCH.

Front.

Back.



LANCASTER: CROSS OF CYNEBALH CUTHBERTSON.



HALTON : WEST FACE OF CROSS IN CHURCHYARD, AND DETAIL OF EAST FACE.

ANGLO-SAXON REMAINS

is now inserted. At the base of the shaft are scenes from the Sigurd legend: Sigurd roasting the heart of Fafnir, and putting his burnt finger to his lips. Above are birds in a tree; and below, Sigurd is seated at a forge, with Regin's headless body, and a piece of knotwork representing Fafnir above him. On the north side is Sigurd's horse Grani, riderless, and above him dragons perhaps representing the snakes of Gunnar. On the south side are panels of foliage, and on the west a scene which may be meant for the Resurrection. The style of decoration is late, and probably the cross is not earlier than the eleventh century.

Parts of several other crosses have been set up within the church under the tower, with figure subjects in panels, and scrollwork of Anglian type. The fragments are built up on each other to a height of 11 feet, but they clearly belong to at least two separate crosses.

In the same vicinity is Heysham, which possesses the ruins of a very early church of a type which is Celtic rather than Saxon. It stands on a rocky knoll to the west of the present church, and close to it are eight graves cut in the rock, with sockets at their heads, in which crosses have probably been set. The rock surface bears traces of having been carved with an interlacing pattern. In the churchyard of the present church is the lower part of the shaft of a cross with interlacing panels at the base, and spiral foliage pattern of Anglian type on the sides. On one face is a seated nimbed figure under an arch, and on the other a gabled building with three windows in which three human heads appear, while below is a central doorway in which stands a figure swathed in what may be grave clothes. It has been explained as the raising of Lazarus, or the Resurrection.

In the churchyard is also a hogback stone 6 feet in length, with zig-zag lines in imitation of tiling on the top, and at each end an animal clasping the stone, as on other specimens of this form of monument. The subjects on the sides have been variously explained as a stag-hunt and as scenes from pagan mythology.¹ In the latter case the stone would belong to the same category as the Halton churchyard cross.

Eight miles from Lancaster is the ancient village of Hornby (the 'Hornebie' of Domesday), where in the church is the upper portion of a cross, which from the decoration upon it is commonly called the 'loaves and fishes cross.' The portion is only about 2 feet in length, but the sculpture indicated is apparently unique in this country, representing two fishes below five loaves, above which is a conventional tree enclosing a figure on either side. The three other faces of the stone are decorated with devices of interlacing and coiling rope, while a panel at the top of the back seems to enclose an angel figure. The details of the work are very highly finished, and of unusual excellence. A fragment of a second cross, part of the lower arm of the head, with a zig-zag pattern, is also preserved in the church. In the churchyard is a pyramidal stone 6 feet 2 inches high, with a semi-circular arch in low relief on each face, and on the top the socket for a cross-shaft.

Two miles to the north-east is Melling, where there are portions of a sculptured slab of the same type as that found in Lancaster parish church,

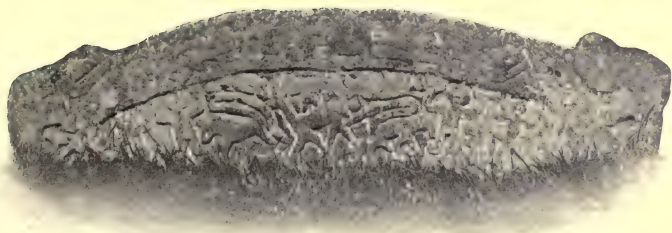
¹ This monument has naturally been much discussed and described. See *Lanc. and Ches. Antiq. Soc. Trans.* (1841); Colley Marsh, 'The Pagan-Christian Overlap.'

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and a short portion of a shaft of a standing cross, decorated with various devices of basket-work or interlacing ornament.

The early crosses so completely described by Mr. Allen and Mr. Taylor now become valuable material for the history of Anglo-Saxon Lancashire. They are *prima facie* evidence of Christian churches at eleven sites, adding to our certain list recorded in the Domesday Book a further seven names, and confirming the existence of churches in four other cases. Nothing could be more valuable than such evidence; for the critical study of these monuments, together with the scanty evidence of records, coins, and other remains, throws some light upon this obscure period. The history of the settling, the organization, and the struggles of the successive peoples, however, cannot be traced in detail until the evidence of the early place-names is available and Celtic tradition has been carefully explored.

Especial thanks are due to Mr. Henry Taylor for the loan of photographs which he has had taken for his forthcoming work on early Lancashire crosses, many of which have been reproduced for the illustrations of ancient crosses accompanying this article. The author also wishes to express his obligations to the curators of the various museums in Lancashire and many others who have helped him in compiling this article.



HEYSHAM : (1) LOWER PART OF CROSS-SHAFT IN CHURCHYARD.
(2) HOG-BACKED STONE IN CHURCHYARD.



NOTE TO DOMESDAY MAP

COMPILED BY WILLIAM FARRER

In this map the names of places mentioned in Domesday are shown. Those marked * were capital manors, having berewicks or dependent manors belonging to them. Those manors which had belonged to the king before 1066 have a line under their names; those which Tostig held before 1066 are distinguished with a broken line. In 1086 all the manors lying within the regions which afterwards formed the county of Lancaster were in the king's hand, except five manors between Cockerham and Lancaster.

The boundaries of hundreds and other territorial regions which existed at the date of Domesday have been constructed generally from the evidence of the survey itself, and differ from those which existed in 1212.¹ 'Kendal,' *i.e.* that part of Westmorland which lies in the valleys of the Kent and Lune, was included in Domesday with Furness, Cartmel, Lonsdale and Amounderness in a ratable area containing 500 carucates. Certain manors in Cumberland territorially connected with Furness and Cartmel, and others in the Ewcross wapentake of Yorkshire, similarly connected with Lonsdale, do not appear to have belonged to this geldable area.

For convenience of reference it is to be noted that five manors in 'Kendal,' viz. : Jalant (Yealand), Dalton, Hotun (Priest Hutton), Warton and Berewic (Borwick) were incorporated in the county of Lancaster about the end of the eleventh or early in the twelfth century, when 'Kendal' was added to Westmorland.

The modern names of rivers and lakes—including Marton mere in Amounderness and Martin mere to the south of the Ribble, both now reclaimed—are given for convenience of reference as landmarks; they are not—with the exception of the rivers Ribble and Mersey—mentioned in Domesday.

The sparsity of place names in south and east Lancashire was not entirely due to paucity of manors, but partly to the character of the survey, which sometimes omits the names of manors or berewicks dependent upon capital manors. Thus Domesday enumerates 15 manors in Newton hundred, 34 manors in Warrington hundred, 21 berewicks in Salford hundred, 28 manors in Blackburn hundred, and 12 manors in Leyland hundred, without recording their names. In North Lancashire, on the other hand, the areas which contain few or no names of manors were regions either of peatmoss, as in the northern part of Amounderness and near the coast between the rivers Kent and Winster; or moorland and wood, as in the north-east of Amounderness and between the upper waters of the Wyre and the valley of the Lune; or rocky fells and rough pasture, as in the mountainous parts of Kendal, Cartmel and Furness. The coast line is taken from the oldest Ordnance survey maps.

¹ Haigh is shown as belonging to the hundred of Warrington, Aspall as belonging to that of Salford.

DOMESDAY SURVEY

LANCASHIRE as a county finds no place in Domesday Book; to obtain a view of it as a whole it is necessary to search for its component parts in the returns of two other counties. At the date of the survey the lands forming the southern half of the present county were taken with Cheshire,¹ under the title of 'The land between Ribble and Mersey,' of which the return occupies little more than a page and a half of the record (f. 269*b*). The lands comprised within the northern portion were included in Yorkshire, the details being found at the end of the return of the land held by the king (ff. 301*b*, 302),² except for seven manors which are entered in the return of the lands held by Roger of Poitou (f. 332)³; these two sets of entries together occupy only three-quarters of a page. That these items were thus disconnected was due not only to the fact that there was no such comital entity as 'the shire of Lancaster' at this time, but also to the circumstance that the lands originally granted in this district to Roger of Poitou, which embraced the greater part of these regions, were at the time of the survey almost entirely in the hands of the king.

These disconnected returns, when brought together and examined, yield but little satisfactory information as to the holders of lands in 1086, and but few details of the condition and value of these regions. Those for the land between Ribble and Mersey are the fullest, but possess the tantalizing characteristic, common to other great manors comprising many berewicks or dependent manors, of being a summary rather than a detailed survey. The returns for the district north of the Ribble are even less satisfactory, and consist of little more than lists of manors with their geldable areas, or rather assessments, after the manner of a geld-book.

The impression left upon the mind by a careful study of these returns is that a general picture of the state of these regions at the time of the conquest and immediately afterwards may be broadly sketched from the materials here provided, but that no detailed or precise description is possible. One important feature which presents itself at the outset of our examination of this record is that we have to deal with regions upon the borderland of the ancient kingdoms of Mercia, Northumbria, and Cumbria, possessing all the unstable characteristics of debatable lands subject to conquest and colonization by the ruler of any one of these three principalities, followed by re-conquest and re-colonization, perhaps often repeated. This position of insecurity and instability was further accentuated by the opportunity for foreign invasion afforded by the long irregular coastline with its bays and estuaries, extending

¹ There is no evidence that the district was under the jurisdiction of the sheriff and shire-mote of Chester. There is reference to shire-mote and (shire-)reeve, but nothing to show what shire-mote and sheriff is meant.

² The facsimile edition of Domesday Book (1861) omits the return of half the manor of Burrow, and erroneously includes the Yorks manor of Oulston (f. 330).

³ Roger's name is omitted in the list of tenants in chief (f. 298*b*).

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from the Duddon to the Mersey: opportunity which the occurrence of many old Norse place names along the coast, and even inland, shows was abundantly seized by the roving bands of Danes and Norsemen who infested the Irish sea during the century preceding the Norman invasion.

From these circumstances of position it follows that boundaries would seldom be of old standing, nomenclature would bear the marks of intermixed tongues, and land tenure would show customs more or less foreign to each other co-existent. The combination in this county of Northumbrian, Mercian, and Danish place names, to which so long ago as 1801 the historian, Dr. Whitaker, called attention,¹ bears witness to the intermixture of languages; of the confusion of customs and tenure, such features as the overlapping of the hide and the carucate, the simultaneous use of such terms as wapentake, shire, and hundred, and the incidence of thegnage, drengage, and cornage tenure side by side, are eloquent. The question of the boundaries can best be settled by separate consideration of the several regions which were eventually united to form the county of Lancaster.

Of these regions, that between Ribble and Mersey was the most homogeneous and bore evidence of the oldest settlement. The Anglo-Saxon Chronicle² records the conquest of this region by the English king in 923, when it appears to have been severed from the kingdom of Northumbria and united to that of Mercia. As one result of this conquest, it was placed under the ecclesiastical administration of the bishop of Lichfield, of whose diocese it continued to form part until the foundation of the see of Chester in 1541. Another result of the re-organization at this time is probably to be seen in the remarkable double assessment of the district which an examination of the Domesday survey reveals.

Throughout England there were two systems of assessment for the geld: in the one the hide, and its quarter, the virgate, were the units; in the other the carucate, or ploughland, and its eighth part the bovate, or oxgang. The latter system, which was prevalent in the counties colonized by the Danes, is also marked by the tendency of the vills to be assessed, either singly or in groups, in multiples of six carucates³; the other system being marked by a similar recurring multiple of five hides. In the southern portion of Lancashire we have the unique feature of the one system superimposed upon the other.

This land between Ribble and Mersey was rated at the time of the Domesday survey at eighty hides, less one—the exempted hide being probably land belonging to the parish churches⁴; and the record informs us (f. 269b) that in each of these hides there were six carucates. At the time of the survey this region was sub-divided into six hundreds, which took their names from the king's six capital manors of West Derby, Warrington, Newton in

¹ *Hist. of Whalley* (1872), i. 52.

² *Anglo-Saxon Chronicle* (Rolls Ser.), i. 196.

³ Round, *Feudal England*, pp. 69 et seqq.

⁴ Although church lands were liable to pay geld before the conquest, as stated in the survey, some church lands in this region were evidently not included in the total of 79 hides. For example, Boode cum Linacre was rated at 2 carucates and another carucate belonged to the church of Walton; records of the thirteenth century prove that this township contained 3 carucates, and yet only 2 carucates were included in the Domesday total of 79 hides. The survey also records holdings of 3 hides, 2 hides and 1 hide, held by knights in 1086, with half a carucate added in each case. It seems probable that these half carucates represented church lands, and their attachment to fees of one or more hides may well have some bearing on the question of the exemption of certain church lands from geld.

DOMESDAY SURVEY

Makerfield, Salford, Blackburn, and Leyland, and it seems probable from their assessments that the five-hide unit was in force here as in other counties. Thus, West Derby contained approximately 120 carucates or 20 hides, Newton 30 carucates or 5 hides, Warrington 58 carucates or nearly 10 hides, Salford $121\frac{1}{2}$ carucates or just over 20 hides, Blackburn 96 carucates and Leyland 54, or together 25 hides. At the same time the existence of the six-carucate unit appears not only from the assessment of six carucates as one hide, but also from the assessments of the parishes, so far as it is possible to reconstruct these by grouping the Domesday villis or manors and summing up their individual carucage as deduced from records of the twelfth and thirteenth centuries. It will be found that if the hundreds be thus divided into parishes, the assessment of these latter will as a rule be approximately a simple multiple of six carucates. A good example is the hundred of West Derby where the parishes are rated in carucates as follows:—Halsall 12, Ormskirk $12\frac{1}{2}$, Sefton $23\frac{1}{2}$, Walton $36\frac{3}{4}$, Huyton 12, and Childwall $22\frac{1}{2}$. Allowing for the difficulty of reconstructing the groups this is sufficiently near, and a still better case is Leyland hundred where we find Penwortham 9 and Leyland 9, Croston $17\frac{1}{2}$, Eccleston $18\frac{1}{2}$.

We have thus what we may call a normal English, or hidal, assessment imposed upon a normal Danish, or carucal, assessment; the latter, instead of being abolished, surviving, possibly for purposes of local taxation and jurisdiction. A further interesting Danish survival is to be found in the style of wapentake applied to the court of the hundred or 'shire,' to use the title applied to these hundreds for centuries after the conquest, and even now employed colloquially by some of the oldest inhabitants.

The boundaries of this interesting and unique region were clearly defined by physical objects, the Mersey on the south, the Ribble on the north, and the Pennine range on the east, a western spur of this range which divides the watershed of the river Aire from the western Calder constituting a natural boundary on the north-east.

Immediately to the north of the Ribble lay Amounderness, within the ancient kingdom of Northumbria and diocese of York, to whose cathedral church this district was granted by King Athelstan in 930.¹ But, as in the case of an earlier grant to the monastery of Ripon, it was not destined long to remain in the hands of the church, and by the end of the Confessor's reign it was entirely in the hands of Tostig, earl of Northumberland. The wasted condition of Amounderness in 1086 may have been due at least as much to the deposition and outlawry promulgated against Tostig by the gemot at York in 1065, followed by the slaughter of his followers and the plundering of his possessions by his enemies,² as to the Conqueror's ravages. The whole of this region was dependent on the capital manor of Preston, and was probably divided into four parishes,—Preston, Kirkham, Kirk Poulton, and St. Michael on Wyre. After the conquest it was treated as a hundred, and the whole was brought within the metes of the Forest of Lancaster. On the south the Ribble formed the natural boundary, and on the east its tributary the Hodder and the fells of Bowland and Bleasdale, while the vast peat mosses of Pilling, Cockerham, Winmarleigh, and Garstang formed a natural division from Lonsdale on the north.

¹ *Historians of the Church of York* (Rolls Ser.), iii. 1.

² *Freeman, Norman Conquest*, ii. 491-5.

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In the regions to the north of Amounderness, Earl Tostig's manors comprised the greater part of territories known as Lonsdale, Kendal, Cartmel, and Furness. Under his capital manor of Grindleton, which lay across the Ribble facing the most northerly point of the land between Ribble and Mersey, were grouped the twelve manors which constituted the territory known as Bowland. Intermingled with Tostig's vast estate were: (1) Torfin's chief manor of Austwick, in Yorkshire, with two adjacent manors in that county, the three distant manors of Caton, Cloughton, and Warton, in Lancashire, and eight manors in Westmorland; (2) Chetel's Yorkshire manor of Bentham, with Wennington, Tatham, and Farleton, in Lancashire; (3) a small group of manors near Lancaster (Ashton and Cockerham); (4) Gillemichael's great Westmorland manor of Strickland, including Kirkby Kendal. All these manors we may look upon as having belonged to followers of Tostig, holding as thegns under the earldom of Northumbria. Evidence of this seems to be afforded by the fact that the regions lying between the Duddon and the Ribble, including Kendal, but excluding those manors which lay in Ewecross wapentake and in Bowland, were united for the levying of geld into a division assessed for 500 carucates.¹ Perhaps this ownership also explains the complete break up of these estates after the conquest and their re-arrangement in new manorial groups.

Having thus examined the physical divisions of the embryo county of Lancaster, we may next consider the personal and statistical condition of these districts at the time of the conquest, as revealed in Domesday Book. Passing over, for the moment, the royal demesne, and turning to the manors held in thegnage and drengage, we find a few thegns in possession of a larger franchise than the majority enjoyed. Between Ribble and Mersey, the most important of these was Ughtred, thegn of Roby, Knowsley, Kirkby, Little Crosby, Maghull, and Achetun (*i.e.* Bickerstaffe), in which manors he held two hides, woodland two leagues in length and as much in breadth, and two eyries of hawks. Altogether seventeen manors in West Derby hundred had been in the possession of 'Uctred.' In the case of Kirkdale we are able to identify the owner with the thegn of Roby, because he is subsequently stated to have certain franchises in connexion with Kirkdale and Little Crosby; it is therefore probable that it was the same Ughtred who held Aughton, and the three manors of Dalton, Skelmersdale, and Uplitherland, a manor in Lathom, another in Hurleton (including Scarisbrick), and a moiety of Martin. As Lathom at an early date gave its name to the family who were for centuries settled there, and under whom Hurleton and Scarisbrick were held by the yearly service of 8*s.*, or at the Domesday rate of 32*d.* for the carucate; and as the same family also held Roby, Knowsley, Huyton, and Tarbock for one knight's fee, it seems probable that Ughtred of 1066 was the predecessor of the Lathoms, and possibly immediate

¹ In the districts north of the Ribble the incidence of 'hundreds' consisting of 12 carucates in groups of 7 (84 car.) is remarkable. Thus Amounderness consisted of 4 parishes containing 168 carucates, or two groups of '7 hundreds.' Lancaster, Cartmel, and Furness contained 248½ car. or 3½ car. less than three groups of '7 hundreds,' Kendal contained exactly 84 car., or one group of '7 hundreds.' Again, the Yorkshire district of Craven, including Ewecross wapentake and Bowland, contained 504 car. 6 bov., or 6 bov. more than six groups of '7 hundreds.' Thus the component parts of Lancashire north of the Ribble, with Kendal and Craven, contained 1,005 car. 2 bov., a total which closely approximates to 12 groups of '7 hundreds' (12 × 7 × 12 = 1,008 car.). Mr. Round has called attention to these groups of 7 hundreds in *Feudal England*, 78-9.

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predecessor of that Dunning¹ who was living in the early years after the date of Domesday, and with whom the genealogy of the ancient family of Lathom commences.

For some of his lands Ughtred enjoyed greater liberties than his neighbours, in that he was exempt from all forfeitures, except breach of the peace, premeditated assault (forsteal), house-breaking, renewing a fray after having sworn to desist, failure to pay a debt when condemned to do so by the reeve, and disregarding a summons from the reeve to attend him upon a set day, for which offences he was liable to a fine of 40s. Another thegn, by name Dot, held one hide in Huyton and Tarbock exempt from all customary services except geld. No other thegns held manors in West Derby hundred of more than average size or exempt from forfeitures; except that fifteen manors rated at three hides had been pardoned the rent of 4*l.* 14*s.* 8*d.*, which they had formerly paid to the king. These three hides were also exempt from paying fines for bloodshed and rape, which fines were retained by the thegns instead of being handed over to the king. These remissions were possibly granted to compensate for the low-lying position of these manors and their liability to inundations. In Newton hundred two of the fifteen drengs, who held 24 carucates amongst them, had 5 carucates in their two manors, and took to their own profit the forfeitures of bloodshed and rape, and likewise the pannage of swine belonging to their men or under tenants. The thirty-four drengs in Warrington hundred, whose manors averaged a carucate and a half, do not appear to have differed much in status.

In Salford hundred the manors or berewicks were of much larger size, twenty-one berewicks containing 11½ hides and 10½ carucates, being an average of 3½ carucates each. The survey makes particular mention of one thegn, Gamel of Rochdale, who held the whole of that lordship in 1066, but at the date of Domesday had lost all but two carucates—possibly representing his demesne of Castleton. He was exempt from all customary services and forfeitures, except for theft, house-breaking, 'forsteal,' breach of peace, neglecting the reeve's summons, and renewing a fray after swearing to desist; for which offences a fine of 40s. was the penalty. In this hundred there were in 1066 derelict or waste lands belonging to the demesne rated at 12 carucates. The unfertile, cold, and hilly nature of part of this hundred seems the most likely explanation of the statement in the survey respecting the thegnlands, that 'some of these estates were quit from all custom except [Dane]-geld, and a few are even quit from [Dane]-geld.' In Blackburn hundred the twenty-eight manors held by freemen averaged just over 2½ carucates each. It is, however, probable that the individual manors varied considerably on either side of the average.

When we cross the Ribble to examine the survey of the regions lying to the north, the question presents itself whether the Conqueror's surveyors ever visited the regions of Amounderness, Lonsdale, Kendal, and Furness. The account of them in Domesday Book partakes more of the nature of a Geld book than of a survey, and one cannot avoid coming to the conclusion either that the district was not visited, or that it was so nearly waste in 1086 that it was not possible to survey it further than appears to have been done.

¹ *Testa de Nevill* (Rec. Com.), 402*b.*

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Amounderness in 1066 consisted of 62 vills—3 of which belonged properly to Lonsdale. All these vills were berewicks of the capital manor of Preston, and owned Tostig as lord. Whilst the value of the land between Ribble and Mersey was depreciated by the events which followed the Norman invasion only to the extent of 25*l.*, or from 145*l.* 2*s.* 2*d.* in 1066, to 120*l.* when Roger of Poitou received it, Amounderness fared grievously. At the date of the survey only 16 out of 62 vills possessed inhabitants, and these but a few, whilst the remainder were derelict, and devoid of stock, crop, or inhabitants. Probably this deplorable condition was not so much due to the levy of oxen, sheep, swine, corn, and other stores made by the Conqueror's army in passing through these regions, as by the devastations committed by Tostig's enemies in his lands, owing to his unpatriotic attitude, and during his prolonged absence from his earldom previous to the conquest. The survey gives us no hint as to the value or condition of Lonsdale, Kendal, Cartmel, or Furness, either before or after the conquest. The reduction in the assessment to Danegeld made in or before the reign of Henry I. amounting to 143 carucates¹ in these regions, proves how greatly they had suffered impoverishment since the days before the conquest.

Little can be added to that which is already known concerning the pre-conquest lords of the regions north of the Ribble. As already shown, Tostig held Amounderness, Halton, Whittington, Beetham, and Furness, with their respective members, embracing a territory rated at 419 carucates, of which 386 lay in Amounderness, Lonsdale, Kendal, Cartmel, and Furness, with 14 carucates in Ewcross wapentake, co. York, and 19 carucates in Millom ('Hougun'), co. Cumberland.

Thorfin, who held the Yorkshire manor of Austwick, with its members—of which those in Kendal and Lonsdale contained 33 carucates—may possibly be identified as the thegn who also held the manor of Winterburn in Craven, with seven berewicks under Roger of Poitou (f. 332).

Chetel, who held the Yorkshire manor of Bentham (6 carucates) and three other manors in Lonsdale rated at 12 carucates, cannot be certainly identified with any of the thegns of this name who held manors in Craven. Other thegns in Lonsdale were Ulf and Machel, who each had a manor and 2 carucates between them in Cockerham; Cliber, Machern, and Gillemichael, who had manors rated at 10 carucates in Ashton, Ellel, and Scotforth, the last named being perhaps the Gillemichael who had a manor in 'Stercaland,' now Strickland Ketel and Strickland Roger, rated at 20 carucates in the whole, with 9 other manors, including Kirkby Kendal, of which Dalton alone was in Lonsdale; Ulf, who had a manor rated at 9 carucates in Melling, with Hornby and one moiety of Wennington; Orm, who had a berewick of the manor of Melling, supposed to be Wrayton, rated at 1½ carucate; the same or another Orm, who had a manor in Thornton in Lonsdale (3 carucates), co. York, and a moiety of Burrow rated at 3 carucates; Duuan, who had Kirkby Cartmel (6 carucates), that is the village and church of Cartmel; Ernulf, who held the manor and vill of Aldingham (6 carucates), and his neighbour Turulf, who had a manor in Ulverston (6 carucates), of which Bolton, with Adgarley and Dendron, were either berewicks, or were then

¹ This total is obtained by a comparison of the figures given in *Dom. Bk.* with those recorded in the *Testa de Nevill*.

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lying waste. After Tostig, the most interesting person mentioned in the survey of this region is Ernuin the priest, who held Beetham and possibly its members under Roger, and occurs as 'the man of Roger of Poitou' in the survey of Roger's fees in Lincolnshire¹, in which county and in Nottinghamshire he or his father may perhaps be identified as the 'Ernuin' who held several manors before the conquest.² He seems also to have held a manor in Bedfordshire, which his father had held under King Edward as the king's man.³ In Lincoln city he had a house which had been Earl Morcar's, and in the same county a small estate at Widme,⁴ which he held of King Edward in alms; another at Ingham, which he had received from the king and queen; and a third at Fillingham, which he had held of the queen. His father appears to have been named Ernuin Catenase, and to have held the manors of Scagglethorpe and Upper and Nether Poppleton, co. York, which a jury declared that Ernuin the priest ought to hold of Robert Malet.⁵ From these references it would appear that Ernuin had been one of King Edward's priests, and had been presented to more than one church, Beetham being one of them.

To roughly fill in the picture, of which the outlines have been given, and so to obtain a more or less complete view of Lancashire and its inhabitants at this early date, is not difficult.

In 1066 no monastic house held a single carucate of land in these regions, notwithstanding the gifts in time past of Cartmel and Amounderness to religious uses. The parishes were few in number, and their endowments did not usually exceed 1 carucate, sometimes falling as low as 2 bovates, as at Blackburn. No large estates existed, nor does the status of the two or three thegns who held estates somewhat larger than their neighbours point to a condition different from that of the more free thegns found in other parts of England. The land between Ribble and Mersey was, with the exception of the demesne, almost entirely in the hands of thegns, or of their Northumbrian peers, drengs, 157 holdings consisting of a homestead and, on an average, 2¼ carucates of land. In Childwall there were four 'radmans,'⁶ the 'radchenistries' of the southern counties, holding 3 carucates between them. The country may well be described as a huge manor of royal demesne, where the ownership by the sovereign precluded the rise of any great estates or changes of any considerable moment in the status of its inhabitants. The customary services of the thegns in West Derby hundred are fully described in the survey (f. 269 b.) and with little variation applied also to the thegns of the other hundreds between Ribble and Mersey. Each thegn by custom paid a rent (called carucate geld) to the king of two ores of pence—that is 3*d.*—for each carucate of land, apparently in addition to a rent (farm) of similar amount, and likewise by custom assisted to build or repair the king's houses and other buildings, and all works in or about the king's halls and demesne lands. He also assisted in the construction and repair of 'fisheries' (*piscariæ*), which comprised fish-stalls⁷ or weirs and traps for eels, the former being the primitive method for taking salmon then and for centuries after in vogue, which consisted in making pools or weirs in tidal water, where fish

¹ *Dom. Bk.* i. f. 352.

² *Ibid.* f. 290 and 352.

³ *Ibid.* f. 211.

⁴ *Ibid.* f. 371.

⁶ *Ibid.* f. 374, col. 1.

⁶ Of 'riding-men' and their services, see *Dom. Bk. and Beyond*, pp. 305-7; *V.C.H. Worcestershire*, i. 250

⁷ Locally known as 'fish-yards,' and further north as 'fish-garths.'

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which came up with the tide were left impounded after the ebb, and were taken at low water in nets, or by spears; he also assisted in making enclosures (*haie*) in the woods and wastes, fenced by hedges, walls, or pales, where cattle or deer could be impounded and better protected from the attack of beasts of prey; and 'deer-hedges' (*stabilituræ*), also called deer-hays or deer-stalls, which he assisted to construct in the forest when the king came to hunt, so that the deer might be driven within reach of the king's spear or bow in the manner of a modern 'drive.'¹

Every thegn who should fail to come at the reeve's summons to assist in these customary duties incurred a penalty of 2s., and afterwards came and laboured at the work until it was finished. In these duties it would appear that the thegns were by custom fellow-workmen with the villeins, but in Salford hundred some thegns were exempt from performing these customary works, and—as the record elsewhere states—the thegns of this hundred and those of Leyland were exempt from working at the king's hall. Each thegn in West Derby hundred was also compelled to send his reapers for one day in August to cut the crops on the king's demesne lands, and failing to do so incurred a penalty of 2s.; but whilst the drengs of Newton hundred owed this service for two days instead of one day only, the thegns of Salford and Leyland hundreds owed no reaping service in August. Of ploughing service there is no mention, and probably the thegns and drengs were exempt from this servile work, which the villeins performed at this time and for generations after, together with many other duties required in the cultivation of the demesne lands.² In many parts of England the 'radmans' ploughed and harrowed, mowed and reaped, in the king's or lord's demesne lands, and did whatever was required of them,³ but of their services in these districts nothing is told us.

The survey makes no mention of the number of villeins, bordars, oxmen, or serfs existing in 1066 between Ribble and Mersey, but gives some particulars thereof applicable to the demesne of Roger of Poitou and the demesne of his knights in 1086. These particulars are not in any way remarkable, though attention may be called to the three bondwomen (*ancillæ*) mentioned in the hundred of West Derby, as the exact position and significance of this class is still one of the incompletely solved problems of Domesday.

When we turn to the consideration of the values recorded in the survey, we meet with several questions difficult of solution. The thegns, we are told, paid for each carucate a customary due of 2 ores of pence, *i.e.* 32d. When, therefore, we find a large number of cases in which the value of 2 carucates of land was 64 pence, or of half a hide 8 shillings, it appears at first as if this customary due was identical with, and the sole constituent of, the annual 'render.' But the case of the two manors of Toxteth,⁴ where in each case 2 carucates were worth only 4 shillings, suggests a doubt as to this identity, which is strengthened when we examine the return of these hides in the parishes of Ormskirk and Halsall, which are stated to have been exempt from

¹ See also *Dom. Bk.* i. 56 b; *Ibid.* f. 179. For examples of similar service, see *Boldon Book*, *V.C.H. Durham*, i.

² See *Dom. Book and Beyond*, p. 56.

³ *Ibid.* p. 56, *in notis.*

⁴ The assessment area is recorded in each case as 1 virgate (equal in this district to 1½ carucate) and half a carucate of land. Probably only the virgate paid rent. ⁴ 'Reddebat' and 'valebat' are here interchangeable terms.

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all customary dues except [Dane-]geld, particular mention being made of their exemption from the 'geldum carucatarum terrae,' which must refer to this due of 2 ores. In the manorial holdings which make up these 3 hides we find that the value per carucate is in most cases considerably higher than in the other manors of West Derby, the whole—including half a carucate in Altcar, which was waste and valueless—paying 3*l.* 7*s.* 4*d.*, or 1*l.* 1*s.* 4*d.* more than would have been the case at the normal rate of 32 pence the carucate.¹ The value, therefore, instead of having fallen owing to the abolition of this due, had risen, showing that the 32 pence were additional to the 'value,' though the land would seem as a rule to have been assessed for rent at the same rate of 2 ores of pence for each carucate. There is a further puzzling point in connexion with these three exempt hides; it is stated that King Edward remitted the rent (*censum*) of these three hides, and that 'they used to render 4*l.* 14*s.* 8*d.*'—a sum which does not agree with the total value obtained from the component items, but which is within 1*s.* 8*d.* of double the 'carucate geld' due on that amount of land. It is difficult to be certain of the explanation of this, but it is at least possible that originally these lands were farmed at the normal rate of 32 pence with the additional burden of the 'carucate geld'; that these two charges were taken off by King Edward, who took nothing but Danegeld from these lands, but that subsequently, when Roger of Poitou held the district, these lands were again farmed out, but at a higher rate than the neighbouring estates in consideration of their exemption from the 'carucate geld' and other dues.²

An important item in the extent of a manor was the woodland, of which the measurements are usually given. Any attempt to estimate the areas of woodland in the various manors can only be very rough, and must be received with caution for many reasons. First, it is evident that such measurements as are given are merely approximate, and it is also evident that as the woodland lay not in neat rectangular blocks but in straggling and irregular masses, of which the greatest length and breadth were no doubt roughly estimated, the product of length and breadth will not correspond with the superficial area. There is the further difficulty of the relative value of the league and furlong—the units in which the woodland was measured—as Mr. Eyton's suggestion that the league contained 12 furlongs would apparently make the area of the woods in Newton hundred considerably in excess of the total area of that hundred. There is further the question of the size of the perch to be considered, for throughout the hundred of West Derby the large or Cheshire perch of 24 feet was, and still is, employed in land measure, and in many

¹ In the case of Huyton and Tarbock the release by the king of certain dues (or forfeitures) increased the value of those manors from the normal 16*s.* the hide to 20*s.*, an increase of one-fourth. The same increase is observable in the case of Kirkdale.

² The 'rent' paid in different hundreds (as distinct from the carucate geld) appears to have varied somewhat. In Newton hundred the thegns paid only 30*s.* for 4 hides, in addition to the carucate geld. The carucate also seems to have varied in value according to the situation and soil, and the yield of the casual profits of woodlands and forfeitures. Taking the total value of the six hundreds T.R.E., as recorded in the survey, at 145*l.* 2*s.* 2*d.* (the values of the individual hundreds add to 145*l.* 8*s.* 10*d.*), each of the 474 carucates of land between Ribblesdale and Mersey was of the average value of 6*s.* 1½*d.* The values of the demesne lands in 1086 are recorded as worth—for the part held by Roger of Poitou 23*l.* 10*s.*, for the part held by his knights 20*l.* 11*s.* (but the figures add to 22*l.* 12*s.*). Taking the area of the demesne lands as recorded, viz., 109 carucates, and the corrected total of the value as 46*l.* 2*s.*, we get an average value of 8*s.* 5½*d.* per carucate of the demesne. Dealing with the 364 carucates 7 bovates of land held by thegns in 1066 as yielding a rent of 5*s.* 4*d.* per carucate, we obtain the sum of 97*l.* 6*s.* This added to the previous sum gives a total of 143*l.* 8*s.*, as against the sum of 145*l.* 2*s.* 2*d.*, recorded in the survey as the value T.R.E. of the six hundreds.

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parts of Lancashire the perch of 21 feet is still employed. Many mediæval records, however, mention a perch of 20 feet, and it is almost safe to assume that this was the perch or 'rod-fall' most usually employed in Lancashire, outside the hundred of West Derby,¹ and probably employed in the survey throughout the region under review. To a great extent the area of woodland mentioned in the survey may be located by the aid of mediæval records. The 2 leagues by 1 league of wood belonging to the demesne of West Derby lay in the modern townships of West Derby, Croxteth, Fazakerley, and Halewood. Ughtred's 2 leagues by 2 leagues extended over Knowsley, Kirkby, and 'Achetun,' i.e. Bickerstaffe. In Little Woolton there was half a league of wood; in Lathom and Burscough 1 league by half a league; in Melling with Cunsough the same area, adjoining Ughtred's wood in Kirkby and Simonswood; in Lydiate 1 league by 2 furlongs. In Newton hundred the area of wood measured 10 leagues by 6 leagues 2 furlongs. The area of woodland in this region—known as Makerfield—before the conquest must have amounted to something like one-third of the whole area. No wood is recorded in Warrington hundred, by what appears to be an oversight on the part of the commissioners or their clerks. In the demesne of Salford hundred there was woodland 3 leagues by 3 leagues, and in the thegnlands 6 leagues by 4 leagues. The former probably lay in Broughton and in and around Horwich, whilst the bulk of the thegns' woodland probably lay in Rochdale and Tottington. In Blackburn hundred there was wood on the demesne lands 1 league by 1 league, probably lying in Ramsgreave, near Blackburn, whilst the thegns had woodlands containing 6 leagues by 4 leagues, lying in Rossendale and Pendle forests, and in manors lying in the Ribble valley. In the demesne of Leyland hundred there was 2 leagues by 1 league of wood, probably in Leyland, whilst the thegns had 6 leagues by 3 leagues 1 furlong lying in the region of Gunolfsmores, and in Brindle, Clayton le Woods, Whittle le Woods, and Chorley.

Before passing to the consideration of the infeudations made by Roger of Poitou, it is necessary to determine how much of the region under review—as proved by the wording of the record—he held at or before the date of the survey. The land between Ribble and Mersey had been Roger's, but was then in the king's hand (f. 301*b*). Amounderness had also passed out of Roger's hand, and was therefore included in the survey under 'the king's land.' Lonsdale, Kendal, Cartmel, and Furness likewise appear, immediately after Amounderness, amongst the king's lands, except five manors in Lonsdale and one manor in Kendal, that is Beetham with its members, which appear under the heading 'The land of Roger of Poitou,' without any remark to show that he had ceased to hold them. On the contrary, under Beetham we read 'Nunc habet Rogerius' (f. 332), and of certain of his manors in Craven we read of Barnoldswick that 'Berenger de Toden tenuit, set modo est in castellatu Rogerii pictavensis,' and of Colton—'Erneis habuit, set modo est in castellatu Rogerii' (f. 332). Of his manors in Derbyshire it is recorded, 'Now they are in the king's hand' (f. 273*b*), but in Nottinghamshire and Lincolnshire nothing is recorded to suggest that he was otherwise than in full possession of his fief. In Norfolk the survey of his manors is headed 'The lands which were Roger of Poitou's,'² but again in Suffolk³ and Essex⁴ the

¹ *Cockersand Chartulary* (Chetham Soc. N. S. vol. 38), p. 115.

² *Dom. Bk.* ii. f. 243.

³ *Ibid.* f. 346.

⁴ *Ibid.* f. 89.

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record shows that he was in possession. Some writers have stated that Roger temporarily lost his English fief in 1077, during one of the quarrels between William I. and his eldest son Robert Curthose, when Robert of Belesme, eldest brother of Roger, was one of the duke's strongest supporters,¹ and Roger a probable associate. But the reference to manors in Yorkshire being 'now' in the hands, honour, or castelry of Roger, appears to preclude the supposition of a temporary forfeiture so far back as the year 1077. In the absence of any reference in the chronicles to this event it does not appear at all certain that any such forfeiture occurred, and a possible explanation is to be found in a voluntary surrender or exchange of these estates. The evidence that Lonsdale formed part of Roger's fief lies mainly in the fact that within this region he gave the church of Lancaster, the manors of Aldcliffe and Newton, the churches of Melling, Bolton-le-sands, and Heysham, and tithes of Middleton, Overton, Skerton, Slyne, Bare, and Stapelterne to the church of St. Martin of Sées in the year 1094.² He also made gifts of churches and tithes within his demesnes in Amounderness, Leyland, Salford, and West Derby. No places in Cartmel or Furness are mentioned in any of his charters, an omission which possibly indicates that these two regions with part of Kendal were the king's land, and had not been included in Roger's fief, although they had formed part of Tostig's pre-conquest estate within these regions. At the same time it is possible that Furness, if not also Cartmel and part of Kendal, was included in Roger's fief before 1086, and that it was resigned by Roger with other manors in or before 1086, preparatory to an exchange of lands; for in a charter of John, count of Mortain, restoring Furness Fells to the monks of Furness, these 'Montana Furnessii' were granted 'per omnes divisas quas Rogerus Pictavensis vel Comes Stephanus . . . plenius et integrius tenuerunt.'³

To identify the knights who held of Roger of Poitou at the time of the survey is by no means an easy task. If we are right in supposing that 'Geoffrey,' the knight who held two hides and half a carucate in the hundred of West Derby in 1086, was the predecessor of Godfrey, the sheriff, we can trace the greater portion of this fee by his successor's gifts to Shrewsbury Abbey in 1093-4 of the church of Walton-on-the-hill with the lands belonging to it, and the vill of Garston, which had formed part of the royal demesne in this hundred before the conquest.⁴ In Amounderness he gave the church of Kirkham, and in 1094 he gave to St. Martin of Sées tithes of Bispham and houses, an orchard and lands in Lancaster, and the land which he had in 'Little' Lancaster.⁵ His chief lord also gave to Shrewsbury Abbey the vills of Woolston and Poulton, in the parish of Warrington, with the moiety of a fishery in Mersey, tithes of his demesne of Newton-in-Makerfield, and in Amounderness the chapel of Bispham.⁶ In the extra half-carucate of Geoffrey's fee we seem to trace the glebe of Walton church. This fee reverted to the chief lord at or before Count Roger's banishment in 1102. In the person of 'Roger' holding a hide and a half in West Derby hundred and 2 carucates in Leyland hundred we seem to recognise Roger de

¹ *Ordericus Vitalis*, book v., ch. x.

² *Reg. of the Abbey of Sées*, f. 103b; *Reg. of Lanc. Priory* (Chetham Soc., N. S. vol. 26), pp. 8-10.

³ *Coucher of Furness* (Chetham Soc. N. S. vol. ix.), p. 63; vol. xi. 419.

⁴ *Reg. of Salop Abbey*, No. 371.

⁵ *Reg. of the Abbey of Sées*, f. 105.

⁶ *Reg. of Salop Abbey*, Nos. 35, 36 and 337.

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Montbegon, who occurs several times in the survey of Roger's Lincolnshire manors as 'Roger the man of Roger the Poitevin' (f. 352), and was perhaps the predecessor of Robert de Molyneux, lord of Sefton in the time of Henry I.¹

'William,' holding a hide and a half, was undoubtedly William fitz Nigel, constable of Chester and lord of Halton, whose Cheshire fee under the earl of Chester is enumerated in the survey on fol. 266, and his Lincolnshire fee under the same earl on fol. 349, col. 2. His Domesday fee in Lancashire probably consisted of Roby, Knowsley,² and Little Crosby, 1½ hide in West Derby hundred, which 'Ughtred' had held before the conquest, and Sutton, Eccleston, Rainhill, Cronton, Appleton, Widnes, and Astley, 2 hides and 4 carucates in Warrington hundred. Subsequently other manors which 'Ughtred' had held in Maghull, Kirkby, and Little Woolton (4½ carucates) with Dot's manors of Huyton and Tarbock, Ulbert's manor of 'Wibaldeslei' and two manors in Woolton, and the manor of Cuerdley in Prescott parish, were added to the fee created before 1086 to complete the well-known 'barony of the Constable within the Lyme.'³

Another manor which 'Ughtred' had held, viz., half a hide in Kirkdale, may perhaps be identified with the half hide which 'Warin' held in 1086. Of this Warin we shall have something to say hereafter. The greater part of 'Tetbald's' fee of 1½ hide in West Derby hundred was probably included in the fee subsequently held in the hundred by Pain de Vilers, lord of Warrington, viz., Ince Blundell 3 carucates, two-thirds of Thornton 2 carucates, Halsall 1 carucate, Lydiate and Egergarth 1 carucate, a moiety of Barton a half-carucate, making 7½ carucates. In Warrington hundred 'Tetbald' had 1½ carucate.

It seems most probable that Henry I. enfeoffed Pain de Vilers of the demesne lands of Warrington, with numerous villis in the parishes of Warrington, Prescott, and Leigh, and of the escheated fee of 'Tetbald,' between 1102 and 1118, when the king created the honour of Lancaster by incorporating various escheated manors in the counties of Notts, Derby, and Lincoln, with the forfeited lands of Roger of Poitou—except in Essex—and adding thereto some manors of royal demesne, all which he bestowed upon his nephew Stephen, count of Mortain, between the years 1115-18. 'Adelard's' holding of 1 hide and half a carucate in Warrington hundred may perhaps be identified as a fee comprising Whiston and the church of Prescott (to which the half-carucate probably belonged), which afterwards escheated and under Henry I. became the nucleus of the fee held by serjeanty by the family of Gernet, who were hereditary foresters of all the forest lands between Ribble and Mersey and in Lancaster.⁴ 'Ralph,' holding 5 carucates, cannot be identified. Perhaps his fee was afterwards absorbed in the barony of Warrington. Newton hundred long continued in the demesne of Count Stephen. Here 'Roger the Poitevin' gave the church of Wynequic [Winwick] to the canons of St. Oswald of Nostell with 2 carucates of land,⁵ and before 1121 Stephen, count of Mortain, either confirmed this gift or re-granted the church to the priory of Nostell.⁶ Two knights

¹ Farrer, *Lancs. Pipe Roll*, pp. 427-9; *Record Soc., Lanc. and Ches.*, vol. 48, pp. xvi. and 12.

² Which the thegn of Lathom held under his successors by knight's service.

³ *Testa de Nevill* (Record Com.), p. 403b.

⁴ *Record Soc., Lanc. and Ches.*, vol. 48, pp. 43-4.

⁵ *Testa de Nevill* (Record Com.), p. 405b.

⁶ Farrer, *Lancs. Pipe Roll*, p. 310.

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were enfeoffed of 9½ carucates of land in Lowton and Golborne with their members before the death of Henry I., to hold by the service of one knight's fee, and they or their successors afterwards took their names from these two vill.¹

Passing to Salford hundred, 'Nigel's' fee of three hides and half a carucate first claims attention. There is some reason for believing that this fee comprised Manchester and its members within that parish, the half carucate apparently being the glebe of the church of St. Mary in Manchester. The details are: Manchester, 2 car.; Ancoats, 3 bov.; Moston, 3 bov.; Ardwick, 2 car.; Gorton, 3 car.; Openshaw, 6 bov.; Newton, 6 bov.; Clayton, 1 car. 4 bov.; Crumpsall, 2 car.; Withington with its members, including Denton and Haughton, 5 car. 2 bov., making in all 3 hides. The question of Nigel's identity has not been satisfactorily solved, but it is not altogether improbable that he was Nigel de Stafford² whose descendants, the Gresleys, subsequently held Drakelowe of the honour of Lancaster as a serjeanty. The only manor which Nigel de Stafford held in chief in Staffordshire, viz., Thorpe Constantine, was also incorporated in the honour of Lancaster by Henry I. as an escheat. There is no record of the date when Nigel lost his fee in Salford hundred, but there appears to be some reason for believing that it was at, or immediately after, the date of Domesday. His successor was Albert Grelley, who held large estates under Roger of Poitou in the counties of Lincoln,³ Norfolk,⁴ and Suffolk,⁵ and in this county in the hundred of Blackburn, which he held jointly with Roger de Busli. We read in one of Roger of Poitou's charters to St. Martin of Sées, dated in 1094, that he gave 'tithes of the whole land of Albert Greslet (Grelley), and tithes of Warin Boissel of Brostone (*i.e.*, Preston in Amounderness), and tithes of the land of Roger de Montbegon, of Calisei (South Kelsey) and Tablesbei (Tealby), and of Tit (Tydd Gout), and of his whole demesne between Ribble and Mersey.'⁶ In several charters of this period Albert Grelley, Roger de Montbegon, Ralph Gernet, Geoffrey Bussel and Albert, his brother, appear as witnesses to Roger of Poitou's grants to St. Martin of Sées,⁷ so that we seem to be justified in looking upon these persons as representing his greatest feudatories.

Indications that new military fees had been created since 1086 are not wanting. We have seen that Roger de Montbegon occurs in the survey as holding several manors of Roger of Poitou in Lincolnshire, and we have suggested that he might be identified as the 'Roger' who held 1½ hide in West Derby hundred and 2 car. in Leyland hundred. In these 11 carucates we have the exact extent of the fee of Sefton which Roger of Poitou gave in these hundreds to the ancestor of Molyneux, of Sefton.⁸ In place of these lands, and perhaps of one car. in Warrington hundred, and in augmentation of his fee, Roger de Montbegon received the fee of Tottington, in Salford hundred, and Hornby with its members in Lonsdale, of which we find evidence of his tenure in a charter wherein he and Sezilia his wife gave to St. Martin of Sées the tithes of their demesne between Ribble and Mersey, 'and even beyond

¹ *Testa de Nevill* (Record Com.), 405b, 406.

² It is proper to state that such authorities as Professor Tait, Mr. Round, and General Wrottesley do not concur in this suggested identity.—W. F.

³ *Dom. Bk.* i. fol. 352, s.t. Haintone.

⁴ *Dom. Bk.* ii. fols. 243b, 244.

⁵ *Ibid.* fol. 351b.

⁶ *Reg. of the Abbey of Sées*, fol. 104; Round, *Cal. of Doct. France*, 237.

⁷ *Reg. of the Abbey of Sées*, fol. 103b, 109b.

⁸ *Testa de Nevill* (Record Com.), 402; *Record Soc. Lanc. and Ches.* vol. 48, p. 12.

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the river called Ribble (Ripa).¹ Blackburn hundred was probably resigned by Albert Grelley and Roger de Busli soon after the accession of William Rufus, Grelley receiving Manchester and an extensive addition thereto, whilst Robert de Lacy received Blackburnshire, and Roger de Busli possibly some of Roger of Poitou's Craven manors. When Roger in 1094 gave to the abbey of St. Martin of Sées tithes of practically the whole of his demesne lands in Lancashire, he only gave in the hundred of Salford tithes of his demesne in Salford,² so that apparently he did not then hold a very large demesne in that hundred.

There is some probability that the lordship of Rochdale, which Gamel, the thegn, held before the conquest, as he also did a portion of it in 1086, descended during the twelfth century, as a single estate in the heirs of Gamel, one moiety remaining in the family of Elland, the supposed descendants of Gamel, until *circa* 1350, the other passing to the Hipperholme family by marriage shortly before the end of the twelfth century.³

The hundred of Blackburn passed in its entirety, as already stated, to Robert de Lacy, lord of Pontefract. In or before 1102 he obtained a grant from Henry I. of the villis of Chipping, Aighton, and Dutton, which had been surveyed in Domesday under Amounderness, and before the date of this grant had formed part of the fief of Warin Bussel of Preston.⁴ The king also confirmed to Robert his possession of Bowland, a wide territory lying between Craven on the east, and Lonsdale, Amounderness, and Chipping on the west and south, which he had held of Roger, count of Poitou, to hold it thenceforth of the king.⁵ The same year Robert made a considerable feoffment of lands parcel of his hundred of Blackburn, to one of his knights, to hold for half the fee of one knight.

Roger of Poitou held no demesne in Leyland hundred in 1086, but in 1094 it would appear from his grants to the abbey of Sées that he held Croston and one moiety of Eccleston.⁶ A moiety of Eccleston (1 carucate) was held in the thirteenth century by the family of Walton, lords of Ulneswalton, of Roger Gernet, the master forester, by the yearly service of 4s., the other moiety being in demesne,⁷ so that it would appear that in the year 1094 the Gernets had not yet been enfeoffed of the forest fee of which Eccleston was afterwards a member. Between 1088 and 1102 Count Roger gave the vill of Howick to Evesham abbey.⁸ 'Girardus' held a fee of a hide and a half, which must have included the greater part of the pre-conquest demesne of the hundred, probably including Penwortham castle and town. 'Girardus homo Rogerii' held a small estate in Legbourne, co. Lincoln, under Roger, in Domesday, which was afterwards held by the priory of Marsey,⁹ but although the founder of Marsey Priory possessed a considerable estate in this hundred, we have failed to find any connexion between the de Marsey family and the 'Girardus' of Domesday.

¹ Round, *Cal. of Docts. France*, 236.

² *Reg. of the Abbey of Sées*, fol. 109.

³ 'Gamel' was the pre-conquest tenant of Elland and South Owram in the adjoining wapentake of Morley, co. York (*Dom. Bk.* i. 318a, col. 2), his successor under Henry de Lacy in the time of Stephen and Henry II. being Hugh de Elland, grandfather of Hugh, who with his kinsmen held the greater part of the lordship of Rochdale under Roger de Lacy, constable of Chester, in the time of King John:—*Kirkstall Coucher* (Thoresby Soc.), 193-202; *Testa de Nevill*, 403b.

⁴ Duchy of Lanc. Misc. Portf. i. no. 36.

⁵ Farrer, *Lancs. Pipe Rolls*, 382.

⁶ *Reg. of Lanc. Priory* (Chetham Soc. N. S. vol. 26), p. 9.

⁷ *Lancs. Inquests* (Record Soc. Lancs. and Ches.), vol. 48, p. 188.

⁸ *Chartul. of Evesham* (Chetham Soc. O.S. vol. xxx.), 1.

⁹ *Testa de Nevill* (Record Com.), 331

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Passing to the north of the Ribble, no fee, with the possible exception of Hornby, was of more ancient creation than Henry I.'s time. The incidental mention in charters of the period 1093-1102 of the fee of Warin Bussel of Preston, and of the lands of Roger de Montbegon beyond the river Ribble, constitutes the entire evidence to prove that portions perhaps of the fees of Penwortham and Hornby had been granted respectively to these knights by Roger of Poitou during the reign of the Conqueror or his successor.

In conclusion it may be suggested with some confidence that the survival at the dawn of Lancashire history in the reigns of Richard I. and John of thegnage and drengage tenure in many manors, points to the presumption that the greater number of manors so held had descended in unbroken possession to their owners from their pre-conquest forefathers,¹ a presumption which is further strengthened by the prevalence in early Lancashire records of Anglo-Saxon and old Norse personal names amongst the holders of land. For eighty years or more after the making of the great survey the manorial history of these regions remains concealed by impenetrable darkness. With the commencement of the sheriffs' accounts (Pipe Rolls) and monastic chartularies, an intermittent and irregular light begins to be shed, which gradually gains power until, with the taking of the great inquest of service in 1212, the names of the manorial lords of this county with a description of their manors, tenures, and services, stand revealed in the full light of history.

¹ Although there is evidence to show that these lands were sometimes granted out by John, count of Mortain, to tenants to hold by these tenures (*Cal. of Charter R.*, Record Com., 26-7), it is not certain that the grants were always made to *new* tenants.

[THE HOLDERS OF LANDS]

CESTRESCIRE

f. 26a b., col. 2.

Roger of Poitou held the land between Ripe [Ribble] and Mersha [Mersey]. Now the king holds (it).

f. 26b.

BETWEEN RIPA [RIBBLE] AND MERSHA [MERSEY]

Roger of Poitou held the under-written land between Ribble and Mersey.

IN DERBEI [WEST DERBY] HUNDRED

There King Edward had one manor called DERBEI [West Derby], with 6 berewicks. There (are) 4 hides. There is land for 15 ploughs. (There is) forest 2 leagues long and 1 (league) broad and a hawk's eyry.

Uctred held 6 manors, RABIL [Roby], CHENULVESLEI [Knowsley], CHERCHEBI [Kirkby],

CROSEBI [Little Crosby], MAGELE [Maghull], ACHETUN [Aughton]. There (are) 2 hides.¹ Wood(land) 2 leagues long and broad and 2 eyries of hawks.

Dot held HITUNE [Huyton] and TORBOC [Tarbock]. There (is) 1 hide quit from every due (*consuetudo*) except (*praeter*) geld. There is land for 4 ploughs. It was worth 20 shillings.

Bernulf held STOCHESTEDE [Toxteth]. There (is) 1 virgate of land and half a carucate of land. It rendered 4 shillings.

Stainulf held STOCHESTEDE [Toxteth]. There (is) 1 virgate of land and half a carucate of land. It was worth 4 shillings.

¹ These 2 hides were thus distributed:—Roby 2 carucates, Knowsley 4, Kirkby 2, Little Crosby 3, Maghull $\frac{1}{2}$, and Aughton $\frac{1}{2}$. Total 12 carucates = 2 hides. 'Achetun' here represents the township of Bickerstaffe, lying next Aughton on the east.

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Five thegns held **SEXTONE** [Sefton].¹ There (is) 1 hide. It was worth 16 shillings.

Uctred held **CHIRCHEDELE** [Kirkdale]. There (is) half a hide quit from every due (*consuetudo*) except geld. It was worth 10 shillings.

Winstan held **WALETONE** [Walton-on-the-Hill].² There (are) 2 carucates of land and 3 bovates. It was worth 8 shillings.

Elmaer held **LIDERLANT** [Down Litherland]. There (is) half a hide. It was worth 8 shillings.

Three thegns held **HINNE** [Ince Blundell] as 3 manors. There (is) half a hide. It was worth 8 shillings.

Ascha held **TORNTUN** [Thornton]. There (is) half a hide. It was worth 8 shillings.

Three thegns held **MELE** [Ravensmeols] as 3 manors. There (is) half a hide.³ It was worth 8 shillings.

Uctred held **ULVENTUNE** [Little Woolton]. There (are) 2 carucates of land and half a league of wood. It was worth 64 pence.

Edelmund held **ESMEDUNE** [Smithdown].⁴ There (is) 1 carucate of land. It was worth 32 pence.

Three thegns held **ALRETUNE** [Allerton] as 3 manors. There (is) half a hide. It was worth 8 shillings.

Uctred held **SPEC** [Speke]. There (are) 2 carucates of land. It was worth 64 pence.

Four radmans held **CILDEWELLE** [Childwall] as 4 manors. There (is) half a hide. It was worth 8 shillings. There was a priest there having half a carucate of land in alms.⁵

Ulbert held **WIBALDESLEI**⁶ [part of Much Woolton]. There (are) 2 carucates of land. It was worth 64 pence.

Two thegns held **UVETONE** [part of Much Woolton] as 2 manors. There (is) 1 carucate of land. It was worth 30 pence.⁷

¹ The 5 manors in Sefton embraced the township of Sefton with the hamlets of Lunt and Netherton.

² There was also one of the 6 berewicks of the manor of West Derby, also embracing Aintree, the modern township of Fazakerley, and the hamlet of Newsham. The church of Walton had also some glebe land here, perhaps 5 bovates. The whole land of Walton was probably one hide.

³ Interlined.

⁴ Now involved in Toxteth Park.

⁵ As in the case of Bootle, the half carucate would be in addition to, not included in, the half hide.

⁶ This name is entirely lost. It does not occur elsewhere. The 12-13th century rating of Much Woolton (3 carucates) shows that the place is involved in that township.

⁷ Perhaps a clerical error for 32 pence.

Leving held **WAVRETREU** [Wavertree]. There (are) 2 carucates of land. It was worth 64 pence.

Four thegns held **BOLTELAI** [Bootle] as 4 manors. There (are) 2 carucates of land. It was worth 64 pence. A priest had 1 carucate of land (here belonging) to the church of Walestone [Walton-on-the-Hill].⁸

Uctred held **ACHETUN** [Aughton]. There (is) 1 carucate of land. It was worth 32 pence.

Three thegns held **FORNEBEI** [Formby] as 3 manors. There (are) 4 carucates of land. It was worth 10 shillings.

Three thegns held **EINULVESDEL** [Ainsdale]. There (are) 2 carucates of land. It was worth 64 pence.

Steinulf held **HOILAND** [Upholland]. There (are) 2 carucates of land. It was worth 64 pence.

Uctred held **DALTONE** [Dalton]. There (is) 1 carucate of land. It was worth 32 pence.

The same Uctred (held) **SHELMEERSEDELE** [Skelmersdale]. There (is) 1 carucate of land. It was worth 32 pence.

The same Uctred held **LITERLAND** [Uplitherland].⁹ There (is) 1 carucate of land. It was worth 32 pence.

Wibert held **ERENGERMELES** [Argarmeols].¹⁰ There (are) 2 carucates of land. It was worth 8 shillings. This land was quit except of geld.¹¹

Five thegns held **OTGRIMELE** [North Meols]. There (is) half a hide. It was worth 10 shillings.

Uctred held **LATUNE** [Lathom] with 1 berewick. There (is) half a hide. Wood(land) 1 league long and half (a league) broad. It was worth 10 shillings and 8 pence.

Uctred held **HIRELTUN** [Hurleston]¹² and half **MERRETUN**¹³ [Marton Hall]. There (is) half a hide. It was worth 10 shillings and 8 pence.

Godeve held **MELINGE** [Melling]. There (are) 2 carucates of land. Wood(land) 1 league long and half a league broad. It was worth 10 shillings.

⁸ Later records prove that Bootle and Linacre, representing these four manors, consisted of 3 carucates of land. The church land was, therefore, not included in the 2 carucates.

⁹ Now involved in Aughton.

¹⁰ A township partly lost in the sea and partly involved in Birkdale.

¹¹ This note applies to this and the remaining manors of the hundred. See the Introduction.

¹² Comprising the joint townships of Scarisbrick and Hurleston, the latter now involved in Scarisbrick.

¹³ Now involved in the township of Burscough.

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Uctred held LEIATE [Lydiate]. There (are) 6 bovates of land. Wood(land) 1 league long and 2 furlongs broad. It was worth 64 pence.

Two thegns held 6 bovates of land as 2 manors in HOLLAND [Downholland]. It was worth 2 shillings.

Uctred held ACRES [Altcar]. There (is) half a carucate of land. It was waste.

Teos held BARTUNE [Barton]. There (is) 1 carucate of land. It was worth 32 pence.

Chetel held HELESHALE [Halsall]. There (are) 2 carucates of land. It was worth 8 shillings.

All this land used to pay geld (*geldabat*), and 15 manors¹ used to render nothing to King Edward save geld.

This manor of DERBEI [West Derby] with these aforesaid hides used to render to King Edward 26 pounds and 2 shillings of farm (*de firma*). Of these 3 hides were free, the rent (*censum*) of which he pardoned to the thegns who held them. These used to render 4 pounds and 14 shillings and 8 pence.

All these thegns had by custom to render 2 ores of pence for each carucate of land, and by custom used to make the king's houses and (the things) which appertained thereto (*ibi pertinebant*) as the villeins (did), and the fisheries (*piscarias*) and the enclosures (*batias*) in the wood, and the deer hays (*stabilituras*); and (he) who went not to these (tasks) when he ought paid a fine of (*emendabat*) 2 shillings and afterwards came to the work and laboured until it was completed.

Each one of them sent his reapers one day in August to cut the king's crops. If not he paid a fine of 2 shillings.

If any free man committed theft, or 'forsteal' (*forestel*), or 'hámfare' (*beinfara*), or broke the king's peace, he paid a fine of 40 shillings.

If any committed bloodshed (*faciebat sanguinem*), or rape (*raptum de femina*), or if he (*qui*) remained away from the 'shiremote' (*siremot*) without reasonable excuse, he paid a fine of 10 shillings. If he remained away from the hundred (court) or went not to a plea when the reeve (*prepositus*) ordered, he paid a fine of 5 shillings.

If (the reeve) ordered anyone (*cui*) to go upon his service and he went not, he paid a fine of 4 shillings.

If anyone wished to withdraw from the king's land, he gave 40 shillings and went whither he wished.

If anyone wished to have the land of his deceased father, he paid a relief (*relevabat*) of 40 shillings; (he) who would not, the king had

¹ Those enumerated in the ten preceding paragraphs, commencing with Erengermeles.

both the land and all the goods (*pecuniam*) of the deceased father.

Uctred held CROSEBI [Little Crosby] and CHIRCHEDALE [Kirkdale] as one hide, and it was quit from every due except these 6: breach of the peace (*pace infracta*), forsteal, 'hámfare,' and a fray (*pugna*) which continued after oath made (to desist), and if (when) bound by the reeve's judgment (*constrictus justicia prepositi*) he did (not) pay anyone a debt, and if he did not observe the term given by the reeve; (for) these (offences) he paid a fine of 40 shillings. But he paid the king's geld (*geldum*) like (*sicut*) the men of the country.

In OTRINGEMELE [North Meols], and HERLESHALA [Halsall], and HIRETUN [Hurlerton] there were 3 hides quit from the geld (*geldum*) of carucates of land and from the forfeiture of bloodshed (*sanguinis*) and ravishment (*violentia*) of a woman. But they rendered all other dues.

These men now hold land of this manor of DERBEI [West Derby] by the gift of Roger the Poitevin:—Geoffrey² 2 hides and half a carucate of land, Roger³ 1½ hide, William⁴ 1½ hide, Warin⁵ half a hide, Geoffrey⁶ 1 hide, Tethald 1½ hide, Robert 2 carucates of land, Gilbert 1 carucate of land.⁷

These have in demesne 4 ploughs and 46 villeins, and 1 radman and 62 bordars, and 2 serfs and 3 bondwomen. Between (*inter*) (them) all they have 24 ploughs.

Their wood(land is) 3½ leagues long and 1½ league and 40 perches broad,⁸ and there (are) 3 eyries of hawks.

² Perhaps Roger of Poitou's sheriff, and predecessor of Godfrey who was sheriff in 1094. The fee might consist of 1 hide in Walton, 4 car. in Garston, 2 car. elsewhere, and ½ car. belonging to the church of Walton.

³ Possibly 1 hide in Sefton, 2 car. in Toxteth, and 1 car. in Thornton. He was probably Roger de Mountbegon. (See the Introduction.)

⁴ William Fitz Nigel, lord of Halton, co. Chester. This fee consisted of the greater part of Ughtred's manors in Roby, Knowsley, Kirkby, etc., and subsequently formed part of the 'fee of the constable of Chester' within the co. of Lancaster, also known as the fee of Widnes.

⁵ Possibly Warin Bussel, and the fee the manor of Kirkdale, which was afterwards a member of the Bussels' barony of Penwortham.

⁶ 'Goisfridus homo Rogeri' occurs in the survey of Roger of Poitou's Lincolnshire fees as tenant of Osgodby. *Dom. Bk.* i. f. 352.

⁷ Robert and Gilbert were possibly officers of Roger's household.

⁸ These particulars confirm the suggested identities of the fees created by Roger before 1086. The bulk of the woodland in the chief manor of West Derby and in Ughtred's manors lay between Walton on the west and the boundary of this hundred on the east, and between Lathom on the north and Huyton on the south.

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In each hide there are 6 carucates of land. The whole is worth 8 pounds and 12 shillings. And the demesne of this manor which Roger held is worth 8 pounds. There are now in demesne there 3 ploughs and 6 oxherds and 1 radman and 7 villeins.

IN NEWTON HUNDRED

In NEWTON [Newton in Makerfield] there were 5 hides, T.R.E. Of these 1 was in demesne. The church¹ of that manor had 1 carucate of land, and St. Oswald of that vill (Winwick) had 2 carucates of land quit in all (things) (*per omnia*).

The other land of this manor 15 men who were called drengs (*drengbi*)² held as 15 manors, but they were berewicks of this manor, and between (them) all they rendered 30 shillings. The wood(land) there (is) 10 leagues long and 6 leagues and 2 furlongs broad, and there (are) eyries of hawks.

The freemen of this hundred, except 2, were subject to the same customs (*erant in eadem consuetudine*) as the men of DERBERIE [West Derby], and in addition (*plus*) to those they

¹ It is uncertain whether the church of Wigan or the church of Walton-on-the-Hill is here referred to. This hundred, as the name suggests, was probably carved out of the hundred of West Derby, in which the parish of Walton-on-the-Hill was the most important, and contained most of the demesne manors. The great inquest of service made in A.D. 1212 records that 'Robert de Walton holds the third part' of the church of Winwick, two-thirds being held by Richard, the parson of Winwick. The parson of Walton-on-the-Hill at that date was named Robert de Walton, so that there appears to have been some ancient connexion between Winwick (the parish in which Newton lies) and Walton-on-the-Hill. The fact that Newton is not in the parish of Wigan militates against the identity of that church as 'the church of that manor' (Newton). On the other hand, the ecclesiastical manor of Wigan has always been taken as rated at one carucate of land.

² In the hundreds of West Derby and Salford the tenants of manors are described as thegns, in the hundreds of Newton and Warrington as drengs, and in the hundreds of Blackburn and Leyland as freemen. This apparently puzzling classification was merely due to the variable names by which the tenants of manors were locally known, or to the variable terms employed by the clerks who made the returns from the different manors. That there was no real difference between those described by these three names is well illustrated by the return for Newton hundred. 'Fifteen men whom they call drengs hold the other land of this manor as 15 manors, but they were berewicks of this manor' (of Newton). 'The freemen of the hundred of Newton, except two, were in the same custom as the men of [West] Derby.' The matter illustrates the Mercian conquest of this ancient portion of Northumbria in the year 923. Little wonder that a century and a half later official terms belonging to both these kingdoms should be found in ordinary use within this hybrid region.

reaped on two days in August in the king's cornfields (*culturii*). Those two (men) had 5 carucates of land and the forfeiture of bloodshed, and of an outraged woman (*femine violentiam passe*), and the pannage (*pasnagium*) of their own men. The king had the other (forfeitures).

This whole manor used to pay in rent (*de firma*) to the king 10 pounds and 10 shillings.

Now there are there 6 drengs (*drengbi*) and 12 villeins and 4 bordars. Between (them) all they have 9 ploughs. This demesne is worth 4 pounds.

IN WALINTUNE HUNDRED

King Edward held WALINTUNE [Warrington] with 3 berewicks. There (is) 1 hide. To that manor used to belong 34 drengs, and they had as many manors, in which there were 42 carucates of land and 1½ hide. Saint Elfin held 1 carucate of land quit from every due except geld. The whole manor with the hundred used to pay in farm (*de firma*) to the king 15 pounds, less 2 shillings.

Now there are in demesne 2 ploughs and 8 men with 1 plough. These men hold land there. Roger 1 carucate of land, Tetbald 1½ carucate, Warin 1 carucate, Ralph (Radulfus) 5 carucates, William³ 2 hides and 4 carucates of land, Adelard 1 hide and half a carucate,⁴ Osmund 1 carucate of land. This whole (demesne) is worth 4 pounds and 10 shillings. The demesne (of the chief manor) is worth 3 pounds and 10 shillings.

f. 270.

IN BLACHEBURN HUNDRED

King Edward held BLACHEBURN [Blackburn]. There (are) 2 hides and 2 carucates of land. The church had 2 bovates of this land, and the church of St. Mary had 2 carucates of land in WALLEI [Whalley] quit from every due. In the same manor (there is) wood(land) 1 league long, and as much broad, and there was a hawk's eyrie there.

To this manor or hundred belonged 28 freemen holding 5½ hides and 40 carucates of land as 28 manors. The wood there (is) 6 leagues long and 4 leagues broad, and they were subject to (*erant in*) the aforesaid customs.

In the same hundred King Edward had HUNNICOT [Huncoat] of 2 carucates of land, and WALETUNE [Walton-le-Dale] of 2 carucates of land, and PENILTUNE [Great Pendleton] of half a hide.

The whole manor with the hundred used to pay in farm (*de firma*) to the king 32 pounds

³ William Fitz Nigel, baron of Halton, co. Chester. See above, note 4, p. 285.

⁴ This appears to be Whiston 2 car. with ½ car. belonging to the church of Prescott, and 4 car. in Parr and elsewhere, perhaps in Windle.

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and 2 shillings. Roger of Poitou gave the whole of this land to Roger de Busli and Albert Greslet, and there are so many (*tot*) men there who have $11\frac{1}{2}$ ploughs, whom those (two) have granted to be quit (from rent) for 3 years, and therefore it is not now valued (*appreciatur*).

IN SALFORD HUNDRED

King Edward held SALFORD [Salford]. There (are) 3 hides and 12 carucates of waste land and forest 3 leagues long and as much in width and there (are) many enclosures (*baie*) and a hawk's eyry.

King Edward held RADECLIVE [Radcliffe] as 1 manor. There (is) 1 hide and another hide belonging to Salford.

The church of St. Mary and the church of St. Michael¹ held in MAMECESTRE [Manchester] 1 carucate of land quit from every due except geld.

To this manor or hundred belonged 21 berewicks which as many thegns held for as many manors, in which there were $11\frac{1}{2}$ hides and $10\frac{1}{2}$ carucates of land.

(There are) wood(lands) there $9\frac{1}{2}$ leagues long and 5 leagues and 1 furlong broad.

One of those (men), Gamel, holding 2 hides in RECEDHAM [Rochdale] was (*habebat*) quit of his customs except these six, theft, 'hámfare,' forestal, breach of the king's peace, neglect of a term set by the reeve, continuance of a fray after oath made (to desist). (For) these he made amends (by) 40 shillings.

Several (*aliquæ*) of these lands were quit from every due except geld and some few (*aliquantæ*) are quit from geld.

The whole manor of Salford with the hundred used to render 37 pounds and 4 shillings.

Now there are in demesne in the manor 2 ploughs and 8 serfs and 2 villeins with 1 plough. This demesne is worth 100 shillings.

Of this land of this manor (these) knights hold by the gift of Roger of Poitou, Nigel 3 hides and half a carucate of land,² Warin³ 2 carucates of land, and another Warin $1\frac{1}{2}$ carucate, Geoffrey 1 carucate of land, Gamel⁴ 2 carucates of land. In these (lands) there are 3 thegns and 30 villeins and 9 bordars and a priest and 10 serfs. Between (them) all they have 22 ploughs. (This demesne) is worth 7 pounds.

¹ These are the respective invocations of the churches of Manchester and Ashton-under-Lyne.

² This fee comprised the manor of Manchester with half a carucate belonging to the parish church of St. Mary.

³ This was probably Warin Bussel and the 2 car. the manor of Ashton-under-Lyne, which was afterwards a member of the barony of Penwortham. The church of St. Michael was not included in this fee.

⁴ Supposed to be Gamel the thegn of Rochdale holding a greatly diminished fee there under Roger of Poitou in 1086.

IN LAILAND HUNDRED

King Edward held LAILAND [Leyland]. There (are) 1 hide and 2 carucates of land. Wood(land) 2 leagues long and 1 (league) broad and an eyry of hawks.

To this manor belonged 12 carucates⁴ of land (*rectius*, 12 berewicks) which 12 freemen held for as many manors. In these (are) 6 hides and 8 carucates of land. (There is) wood(land) there 6 leagues long and 3 leagues and 1 furlong broad.

The men of this manor and of Salford used not to work by custom at the king's hall nor to reap in August; they only made one enclosure (*baia*) in the wood and had the forfeiture of bloodshed and of an outraged woman. In the other customs they went with (*erant consortes*) the other above(mentioned) manors.

The whole manor of Lailand with the hundred used to pay in farm (*firma*) to the king 19 pounds and 18 shillings and 2 pence.

Of this land of this manor Gerard⁶ holds $1\frac{1}{2}$ hide, Robert 3 carucates of land, Ralph 2 carucates of land, Roger 2 carucates of land, Walter 1 carucate of land. There are there 4 radmans, a priest, and 14 villeins and 6 bordars and 2 oxherds. Between (them) all they have 8 ploughs. (There is) wood(land) 3 leagues long and 2 leagues in width and there (are) 4 eyries of hawks. The whole is worth 50 shillings. In part it is waste (*ex parte est wasta*).

King Edward held PENEURDANT [Penwortham]. There (are) 2 carucates of land and they used to render 10 pence.

Now there is a castle there, and there are 2 ploughs in the demesne and 6 burgesses and 3 radmans and 8 villeins and 4 oxherds. Between (them) all they have 4 ploughs. There (is) half a fishery, wood(land), and eyries of hawks as in the time of King Edward. It is worth 3 pounds.

In these 6 hundreds, Derby, Neutone, Walintune, Blacheburne, Salford, and Lailand, there are 188 manors, in which there are 80 geldable hides less one.

In the time of King Edward it was worth 145 pounds and 2 shillings and 2 pence. When Roger of Poitou received (it) from the king it was worth 120 pounds. Now the king holds (it) and has in demesne 12 ploughs and 9 knights holding a fee. Between them and their men there are 115 ploughs and 3 oxen. The demesne which Roger held is valued (at) 23 pounds and 10 shillings.⁷ (That) which he gave to knights is valued at 20 pounds and 11 shillings.

⁵ *Car.* interlined.

⁶ Girardus homo Rogeri⁷ held Legbourne, county Lincoln, under Roger of Poitou, *Doms. Bk.* i. f. 252 b.

⁷ This total agrees with the figures given in the survey, but the total value of the demesne held by the knights, without including anything for Blackburn hundred, was 22*l.* 1*s.* and not 20*l.* 11*s.* as stated.

A HISTORY OF LANCASHIRE

EURVICSCIRE

THE KING'S LAND IN EURVICSCIRE [YORKSHIRE], WEST REDING

f. 901 b.

M.¹ In MELLINGE [Melling] and HORNEBI [Hornby] and WENNINGETUN [Wennington] Ulf (had) 9 carucates to geld.

B.¹ In the same place (*ibidem*) Orme had 1 carucate and half (a carucate) to geld.

M. In TORRETUN [Thornton-in-Lonsdale, co. York] and in BORCH [Over (?) Burrow] Orm (had) 6 carucates to geld.²

col. a.

AGEMUNDRENESE [AMOUNDER- NESS]

In PRESTUNE [Preston] Earl Tostig (had) 6 carucates to geld. Thereto these lands belong:—
Estun [Ashton-on-Ribble], 2 carucates; Lea [Lea], 1 carucate; Salewic [Salwick], 1 carucate; Clistun [Clifton], 2 carucates; Neutune [Newton (with Scales)], 2 carucates; Frechelun [Freckleton], 4 carucates; Rigbi [Ribby (with Wrea)], 6 carucates; Chicheham [Kirkham], 4 carucates; Treules [Treales (with Wharles and Roseacre)], 2 carucates; Westbi [Westby], 2 carucates; Pluntun [(Field) Plumpton], 2 carucates; Widetun [Weeton], 3 carucates; Pres [Preese], 2 carucates; Wartun [Warton], 4 carucates; Lidun [Lytham], 2 carucates; Meretun [(Great and Little) Marton], 6 carucates; Latun [Layton (with Wardbreck)], 6 carucates; Staininghe [Staining (now Hardhorn, with Newton)], 6 carucates; Carluntun [Carleton], 4 carucates; Biscopham [Bispham (with Norbreck)], 8 carucates; Rushale [Rossall], 2 carucates; Brune [Bourn Hall], 2 carucates; Torentun [Thornton], 6 carucates; Poltun [Poulton-le-Fylde], 2 carucates; Singletun [Great and Little Singleton], 6 carucates; Greneholf [Greenhalgh (with Thistleton)], 3 carucates; Eglestun [Great Eccleston], 4 carucates; another Eglestun [Little Eccleston], 2 carucates; Edeleswic [Elswick], 3 carucates; Inscip [Inskip], 2 carucates; Sorbi [Sowerby], 1 carucate; Aschebi [a lost vill involved in Myerscough], 1 carucate; Michelescherche [St. Michael-on-Wyre], 1 carucate; Catrehala [Catterall], 2 carucates; Clactune [Cloughton], 2 carucates; Neuhuse [Newsham], 1 carucate; Pluntun [Woodplumpton], 5 carucates; Broctun [Broughton], 1 carucate; Witingheham [Whittingham], 2 carucates; Bartun [Barton], 4 carucates; Gusansarghe [Goosnargh], 1 carucate; Halctun [Haighton], 1 carucate; Trele-

¹ In this county manors and berewicks are indicated in the survey by the letters M. and B., with a numeral when the entry refers to more than one manor.

² Then follow details of the manor of Bolton in Wharfedale (six lines at the head of col. 2).

felt [Threlfall, in Goosnargh], 1 carucate; Watelei [Wheatley (with Thornley)], 1 carucate; Chipinden [Chipping and Chippingdale], 3 carucates; Actun [Aighton], 1 carucate;³ Fiscuic [Fishwick], 1 carucate; Grimesarge [Grimsargh (with Brockholes)], 2 carucates; Ribelcastre [Ribchester], 2 carucates⁴; Bilewride [Dilworth], 2 carucates; Suenesat [Swainseat, in Nether Wyresdale], 1 carucate; Fortune [Forton], 1 carucate; Crimeles [Crimbles], 1 carucate; Cherestanc [Garstang], 6 carucates⁵; Rodeclif [Upper Rawcliffe (with Tarnicar), 2 carucates; another Rodeclif [Middle Rawcliffe], 2 carucates; a third Rodeclif [Out Rawcliffe], 3 carucates; Hameltune [Hambleton], 2 carucates; Stalmine [Stalmine (with Stainall)], 4 carucates; Pressouede [Preesall (with Hackinsall)], 6 carucates; Midehope [Mythop, a hamlet of Weeton], 1 carucate.

All these vills belong (*iacent*) to Prestune, and (there are) three churches.⁶ Of these (vills) sixteen are inhabited by a few people, but it is not known how many the inhabitants are. The rest are waste. Roger of Poitou had (this).

M. In HALTUN [Halton] Earl Tostig had 6 carucates of land to geld. In Aldelcif [Aldcliffe], 2 carucates; Tiernun [Thurnham], 2 carucates; Hillun [Hillham, in Cockerham], 1 carucate; Loncastre [Lancaster], 6 carucates; Chercaloncastre [Kirk Lancaster],⁷ 2 carucates; Hoton [Hutton, in Bulk], 2 carucates; Neutun [Newton, now in Bulk], 2 carucates; Overtun [Overton], 4 carucates; Middeltun [Middleton], 4 carucates; Hietune [Heaton], 4 carucates; Hessam [Heysham], 4 carucates; Oxeneclif [Oxcliffe], 2 carucates; Poltune [Poulton-le-Sands], 2 carucates; Toreldholme [Torrisholme], 2 carucates; Schertune [Skerton], 6 carucates; Bare [Bare], 2 carucates; Sline [Slyne (with Hest)], 6 carucates; Bodeltone [Bolton-le-Sands], 4 carucates; Chellet [Nether Kellet and Over Kellet], 6 carucates; Stoppel-tierne [Stapleton Terne], 2 carucates; Neuhuse [Beaumont, in Skerton?] 2 carucates; Chreneforde [Carnforth], 2 carucates. All these vills belong to Haltune [Halton].

M. In WITETUNE [Whittington] Earl Tostig had 6 carucates of land to geld. In Neutune [Newton, in Whittington], 2 carucates; Ergune [Arkholme], 6 carucates; Ghersinctune [Gresingham], 2 carucates; Hotun [Hutton Roof], 3 carucates; Cantesfelt [Cantsfield], 4 caru-

³ Including Bailey and Chagley.

⁴ Probably including Dutton.

⁵ Including Winmarleigh, Cabus, Cleveley, Nateby, and Kirkland.

⁶ Kirkham, Poulton-le-Fylde, and St. Michael's on Wyre.

⁷ An ecclesiastical manor embracing part of the town, like the manor of Kirkland in Kirky Kendall.

THE HOLDERS OF LANDS

catcs; Irebi [Ireby], 3 carucates; Borch [Nether (?) Burrow], 3 carucates; Lech [Leck], 3 carucates; Borcune [Burton-in-Lonsdale, co. York], 4 carucates; Bernulfeswic [Barlawick, a hamlet of Burton, co. York], 1 carucate; Inglestune [Ingleton, co. York], 6 carucates; Castretune [Casterton, co. Westmorland], 3 carucates; Berebrune [Barbon, co. Westmorland], 3 carucates; Sedberge [Sedbergh, co. York], 3 carucates; Tiernebi [Thirny, in Whittington], 2 carucates. All these vills belong to Witetune [Whittington].

12 M. In OUSTEWIC [Austwick, co. York] and Heldetune [Halgton¹ (?) co. York], Clapeham [Clapham, co. York], Middeltun [Middleton-in-Lonsdale, co. Westml.], Manzserge [Mansergh, co. Westml.], Cherchebi [Kirkby-Lonsdale, Westml.], Lupetun [Lupton, Westml.], Prestun [Preston-Patrick, Westml.], Holme [Holm, Westml.], Bortun [Burton, Westml.], Hotune [Priest Hutton], Wartun [Warton], Clactun [Claughton], Catun [Caton]. These Torfin had as twelve manors. In these there are 43 carucates to geld.

4 M. In BENETAİN [Bentham, Yorks.], Wininctune [Wennington], Tathaim [Tatham], Farelton [Farleton], Tunestalle [Tunstall], Chetel had 4 manors and in them are 18 carucates to geld and 3 churches.²

M. In HOUGUN [Millom,³ co. Cumberland] Earl Tostig had 4 carucates of land to geld. In Chilvestreuc [Killerwick, in Monsell, par. Kirkby Ireleth], 2 carucates; Sourebi [Sowerby Hall], 3 carucates; Hietun [Heaton, in Dalton], 4 carucates; Daltune [Dalton in Furness], 2 carucates; Warte [Wart, in Dalton], 2 carucates; Neutun [Higher and Nether Newton, in Cartmel], 6 carucates; Walletun [Walton Hall, in Cartmel], 6 carucates; Suntun [in Hawcoat], 2 carucates; Fordebodele [Fordbootle, in Yarlside], 2 carucates; Rosse [Roose, a hamlet in Yarlside] 6 carucates; Hert [Hart Carrs, in Leece], 2 carucates; Lies [Leece], 6 carucates; another Lies [Leece], 2 carucates; Glassertun [Gleaston], 2 carucates; Steintun [Stainton],

2 carucates; Clivertun [Crivelton, in Newton, in Yarlside], 4 carucates; Ouregrave [Orgrave], 3 carucates; Meretun [Martin], 4 carucates; Pennegetun [Pennington] 2 carucates; Gerleworde [Kirkby Ireleth] 2 carucates; Borch [Broughton in Furness], 6 carucates; Berretseige [Bardsea], 4 carucates; Witingham [Whicham, Cumb.], 4 carucates; Bodele [Bootle], 4 carucates; Santacherche [Kirkstanton, Cumb.], 1 carucate; Hougenai [Whitbeck or part of Millom (?), Cumb.], 6 carucates. All these vills belong to Hougun [Millom, Cumb.].

f. 302.

9 M. In STERCALAND [Strickland Ketel and Strickland Roger, Westml.], Mimet [Mint House, or Mint Feet, near Kirkby Kendal, Westml.], Cherchebi [Kirkby Kendal, Westml.], Helsingetune [Helsington, Westml.], Steintun [Stainton, Westml.], Bodelforde [a lost hamlet of Helsington, Westml.], Hotun [Old Hutton, Westml.], Bortun [Burton in Kendal, Westml.], Daltun [Dalton], Patun [Patton, Westml.]. Gilemichel had these (vills). In these there are 20 carucates of land to geld.

M. In CHERCHEBI [Cartmel] Duuan (had) 6 carucates to geld.

M. In ULVRESTON [Ulverston] Turulf (had) 6 carucates of land to geld.

In BODELTUN [Bolton with Adgarley], 6 carucates. In Dene [Dendron], 1 carucate.

and 9 carucates respectively, and the correctness of the identity of the respective vills belonging to Millom, Furness, and Cartmel, and the fact of the reduction of rating, may be proved by the great inquest of service of A.D. 1212, which assigns 20½ carucates (half Furness) to the heir of William, son of Michael de Furness, and a like extent (making in all 41 carucates) to the abbot of Furness. To William Marshall, to whom King John had given Cartmel, are assigned 9 carucates of land.—*Testa de Nevill* (Rec. Com.), 406b, 407. (2) The *quo warranto* rolls afford conclusive evidence of the antiquity even in 1292 of the jurisdiction and prerogative of Millom as a manorial lordship. By the verdict of a jury the lords of Millom were declared to have exercised from time out of mind free chase between the waters of Esk and Duddon, half the chattels of felons convicted in the court of Millom, gallows at Millom, and amends of the assize of ale broken, and infangenethief in Millom, Seaton (Hall), Bootle, Kirksanton, 'Bretteby', and Silecroft (p. 123b). The erection of Dalton-in-Furness and Gleaston into centres of feudal administration belongs to a period much later than Domesday. Therefore the temporary association of Millom, Furness, and Cartmel under the ownership of Tostig made the existing manor and court of Millom the natural *caput* of these regions for administrative purposes and for the collection of Danegeld and all other issues of land. (3) There is apparently some etymological connexion between Hougun (O. Norse *Haugr*, a mound, a hill) and Millom (O. Norse *Meir*, a sandhill, and *holm*, here meaning a 'meadow on the shore.')

¹ Burton's *Monasticon Ebor.* p. 369.

² Bentham, Tatham, and Tunstall.

³ The identity of Witingham with Whicham, Bodele with Bootle, and Santacherche with Kirksanton, all in Cumberland, needs no remark. That of Hougun with Millom and Hougenai with Whitbeck rests upon the following considerations:—(1) The number of carucates in Hougun, Cherchebi, Ulvrestun, and Bodeltun (comprising Furness, Cartmel, and Millom) amount to 119 carucates, of which the 5 vills assigned to Cumberland contain 19 carucates. The hundred carucates which remain may with certainty be identified and apportioned—to Furness 82 carucates, and to Cartmel 18 carucates. This rating was reduced after Domesday to 41 carucates

A HISTORY OF LANCASHIRE

f. 33a.

EURVICSCIRE [YORKSHIRE]

THE LAND OF ROGER OF POITOU¹

col. ii.

2 M. In LANESDALE [Lonsdale]² and COCREHAM [Cockerham] Ulf and Machel had 2 carucates to geld.

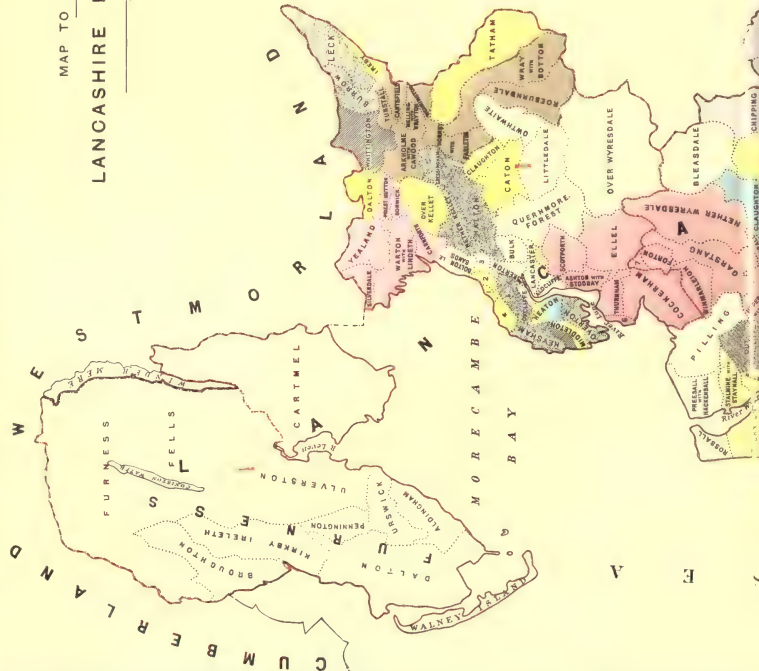
¹ Col. 1 contains the survey of Roger's lands in Craven; Col. 2, the manor of Gretlintone and its members in the district adjoining Craven known as Bowland. Next follow three 'Lancaster' entries.

² Perhaps Bank Houses and Cockersand, between the rivers Lune and Cocker.

3 M. In ESTUN [Ashton, near Lancaster] Cliber, Machern, and Ghilemichel had 6 carucates to geld. In Ellhale [Elle], 2 carucates. In Scozforde [Scotforth], 2 carucates.

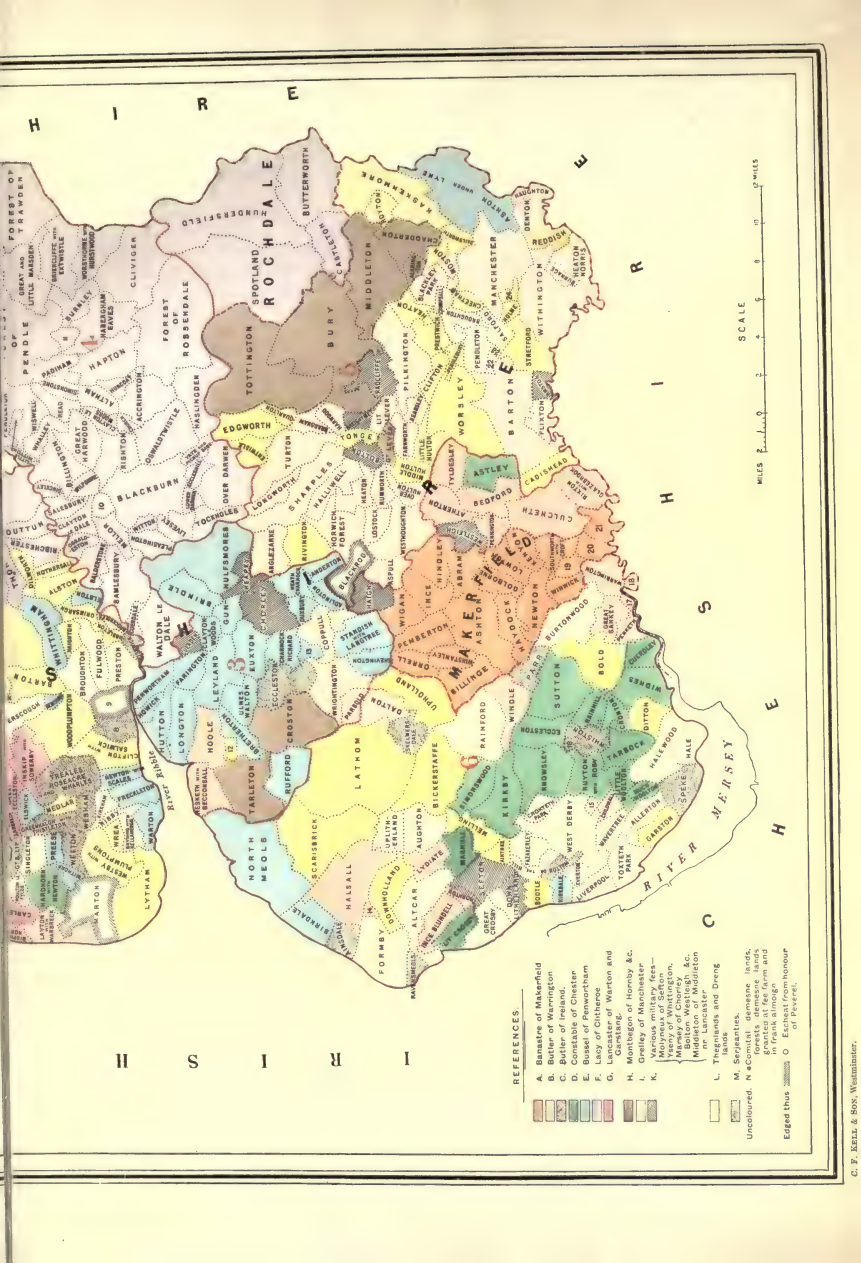
M. In BIEDUN [Beetham, Westml.], Earl Tostig had 6 carucates to geld. Now Roger of Poitou has (it) and Ernuin the priest under him. In Jalant [Yealand], 4 carucates; Fareltun [Farleton, Westml.], 4 carucates; Prestun [Preston Richard, Westml.], 3 carucates; Berewic [Borwick], 2 carucates; Hennecastre [Hincaster, Westml.], 2 carucates; Evreshaim [Heversham, Westml.], 2 carucates; Lefvenes [Levens, Westml.], 2 carucates.

MAP TO ILLUSTRATE THE
LANCASHIRE FEUDAL BARONAGE.



- HUNDREDS**
1. LONSDALE, including FURNESS and CARTMEL
 2. AROUNDNESS
 3. SALFORD
 4. LEYLAND
 5. WEST DERBY
 6. BLACKBURN

- TOWNSHIPS**
1. BARE
 2. HEST
 3. SLIVE
 4. TORRISMOLE
 5. COCKERSAND
 6. HOLLETH
 7. LEA
 8. ASHTON, COTTAM, INGOL
 9. RAMSGREAVE
 10. WILKINSHILL PARK
 11. THORPE
 12. WELCH WHITTLE
 13. BARTON
 14. THINGWALL
 15. PRESCOT
 16. CHALMERS
 17. LITTLE SANKEY
 18. HOUGHTON
 19. MIDDLETON and ARBURY
 20. WOOLSTON WITH MARTINGROFT
 21. SHOREWORTH
 22. CHORLTON UPON MEDLOCK



H I R E

H I S I R I

SCALE
MILES 1 2 3 4 5 6 7 8 9 10

R I B B L E S D A L E
M E R S E Y
I R W E L L
R I V E R
J E R S E Y

REFERENCES

- A. Bishop of Manchester
- B. Butler of Worcester
- C. Butler of Warrington
- D. Constable of Chester
- E. Bissel of Penwortham
- F. Lucy of Clitheroe
- G. Lancaster of Warton and
- H. Montgomerie of Hornby & C.
- I. Orrelly of Manchester
- J. Various military fees—
- K. Various military fees—
- L. Theophanes and Dreng
- M. Sergeants.

- Uncoloured. N. Committal demesne lands, forests, demesne, heath, moor, tithes, and other lands in frank a lordship.
- Edged thus O. Escropt from honour of Peverel.

Edged thus O. Escropt from honour of Peverel.



FEUDAL BARONAGE

THE growth of the present county of Lancaster out of the debatable lands lying on the borders of the ancient kingdoms of Mercia, Northumbria, and Cumbria, has been touched upon under the Introduction to the Domesday of Lancashire, where indications of the formation of the later baronies have been slightly traced; but no account of these baronies would be complete without a few words upon the origin and early history of the honour of Lancaster, which extended, from the time of its creation, into eight counties, besides embracing the whole of what is now Lancashire. The Domesday fief of Roger of Poitou, after undergoing some modification after 1086, and again after 1102, became the main constituent of the honour of Lancaster, also known during the twelfth century as the 'honour of Count Roger of Poitou.' The creation of this honour, by consolidating and establishing the redistribution of north-western England, made between 1086 and 1090, decided the boundaries of this and the adjoining counties, casting once for all into this county Furness and Cartmel,¹ which geographically belong more properly to Westmorland; the parish of Warton, which had belonged to Kendal; Lonsdale and Amounderness (or 'Lancaster,'² as these districts were frequently described), which had been surveyed in Domesday under Yorkshire; and 'the land between Ribble and Mersey,' which, although a distinct region from Cheshire³ in Domesday, had been surveyed as a district attached to that county.

In 1102 the honour of Count Roger fell by forfeiture into the hands of Henry I. The question at once arises, What were then the component parts of that honour? Did it comprise the fief which Roger had held before the survey was made, or had the changes of 1086-1090 carved out the entire fief which was afterwards known as the honour of Lancaster? A charter of Roger to the abbey of Sées, dated 1094, throws some light upon the question. In it Count Roger bestows on the brethren of that house the churches of Heysham and Preston in this county, of Stainsby in Derbyshire, of Cotgrave and Crophill in Nottinghamshire, of Weekley in Northamptonshire, of Kelsey, Wellingore, Navenby, and Boothby in Lincolnshire, and the church of St. Peter in Lincoln.⁴ Four of these manors, Weekley,⁵ Wellingore,

¹ On 17 January, 1258, writs of military summons were issued to the marchers of Cartmel and Kendal in common with those of Northumberland, Cumberland, and Westmorland. Close R. 22 Hen. III. m. 12 d.

² When itinerant justices were assigned in 1176 to visit the counties of England in six circuits, 'Loncastre' was one of those comprised in the sixth circuit. *Rog. Hoveden* (Rolls. Ser.), ii. 88. In 1179, when justices were assigned to hear the complaints of the people, 'Inter Ribbe et Merese' and 'Loncastre' were included in the last of the four circuits. *Ibid.* ii. 191.

³ In the confirmation charter of Henry I. to Pontefract Priory, Whalley, Clitheroe, Colne, and Burnley are described as lying in 'Cestreschira.' *Chartul. of Pontefract*, Yorks. Rec. Soc. xxv. 102.

⁴ Chartul. of St. Martin of Sées, 103b. The church of St. Peter belonged to 'Albert' in Domesday. (*Dom. Bk.* i. 336b). This was probably one of the churches of Albert Greiley, tithes of which were given to St. Martin of Sées. It was given to the priory of Wenghale, in Lincolnshire, a cell of St. Martin of Sées, probably founded before 1086 by Roger of Poitou, who gave to it one carucate of land in Kelsey. *Rot. Hundred.* (Rec. Com.), i. 328, 370.

⁵ *V. G. H. Northants*, i. 307b.

A HISTORY OF LANCASHIRE

Navenby, and Boothby, had belonged to the king at the time of Domesday, the church of Wellingore then belonging to the church of St. Peter in Lincoln.¹ We have therefore good evidence that Roger's Domesday fief had been augmented by additions from the royal demesne between 1086 and 1094.² All the places named in this important charter afterwards belonged to the honour of Lancaster,³ except Weekley in Northamptonshire, and that also appears to have passed to Stephen of Blois, but as a member of the honour of Mortain and not of Lancaster.⁴ As regards this county it cannot be doubted that the whole was in Roger's possession in 1102 and passed in its entirety to Stephen. If doubt exists as to every region of the county having been in Roger's possession, it would be in reference to Furness; but even this uncertainty is set at rest by a charter of John of Mortain which refers to Furness Fells as having been held by Roger of Poitou, and afterwards by Count Stephen.⁵ Four great manors of Leicestershire which were crown lands in Domesday⁶ belonged to the count of Mortain when the Leicestershire survey of 1124-9 was made.⁷ It is impossible to say whether these were given to Roger of Poitou by Rufus or to Stephen of Blois by Henry I.; nor is there any certainty when Thorp Constantine in Staffordshire, Kirkby in Kesteven and some other Lincolnshire manors, Anston in Yorkshire, and Drakelow in Derbyshire, were added to the honour.⁸ The same uncertainty exists as to the exact period when Roger's three Essex manors, some part of his Suffolk possessions, Willoughby in Nottinghamshire, Lound and 'Blanghesbi' in Derbyshire, passed from his honour.

Two facts which may possibly have some bearing upon the early history of the honour call for notice here: (1) Towards the end of Stephen's reign Ranulf Gernons, earl of Chester, confirmed Howick, in the parish of Penwortham, to the monks of Evesham, to enjoy it as fully as they had held it 'tempore comitis Rogeri Pictavensis et tempore Rannulfi comitis patris mei.'⁹ This assertion that Ranulf Meschin had held the land between Ribble and Mersey at some period between 1102 and 1118, in the absence of any confirmatory evidence, should be received with caution. (2) In 1176 the sheriff of Lancaster accounted for the farm of half the manor of Marton in Amounderness as an escheat of the fee of Peverel.¹⁰ In 1199 the sheriff claimed allowance, when accounting for the farm of the honour, 'for £10 which he was wont to receive yearly by the hand of the sheriff of Nottingham towards the farm of the county of Lancaster,' this sum representing the third penny of the counties of Notts and Derby which John had given to William Ferrers when creating him earl of Derby.¹¹ The inclusion of the

¹ *Dom. Bk.* i. 337b.

² The Lindsey Survey shows that Stephen of Mortain also held in Lincolnshire 11 bovates in Waddingham which had been crown land and land of the king's thegns in 1086, 4 bovates in Clisby and 4 bovates in Howsham, which had been crown land in 1086.

³ *Testa de Nevill* (Rec. Com.), 325b, 326.

⁴ *V. C. H. Northants*, i. 387.

⁵ *Concher of Furness*, Chetham Soc. (New Ser.), vols. 9 and 11, pp. 63, 419.

⁶ *Dom. Bk.* i. 230.

⁷ Round, *Feudal England*, 202-3.

⁸ For details of other manors which were members of this honour—not held by Roger of Poitou—cf. *Lanc. and Ches. Rec. Soc.* vol. 48, pp. 99-114.

⁹ Chartul. of Evesham, Cott. MSS. Vesp. B. xxiv. fol. 75b; Farrer, *Lancs. Pipe R.* 319. The monks had received Howick from Roger of Poitou. Harl. MSS. No. 3763, fol. 58.

¹⁰ Farrer, *Lancs. Pipe R.* 31. 'The villis of Ashton (near Preston) and the two Martons (in Amounderness) are escheats of the king of the honour of Peverel. The earl of Ferrers holds them. The same Earl William holds Blackrod of the same honour.' Exch. K. R. Kts. fees, 3, m. 4.

¹¹ Farrer, *Lancs. Pipe R.* 104-5, 108; Tait, *Mediæval Manchester*, 179 n.



RANULF GERMONS, EARL OF CHESTER, 1129-1153.



JOHN, COUNT OF MORTAIN (SECRETUM).



JOHN, COUNT OF MORTAIN, c. 1183-1199.



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third penny of these counties in the farm of the honour of Lancaster is difficult to explain except on the supposition that when Henry II. gave the honour to his younger son, John of Mortain, he added this sum in augmentation of the issues of the honour.

The tenure of three Lancashire manors by the Peverels, as part of their honour of Nottingham, seems to suggest that Henry I. had given these manors to William Peverel before he gave the honour to his nephew, Stephen of Blois.¹ The date of the grant of the honour of Lancaster to Stephen can only be surmised, as there are no charters of Henry of later date than 1102,² nor of Stephen of earlier date than 1123,³ to tell us who was in possession of the honour during the years intervening between these dates. But we know from the Lindsey Survey that in, or perhaps a year or two before, 1118, Stephen was in possession of the lands in Lindsey which had belonged to the honour of Count Roger.

The principal acts recorded of Stephen, whilst count of Mortain, in reference to the honour, were the foundation in 1123 at Tulketh, near Preston, of a monastery in connexion with the abbey of Savigny in Mortain;⁴ a confirmation to Robert de Molyneux of Sefton of his land in Downlitherland;⁵ the translation in 1127 of the monks from Tulketh to Furness and their endowment with half the land of Furness;⁶ the re-grant in 1123 of the church of St. Oswald at Winwick to Nostell Priory, which Roger of Poitou had formerly granted;⁷ the infeudation of the ancestor of Leon de Manvers in lands in Anston in Yorkshire, and in Holme and Gamston in Nottinghamshire.⁸ These grants were all made while Stephen was count of Mortain. The Pipe Roll of 1130 records some important agreements made in the king's court by some of Stephen's principal thegns between Ribble and Mersey with their chief lord.⁹ As king he confirmed his grant of Furness to the monks from Savigny and also confirmed to them the grant of Muncaster made by William de Lancaster, 'quæ est de feodo meo,' words which suggest that Stephen had received Coupland also, when he acquired the honour of Lancaster.¹⁰

The history of the honour during Stephen's reign presents many difficulties. Between 1141 and 1143 we find David of Scotland in possession of the land north of the Ribble,¹¹ and in 1147 we find the earl of Chester in possession of the land between Ribble and Mersey.¹² The former claimed 'Lancaster' as part of the ancient kingdom of Northumbria; the latter had either forcibly seized the southern region or claimed it on the grounds of a former grant to Ranulf Meschin, the possibility of which we have hinted at above. In the former case, which is the more probable, the earl's possession of this region may have dated from the time between 1140 and 1146, when

¹ It has been suggested by Mr. Planché (*The Conq. and his Companions*, ii. 269) that Adeline de Lancaster, wife of William Peverel of Nottingham, was a daughter of Roger of Poitou. If this were so, a more probable explanation of the connexion of these manors with the honour of Peverel would be that they had formed part of Adeline's endowment.

² Farrer, *Lancs. Pipe R.* 382.

³ *Ibid.* 427; *Syemon of Durham* (Rolls Ser.), ii. 267.

⁴ *Ibid.* ii. 267. The *Coucher of Furness* gives the date as 1124 (p. 8).

⁵ Farrer, *Lancs. Pipe R.* 427.

⁶ *Ibid.* 301.

⁷ *Mon. Angl.* vi. 92; *Testa de Nevill* (Rec. Com.), 405b.

⁸ *Lanc. and Ches. Rec. Soc.* xviii. 105.

⁹ Farrer, *Lancs. Pipe R.* 1.

¹⁰ *Coucher of Furness* (Chetham Soc.), 125.

¹¹ Tait, *Mediæval Manchester*, 167-8.

¹² *Ibid.* 169; Farrer, *Lancs. Pipe R.* 275-7.

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he took advantage of the anarchy to possess himself of 'a third part of the realm,'¹ the regions held for a time beneath his sway extending from sea to sea and forming a great triangle with Chester at its apex and Lincoln and Coventry at the extremities of its base.² We may briefly note the recorded facts which probably led to the honour passing out of Stephen's hands. In February, 1136, Stephen ceded Doncaster and Carlisle to Henry, son of David of Scotland, and David then restored to Stephen the strongholds and lands which he had seized. Three years later, by the treaty of Durham, Henry was recognized by Stephen as earl of Northumberland.³ It is not improbable that David acquired the honour of Lancaster north of the Ribble by this treaty, as between 1141 and 1143 David issued charters confirming to the monks of Shrewsbury their possessions in Amounderness. Although the charters are addressed to his justices, barons, etc., of the whole honour of Lancaster,⁴ it is most improbable that David was at this time in possession of the remainder of the honour. In 1141 the earl of Chester made claim to Carlisle and Cumberland as part of his rightful patrimony.⁵ David however continued to hold Carlisle and some portion of the honour of Lancaster until May, 1149, when the treaty of Carlisle was arranged between David, young Henry of Anjou, and the earl of Chester, one of the conditions of which included the grant to the earl by David of 'Lancaster' north of the Ribble in exchange for the withdrawal of the earl's claim to Carlisle.⁶ There is no evidence that David ever held any other part of the honour than that which lay to the north of the Ribble. None of his charters to Shrewsbury Abbey relate to that abbey's possessions between Ribble and Mersey, and the earl of Chester was clearly in possession of Lancashire south of the Ribble in 1147 when he confirmed to the monks of Shrewsbury all the possessions which they had received from Roger of Poitou and his sheriff.⁷ The treaty at Carlisle in May, 1149, was aimed against Stephen, who had regained much of his lost position since 1146, and the earl's desire to again humble the king explains why he was willing to accept 'Lancaster' from David and sacrifice his cherished desire for Carlisle. But this triple alliance came to nothing, for within a few weeks of the meeting at Carlisle, Stephen, who had led his forces into Yorkshire to oppose the dangerous confederacy, won over the crafty earl by the grant of numerous castles and lordships in the Northern Midlands, including Tickhill and the honour of Blyth, the land between Ribble and Mersey, the land of Roger of Poitou from Northampton to Scotland, except the land of Roger de Montbegon in Lincolnshire, and the whole honour of Lancaster. On 27 July, 1149, about two months after the abortive treaty of Carlisle, and doubtless after the agreement made with Stephen, the earl at Lancaster confirmed to the priory of Lancaster all the possessions and liberties which they had received from Roger of Poitou.⁸

Again, in 1153 the honour was the subject of barter in the conflict between Stephen and Henry of Anjou, for just as in 1149 Stephen had won over the earl of Chester by vast concessions, so four years later, when Henry

¹ *Gesta Stephani* (Rolls Ser.), iii. 117.

² Round, *Engl. Hist. Rev.* x. 87, 91.

⁴ Farrer, *Lancs. Pipe R.* 274-5.

⁵ *John of Hexham*, Surtees Soc. vol. 44, p. 159.

⁶ Farrer, *Lancs. Pipe R.* 396. Amongst the witnesses were William FitzGilbert (de Lancaster), Richard the Butler, Michael le Flemynge, and Roger Gernet, all tenants of fees lying to the north of the Ribble.

³ *Sym. of Durham* (Rolls Ser.), ii. 287, 300.

⁵ *John of Hexham* (Twysden), 268.

⁷ Farrer, *Lancs. Pipe R.* 277.

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came again to prosecute his claim, he lured back the unscrupulous earl by grants exceeding in magnitude those conceded by Stephen.¹ Henry's charter was issued at Devizes and regranted Stephen's concessions to the earl, including 'totum honorem comitis Rogeri Pictavensis ubicunque aliquid haberet,' the great honour of William Peverel and many other fiefs.² The earl had hardly taken possession of these vast territories when death removed him from the scene, and made way for the conclusion in November of the same year of a compromise between Henry and Stephen, embodied in the treaty of Wallingford. By the promise to Stephen's only surviving son, William Earl Warenne, of all the fiefs which his father had held before he became king, including of course the honour of Lancaster, Henry disposed of the claim to the crown which the son of Stephen might have made.³ In 1155, Henry II. was perhaps in possession of the honour during the minority of the earl of Warenne, and confirmed to Shrewsbury Abbey the gifts of 'Earl Roger, surnamed the Poitevin,' of his sheriff Godfrey, of Pain de Vilers, and of William, constable of Chester.⁴ Very soon after this, Warenne was in possession of the honour, or of the greater part of it, for there is no record of the date when the king of Scots surrendered 'Lancaster.' This must in any case have occurred before the spring of 1158, for in January the earl accompanied Henry to Carlisle, and either in going or returning confirmed an agreement and exchange of lands made between Ewan, abbot of Furness, and his neighbour, Michael le Fleming.⁵ In August of the same year the earl went to Normandy, and was with the king in the Toulouse campaign of 1159. His death occurred in the retreat from Toulouse in October of the same year.⁶ His dealings with the honour as recorded by charters are few in number. He confirmed Broughton in Amounderness to Ughtred son of Huck, ancestor of the Singleton family,⁷ and gave land in Walton, Wavertree, and Newsham, near Liverpool, to Waldeve de Walton to be his serjeant of the wapentake of West Derby.⁸ The honour probably formed part of his widow's dower until her re-marriage in 1164 to the king's illegitimate brother Hameline.⁹ It was then resumed by the crown, and from Michaelmas 1164 until Midsummer 1189 the issues were yearly accounted for in the Pipe Rolls.

Immediately after his accession Richard granted to his brother John, count of Mortain, amongst other vast possessions the castle and honour of Lancaster, with the county.¹⁰ For the next five years it remained in John's hands. Many of his charters of this period have been preserved, and the terms of many others are recoverable from his confirmations of former grants, made after he succeeded to the crown.¹¹ In 1194 the honour was resumed by the crown in consequence of John's rebellion. The king of Scots promptly took occasion to press his claim to the county together with North-

¹ Round, *Engl. Hist. Rev.* x. 91.

² Farrer, *Lancs. Pipe R.* 370.

³ Rymers, *Fœdera* (Rec. Com.), i. 18.

⁴ Farrer, *Lancs. Pipe R.* 284; Tait, *Mediæval Manchester*, 174.

⁵ Farrer, *Lancs. Pipe R.* 315; Duchy of Lanc. Anct. D., L. 342.

⁶ Eyton, *Itin. of Hen. II.* 40, 48; Round, *Cal. of Doc. France*, 285.

⁷ Farrer, *Lancs. Pipe R.* 430.

⁸ *Testa de Nevill* (Rec. Com.), 403.

⁹ Farrer, *Lancs. Pipe R.* xii; *Lancs. Inquests* (Rec. Soc.), vol. 48, p. 23. During this period, and in fact during the earl's absence in France, Reginald de Warenne seems to have had the charge of the honour. *Ibid.* 286.

¹⁰ *Benedictus* (Rolls Ser.), ii. 78; *Hoveden* (Rolls Ser.), iii. 6.

¹¹ Farrer, *Lancs. Pipe R.* passim; *Chart. R.* (Rec. Com.), xl. 24-8.

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umberland, Cumberland, and Westmorland 'de jure predecessorum suorum,'¹ but without effect as regards this county. The knights taken in Lancaster castle upon its surrender—by Theobald Walter, as we may suppose—were summoned to Winchester to make their peace with Richard on the day after the king's second coronation.² The Pipe Rolls of this and the following year contain numerous references to the fines made 'pro habenda benevolentia Regis.'³ From 1194 until 1267 the honour remained in the crown.

The reign of John was an important period in the history of the honour. Primarily for his own advantage the king took steps to increase the revenue and develop the resources of the county, some of his measures—as, for instance, the foundation of the burgh and port of Liverpool⁴ and the charter of liberties to the knights, thegns, and free tenants dwelling within the metes of the forest of the honour of Lancaster⁵—having far-reaching consequences in the future development of the county. In the intervening period before the grant of the honour and county to Henry's youngest son, Edmund, on 30 June, 1267, we may notice the grant of the king's demesne land between Ribble and Mersey in 1229 to Ranulf, earl of Chester and Lincoln, for a goshawk yearly,⁶ which, upon the partition of the earl's possessions in 1233, fell to the share of William de Ferrers, earl of Derby, in right of his wife, Agnes, the third sister of earl Ranulf.⁷ After the death of Edmund, the honour descended to his son, Thomas of Lancaster, upon whose attainder and death in March, 1322, it escheated to the crown. By Act of Parliament on 7 March, 1327, the attainder of Earl Thomas was reversed, and his brother, Henry Plantagenet, succeeded to his title and possessions as earl of Lancaster, earl of Leicester, and High Steward of England. Henry died on 22 September, 1345, and was succeeded by his only son Henry, who was created duke of Lancaster in 1351 with Palatine jurisdiction for life within the county.⁸ Upon his death in 1361 the honour reverted to the crown, but his daughter, and eventually sole heir, Blanche, having married John Plantagenet, styled 'of Gaunt,' fourth (but third surviving) son of Edward III., her husband claimed and obtained the honour, and finally, in 1362, the entirety of Duke Henry's possessions, being in the same year created duke of Lancaster and endowed with like Palatine jurisdiction.⁹ On 28 February, 1377, the county was erected into a Palatinate for the life of the duke, and in 1396 these rights were further extended and settled in perpetuity on the dukes of Lancaster. Gaunt died on 3 February, 1399, when his only son, by Blanche, his first wife, succeeded as duke of Lancaster, and on 30 September following was elected king, as Henry IV., when this and all his honours merged in the crown.¹⁰ One of Henry's first acts as king 'was to grant in Parliament a charter, in which the lands and possessions of the Duchy of Lancaster were declared to be a separate inheritance distinct from the lands and possessions of the crown. The prerogatives of the king were annexed to all the possessions so separated, but . . . the ordering of all matters connected therewith was

¹ *Hoveden* (Rolls Ser.), iii. 243.

² *Farrer, Lancs. Pipe R.* 77, 89.

³ *Chart. R.* (Rec. Com.), 25; *Farrer, Lancs. Pipe R.* 418.

⁴ *Cal. Close R.* 1231-1234, 169, 267, 283; *Excerpta e Rot. Fin.* (Rec. Com.), i. 267. In 1251 William de Ferrers obtained a charter of free warren in his demesne lands in the manors of Liverpool, West Derby, Everton, Great Crosby, Wavertree, Salford, Bolton le Moors, Pendleton, Broughton, Sweinshurst, Burtonwood, and Chorley. *Cal. Chart. R.* i. 373.

⁵ *Cokayne, Comp. Peerage*, v. 7 n.

⁶ 18 April 1194. *Ibid.* 243.

⁷ *Pat. R.* (Rec. Com.), 756.

⁸ *Cal. Chart. R.* i. 101.

⁹ *Ibid.* 8.

¹⁰ *Ibid.* 9.



THOMAS, EARL OF LANCASTER, 1296-1322.
(*Obverse.*)



HENRY, FIRST DUKE OF
LANCASTER, 1351-1361.



JOHN OF GAUNT, DUKE OF
LANCASTER, 1362-1399.



THOMAS, EARL OF LANCASTER. (*Reverse.*)



vested in an establishment called the Chancellor and Council of the Duchy.¹ Henry IV. added no new possessions to the Duchy as enjoyed by his father, but Henry V., by a statutory charter granted in Parliament in the second year of his reign, annexed and incorporated the inheritance of the house of Bohun, which he had derived by hereditary right from his mother, with the inheritance of the Duchy of Lancaster, which had descended to him from his father. By this measure the Bohun possessions were absorbed in the greater estate and thenceforth clothed in like manner with all the prerogatives of the king, but in administration distinct from other lands of the crown. From the reign of Henry V. to that of our present sovereign, King Edward VII., the rulers of this realm have enjoyed the splendid inheritance of the Duchy of Lancaster, both out of and within the county Palatine, as an estate with sovereign prerogatives entirely distinct and separate from the crown of England.²

In dealing with the feudal baronage of this county those fees have been selected for notice which at some period or another were described as baronies, and the holders of them as tenants by barony, who paid for their relief, not the knight's customary relief of five pounds for each fee, but an arbitrary sum. Not included in this category are the half knight's fee of the Molyneux family at Sefton; the fee held in this county by the Marsey family, with three knights' fees in co. Nottingham; the extensive fee held by the family of Gernet, chief foresters of Lancashire; and the fee comprising the south-eastern half of Furness, which was held by the Fleming family, and was long known as Micheland, from Michel le Fleming, the first grantee. These may possibly have ranked as baronies at one time or another during the first century after Domesday, but of this there is no evidence, nor can the enjoyment of special franchises, nor inclusion amongst the 'barones comitatus' of the holders of these fees, be considered as sufficient justification to include their fees among the Lancashire baronies.³

THE BARONY OF THE CONSTABLE OF CHESTER WITHIN THE LYME⁴

The earliest infeudation within the district afterwards known as Lancashire of which there is any indication was that by which four hides and one carucate of land between Ribble and Mersey were conferred upon the constable of Hugh Lupus, earl of Chester,⁵ but whether by the Conqueror himself or by Roger of Poitou, after he had received his English fief, and whether to Nigel, the first constable, or to William, his son and successor, it is not possible to determine.⁶ The inclusion among the barons of Roger of Poitou of a great Cheshire feudatory—who also held lands in distant parts of England under the earl of Chester—was probably due to the dictates of

¹ *Dep. Keeper's 30th Rep.* p. vi.

² *Ibid.* W. Hardy, *Charters of the Duchy of Lanc.* in which volume all the charters and acts of Parliament affecting the Duchy from 1342 to 1558 are set forth in full.

³ Cf. Tait, *Medieval Manchester*, pp. 182-197.

⁴ Dugdale, *Baronage*, i. 100; Cotton MSS. Cleop. C. iii. f. 332 b (*Mon. Ang.* vi. 315).

⁵ See the chapter on Dom. Bk. p. 280 above.

⁶ The statement which originated with Dr. Kuerden that William fitz Nigel acquired Widnes by marriage with the heiress of Yarfith, a supposed pre-Conquest baron of Widnes, obtains no confirmation from Domesday nor from any other known record, and may well be discredited.

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policy, but an infeudation before the commencement of Roger's tenure of the land between Ribblesdale and Mersey remains a possibility. In the absence of details in the survey it is only possible to hazard a guess that the 1½ hide in West Derby hundred comprised the manors of Knowsley, Roby, and Kirkby, and the 2½ hides and 1 carucate in Warrington hundred, the manors of Widnes, Appleton, Cronton, Cuerdley, Sutton, Eccleston, and Rainhill. After the date of Domesday, but whether by Roger of Poitou or by Henry I. is uncertain, some eight additional manors between Ribblesdale and Mersey, and perhaps also the manor of Staining in Amounderness, were added to William fitz Nigel's fief, which was thereafter known as the lordship of Widnes, and is described in the Inquest of Service of 1212 as 'four knights' fees of the barony of the constable of Chester within the Lyme,'¹ that is, of the Cheshire honour of Halton. This lordship or barony occupied the curious position of being territorially dependent upon the Cheshire honour of Halton and feudally dependent upon the honour of Lancaster.²

Few acts of William fitz Nigel in connexion with his Lancashire manors remain upon record. An obscure manuscript compiled by Christopher Towneley contains a copy of a charter, executed before 1117, by which William fitz Nigel founded a priory of Austin canons at Runcorn,³ and endowed it with the churches of Periton, co. Oxford, and of Castle Donnington, co. Leicester, lands in the counties of Chester, Lincoln, and Leicester, and in this county two oxgangs of land in Widnes, with common right of the underwoods and feeding grounds belonging to Appleton and in Cuerdley, with two-thirds of the demesne tithes in 'Sutton beyond Mere' (in the parish of Prescot), which Thurstan gave, and two-thirds of the demesne tithes in Staining, in Amounderness, with the moiety of that vill, namely three ploughlands.⁴ His death probably occurred before 1130,⁵ but he was certainly living in 1125, when he attested Walter de Gant's confirmation of his former gifts to Bardney.⁶ He is described in another charter⁷ of Walter de Gant as 'nepos meus,' which suggests that he was cousin-german of Walter. This is rendered the more probable from the cousin's sister being styled Agnes de Gant.⁸ The connexion may have been by descent from common grandparents. His son and successor, William fitz William, removed the priory of Runcorn to Norton, and further endowed it with the vill of Norton in exchange for Runcorn and Staining,⁹ which latter vill was afterwards bestowed upon the abbey of Stanlaw. He also confirmed his father's gifts to Norton Priory by a charter executed between 1138 and 1150,¹⁰ and he or his successor also gave the moiety of the demesne tithes of Widnes and two oxgangs of land in Tarbock. All these gifts were confirmed by Henry II. in a charter which passed at Wallingford about 10 April, 1155.¹¹ William fitz William died in Normandy, so says the chronicler of Norton,¹² presumably before 1149, when Eustace fitz John, his successor, attested a charter of Ranulf, earl of

¹ *Testa de Nevill* (Rec. Com.), 403b.

² *Dep. Keeper's 43rd Rep. App.* 212-30; *P.R.O. Lists and Indices*, v. 1-9, 75-88.

³ Towneley MS. Chetham Lib. C. 8, 8.

⁴ *Ibid.*

⁵ An entry under co. Leicester, in the *Pipe R. of 31 Hen. I.* (Rec. Com.), p. 88, seems to show that he was dead before 1130. It records that William fitz William, the constable, rendered account of 40 marks for a final agreement which the king had made for him against the earl of Chester.

⁶ *Mon. Angl.* i. 630b.

⁷ *Ibid.* 629b.

⁸ Ormerod, *Hist. of Ches.* (edit. Helsby), i. 691b.

⁹ *Ibid.*

¹⁰ *Ibid.*

¹¹ *Mon. Angl.* vi. 314b.

¹² *Ibid.* 315b.

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Chester, as 'constabularius Cestrie.'¹ Dying without issue, William's inheritance was divided between his two sisters, Agnes, who had married Eustace fitz John,² lord of Knaresborough (being his second wife), and Maud, who had married Albert Grelley, lord of Manchester.³ The share of the inheritance which fell to Eustace fitz John comprised the lordship of Halton, in Cheshire—except Daresbury—and the lordship of Widnes in this county—except Cuerdley—together with the office of constable of Chester, which lands and office were duly confirmed to him by Ranulf, earl of Chester.⁴ He was slain in an ambushade of Welshmen at Counsylth, near Basingwerk, in July, 1157, whilst engaged in the invasion of North Wales.⁵ Richard, his son by Agnes his second wife, succeeded him as constable of Chester, and apparently attested a royal charter in the autumn of 1157, at Falaise.⁶ The date of his death is unknown, but probably occurred before 1163, in which year, or very soon after, a royal charter was attested by his son John, who had succeeded him as constable of Chester, and in 1166 gave 1,000 marks to have the lands of his mother, Albreda de Lisours, lady of Sprotborough.⁷

In 1172 John, constable of Chester, founded the Cistercian abbey of Stanlaw, in Cheshire,⁸ and endowed it with the vill of Staining, in Amounderness, and other estates.⁹ Early in 1181 he was sent with Richard de Peche to take charge of Dublin after the recall of Hugh de Lacy.¹⁰ To the Knights Templars he gave one ploughland, probably representing a third part of the manor of Great Woolton. The remainder of the manor he conferred upon the Knights Hospitallers.¹¹ To Salop Abbey he confirmed the third part of the vill of Thelwall, which his predecessors, William the constable and William his son, had given to the monks of that house.¹² He also founded the hospital of Castle Donnington.¹³ He was present at the coronation of Richard on 3 September, 1189.¹⁴ He married Alice, daughter of Robert de

¹ Farrer, *Lancs. Pipe R.* 319.

² *Mon. Angl.* vi. 955.

³ *Ibid.* 315 b; Duchy of Lanc. Misc. $\frac{9}{3}$.

⁴ Ormerod, *Hist. of Ches.* (edit. Helsby), i. 52.

⁵ *Will. of Newburgh* (Rolls Ser.), ii. c. 5. Agnes his widow remarried Robert fitz Count, who styled himself constable of Chester once at least. *Mon. Angl.* iii. 434; vi. 955-6.

⁶ Round, *Cal. of Docts. France*, 215.

⁷ *Pipe R. Soc.* ix. 51. At Michaelmas, 1166, John, constable of Chester, paid 100 marks of the greater sum of 1,000 marks for livery of his mother's lands. Albreda de Lisours married secondly, William de Clerfait, and thirdly, about 1170, William fitz Godric, by whom she had issue William fitz William, lord of Sprotborough in 1194, who was ancestor of the earls Fitzwilliam (*Pipe R.* 24 Hen. II. Ebor.). William de Clerfait, whose name occurs on the *Pipe Roll of 2 Hen. II.* (Rec. Com.), p. 27, had married for his first wife Avice de Tanai, by whom he had Sibil, who married Ralph de Tili; *Mon. Angl.* v. 487; Hunter, *Deanery of Doncaster*, i. 333; Round, *Peerage Studies*, 48. William fitz Godric was lord of Emley, co. York. His name occurs in the *Pipe Roll of 1170* in an entry repeated until 1176, when he renders account of £100 to have the mother of John the constable to wife with her lands. *Pipe R. Soc.* xxv. 102. His father appears to have been Godric, son of Ketelbern, or Chetelbert. Burton, *Mon. Ebor.* 332; *Pipe R.* 31 Hen. I. (Rec. Com.), 33.

⁸ *Ann. Mon.* (Rolls Ser.), i. 187, the foundation charter is dated 1278. *Coucher of Whalley*, Chetham Soc. x. 1.

⁹ *Ibid.* xi. 419.

¹⁰ *Hoveden* (Rolls Ser.), ii. 253. Round, *Geog. de Mendeville*, 390-1.

¹¹ *Inq. of 1212*, Lanc. and Ches. Rec. Soc. vol. 48, p. 41. His brother, Robert fitz Richard, was prior of the English Hospitallers from about 1187 to 1214, but not continuously. *Hist. Soc. Lancs. and Ches.* n.s. vol. 18, p. 176 n.

¹² Reg. of Salop Abbey, MS. *pene* W. Farrer, No. 317.

¹³ *Mon. Angl.* vi. 765.

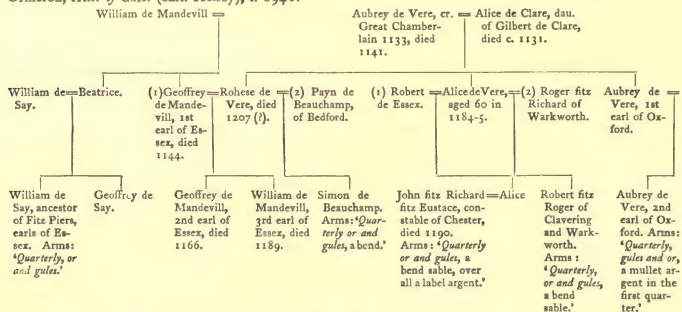
¹⁴ *Benedict* (Rolls Ser.), ii. 80.

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Essex, by Alice his wife, sister of Aubrey de Vere, earl of Oxford,¹ and died at Tyre in the Holy Land during a crusade in the year 1190.² Roger, his son, having succeeded him as constable of Chester, was in 1191 appointed by the chancellor, during the king's absence, governor of the castles of Nottingham and Tickhill. During the struggle between John, count of Mortain, and the chancellor, about Midsummer, 1191, two of the constable's knights whom he had left in charge of these castles treacherously surrendered them to John.³ For this act the constable proposed to hang them, but being unable to find them he hanged two of their associates instead. In revenge John laid his lands waste as far as lay in his power.⁴ Upon the death of Robert de Lacy, the last of his line in direct descent, in 1193, the Lacy fee, including the honour of Clitheroe with the liberty of Rochdale, in this county, and the honour of Pontefract with the liberty of Bowland, in Yorkshire, descended by his will to Albreda de Lisours, his cousin.⁵ The year following, by fine made at Winchester (21 April), Albreda settled the whole estate which had been Robert de Lacy's upon her grandson, Roger, the constable, who thereupon assumed the name of Lacy and became possessed of the honours of Clitheroe and Pontefract, in addition to his own patrimony of Halton and Widnes. The year following he paid a fine of 2,000 marks for the king's confirmation of this settlement, and had livery of Robert de Lacy's possessions—which had been in the king's hand during part of the year 1194—except the castle of Pontefract.⁶

The lordship of Sprotborough, a member of the honour of Tickhill and the inheritance of Albreda de Lisours, appears to have been delivered to her son John, the constable, in 1166, and to have descended to Roger, his son and heir, but by force of the fine of 1194,⁷ it was settled upon Albreda for life,

¹ *Rot. de dominabus*, ed. Grimaldi, 15; Round, *Geof. de Mandeville*, 393 n. According to the Couches of Whalley he had in addition to his eldest son Roger, four sons, Eustace, Richard, Geoffrey, and Peter, and a daughter Alice. Some, if not all, of these five children were bastards. *Couches of Whalley*, Chetham Soc. 2; Ormerod, *Hist. of Ches.* (edit. Helsby), i. 694 b.



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with remainder to her younger son, William fitz William, by her third husband, William fitz Godric,¹ to hold of Roger de Lacy by the ancient service of eight knights. In 1194 Lacy accounted of £43 15s. of the scutage of his honour of Pontefract for the king's ransom,² and the year following, in consequence of the agreement made with his grandmother, Albreda, gave the king a fine of 2,000 marks for livery of Robert de Lacy's honour of Clitheroe, with the lands and castles, except the castle of Pontefract, which the king retained in his own hand.³ In 1196 he was excused the scutage due from 8½ knights' fees of the honours of Clitheroe and Widnes for the second scutage of Normandy,⁴ but paid the quota due from his Yorkshire fees.⁵ He was, however, excused the quota due in that county for the third scutage of Normandy,⁶ and the year following had acquittance to the same scutage for his 8½ fees in this county.⁷ Between 1200–1205 he obtained three royal charters. The first restored the land which Guy de Laval and his predecessors had held since the time of King Stephen, representing twenty knights' fees of the honour of Pontefract.⁸ For this Roger proffered a fine of 500 marks, which was not discharged until 1207.⁹ The second granted to him the manor and soke of Snaith, to hold for the service of one knight.¹⁰ The third granted to him a fair with liberties to be held yearly at Clitheroe on the feast day and on the morrow of St. Mary Magdalene.¹¹ The constable of Chester was a notable figure in both English and Norman affairs in the early years of John's reign. He was one of those barons who swore fealty to the king at Northampton, before the chancellor and justices, immediately after his accession.¹² On 16 September, 1199, he was in the king's retinue at Bourg le Roi, in Maine,¹³ and in 1200 was sent to escort William the Lion to Lincoln, and was present when the Scottish king did homage there to John on 22 November.¹⁴ In 1201 King John sent him, in company with William Marshall, earl of Striguil, each attended by 100 knights, to restrain the king's enemies in the marches of Normandy.¹⁵ During the progress of

¹ The Rev. Joseph Hunter, in his *South Yorkshire* (i. 334), mentions a transcript, preserved among Hugh fitz William's MSS. of an agreement made between William fitz William and Roger de Lacy, at Darrington, in 6 Ric. I. respecting money to be paid in consideration of the agreement of 1194 quoted above. In a suit with Alex. de Crevequer touching lands at Hopton, near Mirfield, he is described as 'Willelmus filius Willelmi filii Godrici' (*ibid.*). He had a brother described as 'Thomas filius Willelmi filii Godrici' in 1225: *Close R.* (Rec. Com.), ii. 74, 81.

² Pipe R. 6 Ric. I. Ebor.

³ *Ibid.* 7 Ric. I. Ebor.

⁴ Farrer, *Lancs. Pipe R.* 94. He appears not to have acknowledged half a knight's fee in Appleton, a recognition of which Agnes Bonetable had sought against John, constable of Chester, in 1182 (*ibid.* 47), and with her husband, Richard de Venables, sought against Roger in 1199 (*ibid.* 106).

⁵ Pipe R. 6 Ric. I. Ebor.

⁶ Pipe R. 8 Ric. I. Ebor.

⁷ Farrer, *Lancs. Pipe R.* 98.

⁸ Duchy of Lanc. Misc. Ptf. i. No. 36, m. 3. In 1203 the knights and free tenants of the fees late held by Guy de Laval in England, belonging to the honour of Pontefract, were commanded by writ to be submissive to the constable of Chester (Pat. R. i. 26).

⁹ *Rot. de Oblat* (Rec. Com.), 26, 74; Pipe R. 4 John, Ebor.

¹⁰ *Chart. R.* (Rec. Com.), 152; cf. *Red Book of Exch.* (Rolls Ser.), 490.

¹¹ Duchy of Lanc. Misc. Ptf. i. No. 36, m. 3.

¹² *Hoveden* (Rolls Ser.), iv. 88.

¹³ *Chart. R.* (Rec. Com.), 23b.

¹⁴ *Hoveden* (Rolls Ser.), iv. 140, 142.

¹⁵ *Ibid.* iv. 163.

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Philip of France's campaign in 1202-3, when Normandy was lost by the English and Philip became supreme in Maine, Anjou, and Touraine, the constable of Chester was stoutly resisting a siege in the castle of Château Gaillard. After a strenuous resistance lasting nearly twelve months, during which the garrison were reduced to the necessity of eating horseflesh, the constable and his garrison, as a final effort, made a sortie, but were eventually taken prisoners with much difficulty on 6 March, 1204.¹ Matthew Paris relates that the French king, in recognition of the constable's gallant defence, put him in free custody.²

King John, having lent the constable £1,000 for his ransom,³ sent word on 3 May to the constable's knights and free tenants to raise money for repayment,⁴ but Roger being presently liberated in exchange for Savari de Mauleon, the king appropriated the ransom.⁵ In reward for his services Lacy was appointed sheriff of Yorkshire and Cumberland at Michaelmas following, which offices he held until 1209,⁶ in which year he also acted as a justice before whom fines were levied.⁷ He was in constant attendance upon or in communication with the king, as proved by the rolls,⁸ and upon terms of familiarity and friendship, as shown by entries on the *Præstita* Roll of sums of 40s. and 25s. lost by the king to the constable whilst playing 'ad tabulas,' i.e. shovel-board, at Freemantle, on Sunday, 29 January, 1211.⁹ In the autumn of 1210 he seems to have led an expedition against the Welsh.¹⁰ Dr. Whitaker and Mr. Ormerod repeat from the *Historia Lacieorum* several improbable stories relating to him.¹¹ Roger confirmed his father's gifts to Stanlaw Abbey,¹² and added of his own gift the church of Rochdale and six oxgangs of land there of the Lacy inheritance which had descended to him through his grandmother.¹³ Within his fee of Widnes he gave the manor of Little Woolton to the same abbey.¹⁴ He also enfeoffed Robert de Flaynsburgh in 10½ oxgangs of land within the liberty of Rochdale in marriage with the daughter of Robert de Liversedge, and Gilbert de Lacy, of Cromwellbothum, in the same extent of land there, in marriage with Agnes, daughter of John de Hipperholme.¹⁵ His death occurred on 1 October, 1211, after a protracted illness, during which he was invested with the monastic habit in the abbey of Stanlaw, where his remains were buried.¹⁶ Accordingly, we find that at Midsummer, 1212, when the great inquest of service was taken, his lordships of Penwortham, Clitheroe, and Widnes were in the king's hands.¹⁷

¹ Matth. Paris, *Chron. majora* (Rolls Ser.), ii. 89, 101.

² *Ibid.* ii. 101.

³ *Close R.* (Rec. Com.), i. 4b; *Rot. de liberate*, 103.

⁴ *Pat. R.* (Rec. Com.), i. 41b.

⁵ *Ibid.* 73b. A graphic description of these events will be found in Norgate's *England under the Angevin Kings*, ii. 411, 417-23. A letter from John to the constable of Chester begs him to hold the castle to the uttermost. Rymer, *Fœdera*, (Rec. Com.), i. 90.

⁶ *Dep. Keeper's Thirty-first Rep.* App. 276, 363.

⁷ *Fines* (Rec. Com.), i. lxx.

⁸ *Close, Pat. Chart. and Liberate R.* (Rec. Com.), *passim*.

⁹ *Rot. de Præstit.* (Rec. Com.), 238.

¹⁰ *Ibid.* 229.

¹¹ *Hist. of Whalley* (ed. 1876), i. 241; Ormerod, *Hist. of Ches.* (ed. Helsby), i. 695b; *Mon. Angl. vi.* 315b.

¹² *Coucher of Whalley*, Chetham Soc. 16.

¹³ *Ibid.* 135; *Inq. of 1212, Lancs. and Ches. Rec. Soc.*, xlviii. 40.

¹⁴ *Coucher of Whalley*, 804; *Inq. of 1212*, 41.

¹⁵ *Lancs. Inq. Rec. Soc.* xlviii. 38-9.

¹⁶ Cott. MS. Titus F. iii. 244b, 258. His epitaph is recorded in Cott. MS. Cleop. C. 3, f. 325b. See *Mon. Angl. v.* 648.

¹⁷ *Lancs. Inq. Rec. Soc.* xlviii. 34-38.

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The following particulars of the fees in this county belonging to the constable's three baronies are taken from the Inquest of 1212¹; supplemented by that of the Gascon scutage made in 1242-3.²

WEST DERBY HUNDRED

Widnes fee

	1212	1242-3
Appleton, Cronton and Widnes	½ knight . . .	{ Roger[<i>rectus</i> John], Constable of Chester . . . }
Sutton, Eccleston, and Rainhill	1 knight . . .	{ William, son of Matthew [de Daresbury] . . . }
Knowsley, Huyton, and Tarbock	1 knight . . .	{ Richard, son of Robert [de Lathom] . . . }
Little Crosby	¼ and ⅓ knight	Richard de Molyneux . . .
Kirkby	½ knight . . .	Hugh de Moreton . . .
Maghull	⅓ knight . . .	Alan de Halsall . . .
Astley	⅓ knight . . .	Hugh de Tyldesley . . .

Penwortham fee

Kirkdale	⅓ knight . . .	{ Quenilda, daughter of Roger [de Kirkdale] . . . }
North Meols	¼ knight . . .	{ [Robert Russell or Alan de Singleton, Alan de Meols] ³ }
Argarmeols [now Birkdale]	¼ knight . . .	{ The heirs of Richard, son of Roger [see p. 368] . . . }

LEYLAND HUNDRED

Ulneswalton	⅓ knight . . .	{ [Adam, son of Ulf de Walton] ⁴ }
Bretherton	⅓ knight . . .	[Richard the butler] ⁵ . . .
Clayton le Woods, Penwortham	⅓ and ⅓ knight.	[Gerald de Clayton] ⁶ . . .
Hutton	¼ and ⅓ knight	{ [Elias de Hutton, or the abbot of Cockersand] ⁷ . . . }
Longton	⅓ knight . . .	{ [Richard, son of Warin de Farington] ⁸ }
Longton, Leyland, and Euxton	⅓ knight . . .	Robert Bussell
Shevington, Charnock-Richard & Welsh Whittle	¼ knight . . .	[Thurstan Banastre] ⁹ . . .

BLACKBURN HUNDRED

Clitheroe fee

Little Mitton	⅓ knight . . .	John Punchardun
Wiswell and Hapton	¼ knight . . .	{ [Henry de Blackburn the heir of William de Arches] ¹⁰ }

¹ *Testa de Nevill* (Rec. Com.), 403.

² Farrer, *Hist. of North Meols*, 8.

³ *Cockersand Chartul.* (Chetham Soc.), 471.

⁴ *Cockersand Chartul.* (Chetham Soc.), 408.

⁵ *Lancs. Inq. Rec. Soc.* xlviii. 72 n.

⁶ *Ibid.* 396-7.

⁷ *Lancs. Inq. Rec. Soc.* xlviii. 36.

⁸ *Testa de Nevill* (Rec. Com.), 403b.

⁹ *Priory of Penwortham*, Chetham Soc., O.S., xxx. 12.

¹⁰ *Lancs. Inq. Rec. Soc.* xxxix. 27.

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Clitheroe fee—continued.

	1212	1242-3
Towneley, Coldcoats, and Snodsworth ¹	$\frac{1}{10}$ knight	{ [Geoffrey, son of Robert] the dean of Whalley } ² Henry Gedleng
Twiston	$\frac{1}{10}$ knight	[John, constable of Chester] { The heir of the earl of Lincoln
Extwisle	$\frac{1}{10}$ knight	[Adam de Preston] ³ Adam de Preston
Aighton, Great Mearley, and Livesey	$\frac{1}{4}$ knight	[Hugh de Mitton] ⁴ Ralph de Mitton
Downham	$\frac{1}{4}$ knight	[John, constable of Chester] Robert de Chester ⁵
Foulridge	$\frac{1}{4}$ knight	John de Criggleston
Little Mearley	{ $\frac{1}{10}$ knight } { $\frac{1}{10}$ knight }	{ [John, constable of Chester] ⁶ } { William the Marshal } { Hugh de Mearley (Parva) } { Gilbert, son of Henry [de Rishton] }
Rishton	$\frac{1}{10}$ knight	[Roger de Praers] ⁷ { Adam de Billington
Billington	$\frac{1}{2}$ knight	[Elias de Billington] ⁸ { The heir of Hugh de Altham
Altham	$\frac{1}{2}$ knight	[Richard de Altham] ⁹ { Hugh Fitton
Great Harwood	$\frac{1}{4}$ knight	[Richard Fitton] ¹⁰ Henry de Clayton
Clayton le Moors	$\frac{1}{8}$ knight	[Ralph de Clayton ?] { The heir of Robert Banastre
Walton in le Dale	1 knight	[Thurstan Banastre]

AMOUNDERNESS HUNDRED

Pentwortham fee

Warton	$\frac{1}{2}$ knight	{ The heirs of Richard, son of Roger [see p. 368] } Thomas de Beetham
Prees and Newton	$\frac{1}{4}$ knight	{ [Robert, son of Gille-michael] } William de Prees
Freckleton, Whittingham } Newton and Elswick }	1 knight	{ Richard, son of Roger de Freckleton } Richard de Freckleton

Maud, the wife of Roger, survived her husband, and was living about 1220-1225, having had assigned to her in dower 28 librates of land in Ingoldmells and Holton le Moor, co. Lincoln, besides the demesne manors which belonged to the honour of Pontefract.¹¹ In addition to John, his eldest son, he had issue Roger, who in 1215 was in the custody of the queen as a hostage,¹² and subsequently of the earl of Chester.¹³

John de Lacy was probably under age at the time of his father's death, as he did not obtain livery of his possessions until about 26-29 July, 1213, when he undertook within four years to pay 7,000 marks for livery of his inheritance and to be discharged of his father's debts to the Exchequer, further binding himself by oath and by his charter to serve the king faithfully under pain of forfeiture.¹⁴ His castles of Pontefract and Donnington were withheld until the following year, when the king, being

¹ In Billington.

² *Pontefract Chart.* Yorks. Rec. Soc. xxv. 226.

³ Brother of John de Lacy, constable of Chester.

⁴ Ormerod, *Hist. of Ches.* (edit. Helsby), iii. 301.

⁵ *Ibid.* 267.

⁶ *Testa de Nevill* (Rec. Com.), 348b, 370. The statement, which originated in the *Historia Laciorum* (*Mon. Angl.* vi. 315), that Roger de Lacy's wife was Maud, sister of [Bevis] de Clare, treasurer of York, is, of course, a grotesque error, seeing that Bevis de Clare, alias de Fairfax, was treasurer of York from 1285 to about 1291. *Cal. Pat. R.* 1281-92, pp. 193, 435.

⁷ *Pat. R.* (Rec. Com.), i. 143b. In 1226 Roger was receiving £30 a year for his maintenance in the king's service, *Close R.* (Rec. Com.), ii. 113. Another son, Robert, is said to have been appointed constable of Flamborough, and to have been ancestor of the constables of that place. Add. MSS. 26,741, f. 263; Peachman, *Complat Gentleman* (1622), 171.

⁸ *Pat. R.* (Rec. Com.), 189b.

⁹ *Rot. de Finibus* (Rec. Com.), 483, 494; *Close R.* (Rec. Com.), i. 147, 169; *Pat. R.* (Rec. Com.), 119b.

favourably inclined to the young constable, remitted part of his fine.¹ During the greater part of the years 1213 and 1214 he appears to have been with the king in Poitou.² Nevertheless, in 1215 he joined the confederate barons, and was one of the twenty-five appointed to see to the observance of the Great Charter.³ On the last day of 1215 he had a safe-conduct to make his peace with the king, who was anxious to secure his service,⁴ which being done, the next day he had warrants to the sheriffs of cos. Northumberland, York, Nottingham and Derby, Lincoln, Leicester, Northampton, and Oxford for the restoration of his estates ;⁵ and three months later, having pledged his fealty to the king,⁶ was commissioned to bring three other Yorkshire barons to the king for pardon,⁷ and at the end of April had letters of protection to visit his estates in seven counties.⁸ During the summer of 1216 he was in attendance upon the king, but soon after withdrew himself, and in September his land of Naseby in Northamptonshire was delivered to Ernald de Amblevill.⁹ In the meantime his castle of Donnington had been destroyed by the king's order,¹⁰ whilst he also shared in the excommunication imposed upon the confederate barons by Innocent III.¹¹

After Henry's accession he had letters of safe-conduct on 27 April, 1217, to William Marshall to treat about his pardon,¹² and in August following his estates were restored to him.¹³ In November he was commissioned to conduct the king of Scots and Robert de Ros from Berwick to the king.¹⁴ The following year (1218) he accompanied the earl of Chester to the Holy Land, and was present at the siege of Damietta.¹⁵ As far back as March, 1215, he had taken the cross.¹⁶ After his return to England towards the end of 1220, he obtained the king's approval for levying an aid from his Oxfordshire tenants towards his expenses in the crusade.¹⁷ He led the Lancashire forces which were engaged in February, 1221, in the reduction of Skipton Castle, then held against the king by the party of William of Aumâle,¹⁸ and the year following was one of the justices appointed to see to the perambulation of the forests in cos. York and Nottingham.¹⁹ At the end of 1223 he joined the earl of Chester in the opposition to the government by the justiciar, but the earl, being threatened with excommunication, surrendered his castle, whereupon his constable did the same.²⁰ Six months later he assisted to quell the rebellion of Falkes de Breaute, and was with the king in June and July at the siege, and probably at the capture, of Bedford castle.²¹ In October the king made him a present of a valuable goshawk.²² In May, 1225, he was appointed to escort the young Roger Bigod, who had married the king of Scots' sister, to

¹ *Close R.* (Rec. Com.), 151*b*. His sureties were twenty knights. By 26 July, 1214, he had found further sureties, viz., his brother Roger and four of his principal vassours, and obtained possession of Donnington Castle. *Ibid.* 167, 169; *Pat. R.* 119*b*.

² Stubbs, *Select Charters* (ed. 1870), 298.

³ *Close R.* (Rec. Com.), i. 245.

⁴ *Pat. R.* (Rec. Com.), 176.

⁵ *Ibid.* 179.

⁶ *Matth. Paris, Chron. majora* (Rolls Ser.), ii. 171.

⁷ *Pat. R.* 1216-25, 112.

⁸ *Rymer, Foed.* (Rec. Com.), i. 149; *Pat. R.* 1216-25, 122.

⁹ *Matth. Paris, Chron. majora* (Rolls Ser.), ii. 230.

¹⁰ *Gerwase of Cant.* (Rolls Ser.), ii. 109.

¹¹ *Close R.* (Rec. Com.), i. 474*b*, 546*b*.

¹² *Matth. Paris, Chron. majora* (Rolls Ser.), ii. 260-1; Stubbs, *Constitut. Hist.* ii. 36: cf. *Pat. R.* 1216-25, 481.

¹³ *Close R.* (Rec. Com.), i. 606, 610*b*, 635.

¹⁴ *Chart. R.* (Rec. Com.), 196-201*b*, pass.

¹⁵ *Pat. R.* (Rec. Com.), 162*b*.

¹⁶ *Rymer, Foed.* (Rec. Com.), i. 137.

¹⁷ *Close R.* (Rec. Com.), i. 289.

¹⁸ *Ibid.* ii. 166.

¹⁹ *Close R.* (Rec. Com.), i. 318.

²⁰ *Pat. R.* 1216-25, 284.

²¹ *Ibid.* 503*b*.

²² *Ibid.* 627, 652*b*.

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spend a visit at the Scottish court.¹ Early in 1226 he had a warrant for holding his courts of Penwortham and Rochdale with the pleas belonging as he and his predecessors had held them before the war,² and the same year was appointed a justice in eyre in cos. Lancaster and Lincoln.³ The year following the king granted to him the vill of St. Botolph (Boston) and Holland with its fairs for his maintenance in the king's service,⁴ and in September sent him on an embassy to Antwerp.⁵ In January, 1229, he was appointed to conduct the king of Scots from Berwick to meet the king at York,⁶ and in September, 1230, was a commissioner to treat for a truce with France,⁷ while in July, 1231, he was in the king's service in Wales.⁸ Upon the death of the earl of Chester in 1232, John de Lacy, his nephew, succeeded him as earl of Lincoln,⁹ in right of his second wife Margaret, only daughter and heir of Robert de Quincy and Hawise, fourth sister and co-heir of Earl Ranulf. He had previously married Alice, daughter of Gilbert de L'Aigle, by whom he appears to have had no issue.¹⁰ He married Margaret de Quincy before 21 June, 1221, when he had livery of Winborneholt Chace, co. Dorset.¹¹ In 1233 he joined the confederacy under the Earl-Marshal against Peter des Roches, but the bishop corrupted him by a bribe of 1,000 marks¹² and won his adherence to the king, to whom he continued loyal for the remainder of his life. He was constable of Whitchurch Castle at this time,¹³ and of Chester and Beeston castles in 1237,¹⁴ in which year he was one of the witnesses to the confirmation of the charters¹⁵ and present at the queen's coronation.¹⁶ On 20 November he was one of three sent by the king to the legate Otho and the prelates at the council held at St. Paul's to forbid them to do anything against the dignity of the crown.¹⁷ Having attached himself completely to the court party, he now became one of the king's unpopular counsellors,¹⁸ and using his influence over the king, obtained a conditional grant of the marriage of Richard de Clare, first earl of Gloucester, for his eldest daughter Maud, promising 5,000 marks for the grant, 2,000 of which the king afterwards remitted.¹⁹ This marriage, being arranged without the consent of the barons, caused grave dissatisfaction, especially on the part of the king's brother, Richard, earl of Cornwall, who reproached the king for being thus influenced by Lincoln.²⁰ The latter made his peace with the king's brother, who was also Richard de Clare's step-father, by means of prayers and gifts.²¹ The earl was appointed sheriff of Chester in

¹ *Pat. R.* 1216-25, 527.

² *Close R.* (Rec. Com.), ii. 93b.

³ *Ibid.* 151.

⁴ *Ibid.* 202b.

⁵ Rymer, *Foed.* (Rec. Com.), i. 187; *Pat. R.* 1225-32, 162.

⁶ Rymer, *Foed.* (Rec. Com.), i. 193; *Close R.* 1227-31, 229.

⁷ Rymer, *Foed.* i. 198; *Pat. R.* 1225-32, 359, 394-5.

⁸ *Close R.* 1227-31, 534.

⁹ Matth. Paris, *Chron. majora* (Rolls Ser.), iii. 230. The letters patent creating him earl of Lincoln and granting him £20 in lieu of the third penny of the county, were dated 23 November, 1232, *Pat. R.* 17 Hen. III. pt. ii. m. 9; Ormerod, *Hist. of Ches.* (edit. Helsby), ii. 697.

¹⁰ *Mon. Angl.* vi. 315b; Cokayne, *Comp. Peerage*, v. 90. Alice was apparently the daughter of Gilbert by Isabella, relict of Robert de Lacy (d. 1193). See p. 319 below. Also cf. *Mon. Angl.* vi. 315b; *Close R.* (Rec. Com.), i. 14b.

¹¹ *Close R.* (Rec. Com.), i. 462b.

¹² Matth. Paris, *Chron. majora* (Rolls Ser.), ii. 356-7.

¹³ *Pat. R.* 18 Hen. III. m. 17.

¹⁴ Stubbs, *Select Charters*, ed. 1870, 356.

¹⁵ Matth. Paris, *Chron. majora* (Rolls Ser.), iii. 338.

¹⁶ *Ibid.* *Chron. majora*, iii. 412; *Dict. Nat. Biog.* xxxi. 380.

¹⁷ Dugdale, quoting Matth. Westm., *Baronage*, i. 102b.

¹⁸ *Dict. Nat. Biog.* xxxi. 380b.

¹⁴ *Pat. R.* 21 Hen. III. m. 5.

¹⁷ *Ibid.* *Hist. Angl.* ii. 400.

¹⁹ *Pat. R.* 21 Hen. III. m. 5.

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1236 and again in 1239.¹ He died 22 July, 1240, after a long and tedious sickness,² and was buried at Stanlaw Abbey, to which he had given the church of Eccles, half the church of Blackburn, and land in Staining, Hardhorn, and Newton in Amounderness.³ His wife Margaret survived him, and afterwards married Walter Marshall, earl of Pembroke, her dower being assigned in 1241, in the counties of Lincoln, Nottingham, York, and Lancaster, viz., 40 knights' fees, besides many demesne manors.⁴

Edmund, only son of John de Lacy by Margaret de Quincy, his second wife, was a minor at his father's death, being born after 26 May, 1228.⁵ Through the influence of Peter of Savoy he married Alicia, elder daughter of Manfred III., marquis of Saluzzo,⁶ a marriage which, according to Matthew Paris, occasioned much discontent among the nobles of England.⁷ Edmund was never formally invested with the earldom of Lincoln. He is named simply as Edmund de Lacy in a commission of 2 September, 1255, with the king's brothers Geoffrey and William, and the earls of Norfolk, Warenne, and Albemarle, to conduct the king and queen of Scotland to the king, but in the letters of safe-conduct to the same king and queen, dated three days later, as Edmund de Lacy 'earl of Lincoln.'⁸ But again on 17 January, 1258, he is summoned with his knights to do military service in Scotland as Edmund de Lacy.⁹ Again, in 1249, 1251, and 1257, he was the recipient of charters of free warren in his demesne lands, of markets at Bradford in Yorkshire and Rochdale, and of a market and fair at Tanshelf in his manor of Pontefract, but in no case is he styled 'earl of Lincoln.'¹⁰ The fact was that his mother being countess of Lincoln in her own right, her son could not be earl during her lifetime, and dying before her never attained to that title.¹¹ Notwithstanding this he seems to have enjoyed the third penny of co. Lincoln, as his father had done.¹² He is said to have founded the hospital of White Friars at Pontefract.¹³ To Stanlaw Abbey he gave the other half of the church of Blackburn with his body, and the vill of Cronton. By Alice his wife he had issue Henry,¹⁴ his heir, John, and Margaret, who both died young.¹⁵ He died 5 June, 1258, and was buried at Stanlaw.¹⁶

Henry de Lacy was born on Christmas Day, 1249,¹⁷ and on 22 December, 1256, was contracted to be married by his father (with the king's consent, obtained by a fine of ten marks of gold)¹⁸ to Margaret, eldest daughter and heir

¹ Pat. R. 21 Hen. III. m. 5; Pipe R. 24 Hen. III. Ches.

² Matth. Paris, *Hist. Angl.* (Rolls Ser.), ii. 436, where his arms are given in trick. Examples of his seal are given by Ormerod and by Whitaker.

³ *Mon. Angl.* v. 647b.

⁴ Close R. 25 Hen. III. m. 9 and m. 16; *Rec. Soc. Lanc. and Ches.* vol. 48, p. 157.

⁵ *Excerpta e Rot. Fin.* (Rec. Com.), ii. 54.

⁶ Matth. Paris, *Chron. majora* (Rolls Ser.), iv. 628.

⁷ Dugdale, *Baronage*, i. 102b. The king in 1246 had promised Philip, count of Savoy, that he could marry one of the count's granddaughters to Edmund de Lacy, 'qui si vixerit comes erit Lincolnie.' Rymer, *Feod.* (Rec. Com.), i. 264.

⁸ Pat. R. 39 Hen. III. m. 3. Rymer, *Feod.* (Rec. Com.), i. 327.

⁹ Close R. 42 Hen. III. m. 12d.

¹⁰ *Cal. Chart. R.* i. 346, 356, 362, 472.

¹¹ She is repeatedly styled countess of Lincoln in the Rolls. She lived until shortly before Michaelmas term, 1267; *Curia Reg. R.* 181, m. 11.

¹² *Cal. Close R.* 1307-13, 285.

¹³ *Mon. Angl.* vi. 1581.

¹⁴ *Coucher of Whalley* (Chetham Soc.), 77, 811.

¹⁵ Dugdale, *Baronage*, i. 103.

¹⁶ Cott. MS. Cleop. C. iii. 330b. His epitaph is given on f. 325b.

¹⁷ *Inq. p. m.* Yorks. Rec. Soc. xii. 51. See the *Lancs. Inq. p. m.* Rec. Soc. Lancs. and Ches. vol. 48, 213-9.

¹⁸ *Cal. of Close R.* 1272-9, p. 462, he is said to have been of full age on St. Hilary, 56 Hen. III. i.e. 13 January, 1272. This perhaps refers to the date when he was entitled to be styled earl of Lincoln.

¹⁹ *Excerpta e Rot. Fin.* (Rec. Com.), ii. 249.

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of William Longespée, third earl of Salisbury, and in her own right countess of Salisbury. She predeceased her husband and died 22 November, 1310.¹ During his minority he and his lands were under the guardianship of his mother, who gave a fine of £3,755 for this privilege.² Henry was involved in 1269 in a quarrel with the earl of Surrey as to certain pasture lands, and a threatened appeal to arms was only prevented by the king's intervention.³ He was one of the most prominent figures of Edward I.'s reign, and throughout a strenuous life both at home and abroad never wavered in his devotion to his sovereign. In 1267 he had an allowance of £300 out of the issues of Lincoln and Grimsby by the king's appointment, and the year following, upon doing his homage, with Margaret his wife, had livery of her inheritance.⁴ In November, 1270, he executed an agreement with his mother Alice confirming the appointment of her dower made by the king, and granting to her the manors of Holton le Moor, Alkborough, and Wadenhoe, in exchange for her dower in Halton in Cheshire, Widnes, and Almondbury, except the herbage of Marsden, co. York.⁵ On 5 April, 1272, he was appointed governor of Knaresborough Castle,⁶ and the next month went abroad for a short time,⁷ but returning was knighted on 13 October by King Henry, and girt with the sword as earl of Lincoln on the occasion of the wedding of Edmund, earl of Cornwall, together with the earl and fifty-four besides.⁸ In 1273 he was at the siege of Chartley Castle, from which Robert de Ferrers had recently ejected Hamon Lestrange, to whom the king had given it.⁹ In 1274 he was commissioned to pursue malefactors in cos. York and Nottingham, and to lodge them in the county gaols.¹⁰ In 1276 he served in the Welsh campaign and led the forces which laid siege to Castle Baldwin. The year following he besieged and took the castle of Dolvorwyn.¹¹ He was appointed to escort Alexander III. of Scotland on his visit to England in the summer of 1278,¹² and was appointed joint-lieutenant of England on 27 April, 1279, during the king's absence in France.¹³ In 1282 and 1283 he was engaged in Wales, and for his aid in the subjection of that principality received from the king the land of Denbigh and there built Denbigh Castle.¹⁴ On Christmas eve, 1283, he had licence to alienate the church of Whalley to the monks of Stanlaw, whom he encouraged to translate their convent to Whalley, which they did in April, 1296.¹⁵ He had licence to sport along the banks of the river Stour, without falcons, during the winter of 1284-5, and seems to have indulged in this sport with similar licence in the winters of 1292-3 and 1308-9.¹⁶ He accompanied the king on his three years' visit to Gascony,¹⁷ from April, 1286, to early in 1289, and was one of the commissioners appointed to treat with the guardians of Scotland in 1290 touching the interests of their queen and

¹ Cokayne, *Comp. Peerage*, v. 91.

² Pat. R. 54 Hen. III. m. 27.

³ *Flores Hist.* (Rolls Ser.), iii. 17; Dugdale, *Baronage*, i. 1036.

⁴ Close R. 52 Hen. III. m. 5, m. 12.

⁵ Duchy of Lanc. Misc. Bks. No. 2, fol. 242, No. 49.

⁶ Pat. R. 56 Hen. III. m. 16.

⁷ *Cal. Close R.* 1272-9, 45.

⁸ *Annales Mon.* (Rolls Ser.), ii. 111; *Cal. Close R.* 1272-9, 383. Arms of 'Le Conte de Nichole, esquarterle d'or et de goulz ung bend sable & ung labell argent.' Armytage, *Glover's Rolle of Armes*, No. 9.

⁹ *Cal. Pat. R.* 1281-92, 53.

¹⁰ *Ibid.* 1272-81, 67.

¹¹ *Ibid.* 189-229, *pass.* *Brut y Tywysogion* (Rolls Ser.), 365-6.

¹² *Cal. Pat. R.* 1272-81, 268.

¹³ *Ibid.* 309.

¹⁴ *Ibid.* 1281-92, 13 to 82, *pass.*; Leland, *Itin.* v. 46-48.

¹⁵ *Cal. Pat. R.* 281-92, 109; *Coucher of Whalley*, 188-90; *Mon. Angl.* v. 639.

¹⁶ *Cal. Pat. R.* 1281-92, 134; 1292-1301, 3; 1307-13, 146.

¹⁷ *Ibid.* 1281-92, 231-302, *pass.*

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realm, in which capacity he was present at the Parliament of Brigham.¹ In November, 1290, he was given extensive power to inquire of and punish those guilty of homicides and depredations throughout the realm.² Early in 1291 he made preparations to go abroad,³ but in June was in the king's service in Scotland. That year he was present at Norham, and in 1292 at Berwick, during the deliberations relative to the Scottish succession.⁴ The same year he was one of those appointed to decide on the claims of William de Ros and John de Vaux ;⁵ and was one of the executors of the will of Eleanor, the late queen consort.⁶ At this time, having lost both his sons by unfortunate accidents,⁷ he resigned to the king his lordships of Pontefract,⁸ Clitheroe, Halton, Denbigh, and other lands, which the king afterwards granted to him and to the heirs of his body, with remainder to Edmund, earl of Lancaster, the king's brother, and the heirs of his body.⁹ Two years later (1274) his possessions in the counties of Chester and Lancaster and elsewhere were settled upon him for life, with remainder to Thomas, son of Edmund, earl of Lancaster, and Alice his wife, only daughter of Henry, and the heirs of their bodies, with remainder to Thomas's right heirs.¹⁰ The earl of Lincoln was sent in May, 1293, to Philip of France to treat for peace, and about the merchant ships of Normandy which had recently been captured by the English.¹¹ In June, 1294, he obtained a charter for a market and fair at Burnley, and free warren in his demesne lands of Penwortham, Tottington, and Cliviger.¹² The same year, in October, he was on his way to Gascony, but whilst still at Portsmouth was recalled by the outbreak of war in North Wales. On 11 November, whilst proceeding to the relief of his castle of Denbigh, he was defeated by his own Welshmen with great slaughter, himself escaping with difficulty.¹³ He was occupied in the Welsh war until May, 1295. On 14 January, 1296, he sailed from Plymouth with the earl of Lancaster on his way to Gascony. After pillaging St. Matthieu, near Cape Finisterre, they landed at Blaye in mid-Lent and marched against Bordeaux, which they unsuccessfully besieged. On the death of the earl of Lancaster on 5 June Lincoln was chosen to succeed him as the king's lieutenant by the voice of the whole army. He defeated Robert of Artois before Bourg-sur-Mer, and besieged Aux for seven weeks in July and August with great vigour, but was at length forced to retire to Bayonne. In February, 1297, the citizens of Bellegarde, then besieged by the French, appealed for assistance. The earl marched out to their aid, but was defeated and forced to retreat once more to Bayonne. However, in the summer he made a successful raid towards Toulouse, which lasted until Michaelmas. He then retired to Bayonne for Christmas, and about Easter, 1298, returned to England.¹⁴ On 15 May, 1299, Prince Edward appointed

¹ *Cal. Pat. R.* 1281-92, 372 ; *Bain, Cal. of Docs. Scotland*, i. 159, 163, 171.

² *Ibid.* 1281-92, 408.

³ *Ibid.* 410-2, 420

⁴ *Will. Rishanger, Chron.* (Rolls Ser.), 253-4.

⁵ *Ibid.* 266.

⁶ *Cal. Pat. R.* 1281-92, 476-8.

⁷ His eldest son Edmund was drowned by falling down a well at the Red Tower in Denbigh Castle, and his second son John was killed by falling from a tower at Pontefract Castle. *Cott. MSS. Cleop. C. iii.* 328b ; *Leland, Itin.* v. 61.

⁸ *Cal. Pat. R.* 1281-92, 512.

⁹ *Duchy of Lanc. Misc. Bks. No. 11, ff. 37 d, 69 d.*

¹⁰ *Dugdale, Baronage*, ii. 104 ; *Fine R.* 20 Edw. I. mm. 1, 7 ; *Chart. R.* 21 Edw. I. No. 29 ; 22 Edw. I. Nos. 2-4.

¹¹ *Tho. Walsingham, Hist. Angl.* (Rolls Ser.), i. 43 ; *Ypodigma Neustriæ* (Rolls Ser.), 190.

¹² *Duchy of Lanc. Misc. Bks. No. 11, f. 25.*

¹³ *Cal. Pat. R.* 1292-1301, 87, 116 ; *Tho. Walsingham, Hist. Angl.* (Rolls Ser.), i. 48.

¹⁴ *Dict. Nat. Biog.* xxxi. 374, from the *Chron.* (Rolls Ser.) ; *Nicolas, Caerlaverock*, 95.

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him to arrange the marriage between himself and Isabella of France.¹ He was one of the nobles who swore on the king's behalf that he would reconfirm the charters on his return from the Scottish war, in which campaign he accompanied the king, and was present at the battle of Falkirk on 22 July.² The same month he was summoned to the council at York to deliberate on the affairs in Scotland, and in July, 1300, was present at the siege of Caerlaverock, where he commanded the first division.³ In October he went with Hugh Despenser on a mission to Rome to complain of the injury done by the Scots, and later to arrange the terms of peace between the kings of England and France.⁴ In February, 1301, he was appointed governor of Corfe Castle,⁵ and in March was directed to attend the Prince of Wales on his invasion of Scotland at Midsummer. During September and October he was engaged in the subjection of Galloway,⁶ and early in 1302 was appointed one of the envoys to treat for peace with Philip of France, and in connexion with these negotiations was constantly in France until the proclamation of peace at Paris on 20 May, 1303.⁷ In October he went abroad to take possession of Gascony in the king's name, remaining there for the following year.⁸ On 16 September, 1305, he was one of the commissioners appointed in the Parliament at Westminster to arrange the affairs of Scotland, and in the same Parliament was a receiver and trier of petitions from Gascony.⁹ On 15 October he was sent on a mission to Lyons with presents to Pope Clement V.¹⁰ When he returned to London on 16 February, 1306, he was publicly received by the mayor.¹¹ Later in the year he went to Scotland with the Prince of Wales, who was ordered to act by his advice.¹² In July, in this year, contemplating the foundation of a college at Oxford, he obtained licence to alienate in mortmain the advowsons of five churches in cos. Lincoln and Northampton to thirteen scholars to dwell in the proposed house.¹³ In January, 1307, he was one of the commissioners appointed to hold a Parliament at Carlisle,¹⁴ and during the summer accompanied King Edward on his march to Scotland, and was present at his death at Burgh-on-the-Sands on 7 July.¹⁵ Towards the end of the year he was engaged in a mission to France.¹⁶

Having attended Edward II. into Scotland, he was present at the king's coronation at Westminster on 25 February, 1308, when he carried one of the swords of state.¹⁷ He advised the king in the first council after his coronation to confirm by writ his promise to ratify whatever the nation should determine.¹⁸ The monk of Malmesbury says that Lincoln gave his assent to the creation of Piers Gaveston as earl of Cornwall in August, 1307, and advised

¹ Rymer, *Foedera* (Rec. Com.), i. 905.

² *Dict. Nat. Biog.* xxxi. 374.

³ *Ibid.* Nicolas, *Caerlaverock*, 96. 'Henri le bon Conte de Nichole' bore a banner of yellow silk with a purple lion rampant (p. 5).

⁴ *Cal. Pat. R.* 1292-1301, 538-43; *Rishanger* (Rolls Ser.), 195-6, 451.

⁵ *Cal. Pat. R.* 1292-1301, 564.

⁶ Bain, *Cal. of Docs. Scot.* ii. 1191, 1224, 1235, 1240.

⁷ Rymer, *Foedera* (Rec. Com.), i. 952-5; *Cal. Pat. R.* 1301-7, 30-128 *pass.*; *Chron. Edw. I. and II.* (Rolls Ser.), i. 127-9; *Hemingburgh* (Eng. Hist. Soc.), ii. 230.

⁸ *Cal. Pat. R.* 1301-7, 157, 209.

⁹ *Rolls of Parl.* (Rec. Com.), i. 126, 159.

¹⁰ Rymer, *Foedera* (Rec. Com.), i. 974; *Cal. Pat. R.* 1301-7, 380.

¹¹ *Chron. Edw. I. and II.* (Rolls Ser.), i. 143-4.

¹² *Chron. Lanercost* (Bannatyne Club), 204.

¹³ *Cal. Pat. R.* 1301-7, 455; 1307-13, 11; Rymer, *Foedera*, i. 990.

¹⁴ *Rolls of Parl.* (Rec. Com.), i. 188-9; *Parl. Writs.* (Rec. Com.), i. 183.

¹⁵ T. Walsingham, *Hist. Angl.* (Roll Ser.), i. 116.

¹⁶ *Cal. Pat. R.* 1307-13, 13, 32.

¹⁷ *Parl. Writs* (Rec. Com.), ii. 10.

¹⁸ Stubbs, *Constit. Hist.* edit. 1880, ii. 346.

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the king that the separation of this earldom from the crown was within his power.¹ From being Gaveston's chief supporter after the king, he later became, through the former's ingratitude, one of his chief enemies,² his hostility to the favourite being already active in February, 1308.³ But in July, 1309, he was once more won over to Gaveston's side, only, however, to be speedily alienated by Gaveston's coarse familiarity in styling him 'pot-belly' (*boele crevée*), in reference to his figure. As a consequence, Lincoln joined with his son-in-law, Thomas, earl of Lancaster, and other earls, in refusing to attend the council summoned to York in October, 1309.⁴ At Stamford on 6 August previously he had joined in the letter of the barons to the Pope.⁵ He was one of the petitioners for the ordinances and one of the ordainers elected on 20 March, 1310, to supersede the king's authority until Michaelmas, 1311.⁶ Lincoln, however, seems to have acted with some duplicity, as he is alleged to have had a secret understanding with the king,⁷ who appointed him to be guardian of the kingdom during his absence in Scotland in September, 1310.⁸ Lincoln spent Christmas at his manor of Kingston in Dorset, probably engaged in sporting for wildfowl,⁹ but early in the next year he returned to London, where he died at his house in Holborn, afterwards called after him 'Lincoln's Inn,' on 5 February, and on the 28th of the same month was buried in the Lady Chapel of St. Paul's Cathedral.¹⁰ He had been a large contributor to the 'new work' at the cathedral.¹¹ Bishop Stubbs, quoting some chronicler, describes him as 'the closest counsellor of Edward I.'¹² His uncertain action in 1310 was perhaps due to the conflicting feelings of loyalty to his old master's son and of perpetuating his old master's policy.¹³ On his death-bed he is represented as counselling his son-in-law to opposition to the royal authority.¹⁴ Hemingburgh describes him as 'courteous, handsome, and active,'¹⁵ and elsewhere he is represented as 'active in war and ripe in counsel.'¹⁶ The 'Comptoti' of the earl's Lancashire and Cheshire manors were published by the Chetham Society in 1884,¹⁷ the Lancashire inquest after his death having been printed in 1868.¹⁸

Alice, his daughter and heir, was born in 1283, and was contracted in marriage to Thomas, son of Edmund, earl of Lancaster, the king's brother, in 1292, whom she married on 28 October, 1294.¹⁹ She left him in 1318, and took refuge with John, earl of Warenne.²⁰ After Thomas's death she married (before 1326) Eubolo L'Estrange. He died in 1335 and his widow married in February, 1336, Hugh de Freyne, who died the same year. The countess herself died 2 October, 1348, having borne no issue.

¹ *Chron. Edw. I. and II.* (Rolls Ser.), ii. 155; Stubbs, *Constit. Hist.* ii. 347n.

² *Chron. Edw. I. and II.* 158.

⁴ Hemingburgh (Eng. Hist. Soc.), ii. 275.

⁵ *Chron. of Edw. I. and II.* (Rolls Ser.), i. 161.

⁶ Rymer, *Foedera* (Rec. Com.), ii. 105; *Rolls of Parl.* (Rec. Com.), i. 445; Hemingburgh, ii. 276; Stubbs, *Constit. Hist.* ed. 1880, ii. 356.

⁷ Bain, *Cal. of Docs. Scot.* iii. 177.

⁸ *Cal. Pat. R.* 1307-13, 282.

⁹ *Ibid.* 146; *Cal. of Docs. Scot.* iii. 197.

¹⁰ A magnificent tomb supporting a cross-legged statue of the earl in linked mail perished in the great fire of London, but a representation has been preserved by Hollar. Whitaker, *Hist. of Whalley*, ed. 1876, i. 248; Wever, *Funer. Ments.* 366. His arms are described by Ormerod, *Hist. of Ches.* (ed. Helsby), i. 699b.

¹¹ Dugdale, *St. Paul's*, ed. 1818, 11.

¹³ *Dict. Nat. Biog.* xxxi. 375.

¹⁵ *Op. cit.* ii. 74.

¹⁷ (Old Ser.), vol. 112.

¹⁹ *Chron. Edw. I and II.* (Rolls Ser.), ii. 54.

¹² Stubbs, *Constit. Hist.* ed. 1880, ii. 346.

¹⁴ Walsingham, *Hist. Angl.* (Rolls Ser.), i. 130.

¹⁶ *Trokelovee* (Rolls Ser.), 72.

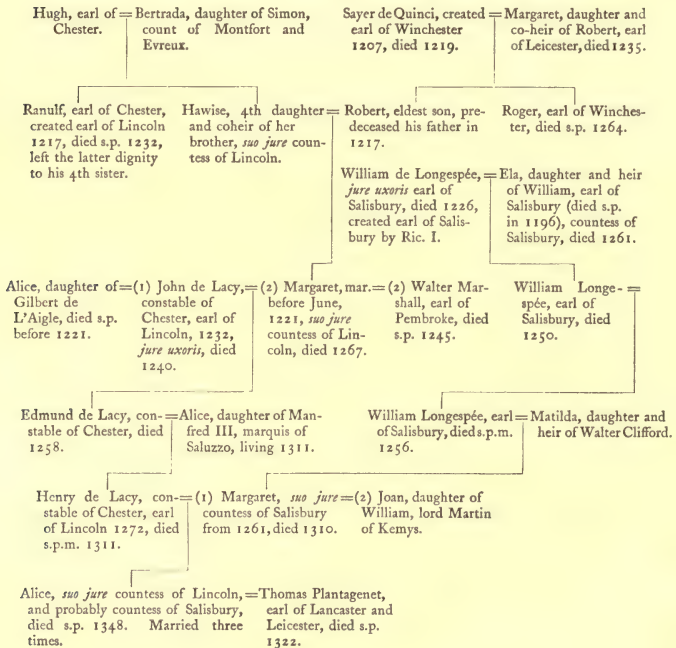
¹⁸ (Old Ser.), vol. 74 (1).

²⁰ *Ibid.*

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The baronies of Clitheroe, Penwortham, and Widnes, with the lordships of Rochdale and Tottington, remained in the hands of the crown from the attainder of Earl Thomas in 1322, until the reversal of the judgment in 1327, when they were delivered to Henry, earl of Lancaster, brother and heir of Thomas.¹ In 1351, upon the creation of his son Henry, as duke of Lancaster, they became merged in the duchy of Lancaster with the rest of the county and honour.

CHART TO ILLUSTRATE THE DESCENT OF THE EARLDOMS OF LINCOLN AND SALISBURY TO ALESIA, WIFE OF THOMAS, EARL OF LANCASTER



THE BARONY OF LACY, OF CLITHEROE

Of the various baronial families which obtained a footing in this county as feudatories of Roger of Poitou that of Lacy was the most powerful, and destined to become pre-eminently the greatest. Its first appearance in the county was not at so early a date as that of the constable of Chester, or that of Montbegon, dating after the completion of the survey, and

¹ L. T. R. Misc. Enrolled Accts. No. 14, mm. 68-78.

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perhaps early in the reign of Rufus. The original fee then received was the honour of Clitheroe, consisting of the hundred of Blackburn, to which it is probable that Henry I. added the parish of Rochdale in the hundred of Salford, part of the parishes of Ribchester and Chipping in the hundred of Amounderness, and the vill of Little Mitton, all of which were afterwards held by the service of five knights. After the termination of the original line in 1193 by the death of Robert de Lacy, the honour of Clitheroe passed to Roger, constable of Chester,¹ and augmented the constable's fief within the county to nine knights' fees. In 1205 this fief was further increased by Roger de Lacy's purchase from the Bussels of the barony of Penwortham.² A further augmentation took place in 1235, when John de Lacy, earl of Lincoln, acquired the fee of Tottington from Henry de Monewden.³ From this time the Lacy fee within the county consisted of 14½, out of a total of less than 26 knights' fees, or rather more than half.

Ilbert de Lacy, the first of his line, received a large fief from the Conqueror in the counties of York, Lincoln, and Nottingham.⁴ He seems to have belonged to a family which held two knights' fees of the bishop of Bayeux at Lassy, and Campeaux in La Calvados.⁵ He was the founder of the castle of Pontefract, the 'caput' of his Yorkshire fief, in which he founded the church of St. Clement during the reign of the Conqueror.⁶ To Selby Abbey he gave the manor of Hamilton,⁷ and to St. Mary of York lands at Stretton and Garforth with the church there, which Rufus confirmed in 1088-9.⁸ He survived until early in the reign of Rufus, from whom he had a charter confirming to him the custom from the castellary of his castle (of Pontefract), as he had it in the time of the king's father and in the time of the bishop of Bayeux.⁹ After his death his son, Robert de Lacy, was confirmed by King Rufus in the possession of all the land which his father had held and of which he had died possessed, both within his castellary of Pontefract and outside of it.¹⁰ An exchange which Robert made with Urse d'Abetot of the manor of Ingoldmells for that of 'Witchona' was confirmed by the king, probably in 1095.¹¹

The circumstances in which the honour of Clitheroe and hundred of Blackburn were apparently conferred upon Robert de Lacy in the time of Rufus have been touched upon in the chapter of the Domesday survey,¹² and will also be referred to in the account of the barony of Grelley of Manchester. During the reign of Rufus he also received from Roger of Poitou the manors of Great Mitton and Slaidburn with the region of Bowland, in the district of Yorkshire known as Craven, a gift subsequently confirmed by Henry I., in or about the year 1102, to be held of the king, as it had been held of Count Roger.¹³ This region was conterminous with Blackburn hundred on the

¹ See p. 300 above.

² See p. 336 below.

³ See p. 325 below.

⁴ He was also tenant of many manors in counties Oxon., Bucks, and Lincoln, under the bishop of Bayeux, *Dom. Bk.* i. 145, 155b-6b, 342-3.

⁵ *Red Book of the Exch.* (Rolls Ser.), 646. In 1146 Robert, earl of Gloucester, released to Philip, bishop of Bayeux, the fiefs of Ilbert and of Gilbert de Lacy, which they held of the church and bishop of Bayeux at Lassy and Campeaux, or elsewhere; Stapleton, *R. Seacc. Norman.* ii. p. lxx.

⁶ *Yorks. Arch. Journ.* xiv. 155, where, however, many of the gifts to this church attributed to him were given by his grandson Ilbert. See Dodsworth's MSS. cxviii. 76.

⁷ *Chartul. of Selby* (Yorks Rec. Soc.), i. 282-3.

⁸ *Duchy of Lanc. Misc. Ptf.* i. No. 36, m. 6.

⁹ *Pipe R. Soc.* x. 1; *Duchy of Lanc. Royal Charters.* i.

¹⁰ *Farrer, Lancs. Pipe R.* 382.

¹¹ *Mon. Angl.* iii. 547.

¹² *Ibid.*

¹³ See p. 282.

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north-west, the river Ribble forming the boundary, and was afterwards subject in many feudal respects to the honour of Clitheroe. The supposition that Robert de Lacy received these territories from Roger of Poitou in the reign of Rufus is further strengthened by the fact that after Roger's fall in 1102, Henry I. granted by charter to Robert five carucates of land, which had previously belonged to Warin Bussel's fee of Preston, or perhaps of Penwortham in Chippingdale, Aighton, and Dutton, three manors lying adjacent on the south-western border of Bowland.¹ By charter dated in the court at Pontefract, on the feast of St. Clement, 3 Henry I. (23 November, 1102), Great Mitton, within the region of Bowland and Aighton, one of the three manors comprised in the last-recited gift of Henry I., was granted with other lands in the honour of Clitheroe to Ralph le Rous by Robert de Lacy, to hold by knight's service.² This charter is of two-fold importance, for it not only testifies that Robert was at this time in possession of Clitheroe, Bowland, and lands in Amounderness hundred, west of the Ribble, but it goes some way towards contradicting the statement of the monk of St. Evroul, which is also at variance with later evidence, that Robert was brought to trial in 1102 for participation in the rebellion of Duke Robert of Normandy, and condemned in the king's court to forfeit his honours and depart the realm.³

In 1325 several royal charters in favour of Robert de Lacy, besides those already cited, were preserved at Pontefract Castle. In one of these Henry I. gave him all the lands which remained out of his possession belonging to his castellary of Pontefract, which the king had deaigned against him, to hold in fee and inheritance with soke and sake.⁴ In the reign of Rufus, Robert de Lacy founded a house of Cluniac monks at Pontefract and endowed them with lands and churches in his fief of Pontefract,⁵ and early in the reign of Henry I. he gave to certain Austin canons the site upon which was afterwards built the abbey of St. Oswald of Nostell, and land in Hardwick.⁶ After Robert's forfeiture and banishment, Henry I., whilst the castle and honour of Pontefract were in his hands, gave to the canons there established the woodlands which lay around the site of their church, and twelpepence a day out of his farm of Yorkshire.⁷ But this was some years after the king's accession, for in the latter part of the year 1109, we find Robert de Lacy attesting the royal confirmation charter in favour of the church of St. Cuthbert of Durham, granted at a great council held at Nottingham.⁸ Somewhat later he attested an agreement made by Archbishop Thomas II. (1109-1114), by which the clerks of St. Oswald released to the monks of Charité at Pontefract and to the priest of Featherston the parochial rights of the monks over the land of Nostell and Hardwick.⁹ Of about the same date, viz., 1112, was his charter to the monks of Pontefract, made by the advice of Archbishop Thomas and with the king's consent, of his demesne of Dodworth.¹⁰ But shortly after these acts

¹ Farrer, *Lancs. Pipe R.* 382. This grant, like that of Bowland, was found among the records preserved at Pontefract Castle in 1325, when a calendar of them was made by the order of Edw. II., which is now preserved amongs: the Duchy of Lanc. records in the Public Record Office. (*Misc. Ptf. i. No. 36.*)

² Towneley MSS. vol. H.H. *per* W. Farrer, No. 3896, from the Gt. Coacher of the Duchy of Lanc. ; *Lancs. Pipe R.* 385.

³ Ordericus Vit. x. c. xviii. ; xi. c. i. and ii.

⁴ *Chartul. of Pontefract* (Yorks. Rec. Soc.), 17.

⁵ *Ibid.*

⁶ *Chartul. of Pontefract* (Yorks. Rec. Soc.), ii. p. lx.

⁷ Duchy of Lanc. Misc. Ptf. i. No. 36, m. 1.

⁸ *Mon. Angl.* vi. 92.

⁹ Durham Chart. i. 39; *Saxton Sec.* i. p. xxxii.

¹⁰ *Ibid.* i. 25; also No. ii. p. 18.



ROGER, CONSTABLE OF CHESTER, 1193-1211.



ROGER DE LACY, CONSTABLE OF CHESTER, 1193-1211.



ALICE, WIDOW OF EDMUND DE LACY, AND DAUGHTER OF MARQUIS OF SALUZZO, 1257-6. 1311.



JOHN DE LACY, EARL OF LINCOLN, 1232-1240.



HENRY DE LACY, EARL OF LINCOLN, 1272-1311.

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he lost his English fief and departed the realm. The chronicles throw no light upon the causes of his banishment, although his supposed attitude on the occasion of duke Robert's rebellion in 1102 suggests that his sympathies lay with the duke against his sovereign. Perhaps the events which passed in Normandy between the seizure and imprisonment of Robert of Belesme in November, 1112, and the insurrection of Villeraï and other lords of Belesme and Ponthieu, which terminated with the fall of the castle of Belesme in May, 1114, may account for de Lacy's fall. Whatever the causes it is certain that this event happened shortly before the date of the Lindsey survey, which was made between 1115 and 1118, for in that record we find Hugh de Laval in possession of the extensive estates which Ilbert de Lacy had held under Odo, bishop of Bayeux, or in chief, at the compilation of Domesday.¹ The date of Robert's death is unknown. By Maud his wife, who survived until after 1150,² he had issue Ilbert, Henry, a third son who was slain at the battle of the Standard, and a daughter Albreda, married in or before 1130 to Robert de Lisours,³ from which marriage descended the later line of Lacy. In or before the year 1120 Hugh de Laval made great gifts of lands and churches in his honour of Pontefract to the priory founded there by his predecessors, adding thereto the church of Slaidburn in Bowland, and in 'Cheshire' the church of Whalley, the chapel of his castle of Clitheroe with tithes of the demesne of the castle, the church of St. Mary Magdalene in Clitheroe, and the churches of Colne and Burnley.⁴ His bestowal upon the canons of Nostell⁵ of many churches and much land within his honour of Pontefract was effected about the same time as the gifts to Pontefract, being confirmed by Henry I., together with the earlier gifts of Robert de Lacy and many of his chief feudatories,⁶ by a charter said to have been dated on 4th of the Ides of January (10) 1121.⁷ Hugh de Laval died shortly before Michaelmas, 1130, at which time Richard Guiz owed two war-horses for confirmation of land in Yorkshire given to him by the said Hugh,⁸ and William Maltravers a thousand marks for Hugh's lands for fifteen years, and one hundred pounds for the marriage of his widow and her dower after the lapse of the said term.⁹ Maltravers appears to have withheld the church of Whalley from the monks of Pontefract and to have stayed their action to recover the same by the grant of a mark yearly, so long as he might hold the honour of Pontefract.¹⁰ This was for no long time, for as soon as the death of Henry I. was known, Maltravers was mortally wounded by the hand of one of his own knights, Pain by name, and having taken the monastic habit died three days later.¹¹

¹ *Lindsey Survey*, edit. Greenstreet, *passim*.

² *Chartul. of Pontefract* (Yorks. Rec. Soc.), 469.

³ *Pipe R.* 31 Hen. I. (Rec. Com.), 8. The reference to Albreda as the sister of Ilbert de Lacy points to the death of Robert de Lacy having occurred previously.

⁴ *Chartul. of Pontefract* (Yorks Rec. Soc.), i. 21. The position of Richard, bishop of Hereford (consecrated 16 January, 1120), last amongst the witnesses, suggests that this charter was expedited at a date very near the bishop's consecration.

⁵ *Mon. Angl.* vi. 92b.

⁶ *Ibid.* 92.

⁷ *Ibid.* 90. The possessions of the canons of Nostell were also confirmed by Pope Calixtus II. in the first year of his pontificate (1119-20). The charter attributed to Robert de Lacy I. by the editors of the *Monasticon*, and by them described as the charter of foundation, belongs to Robert, the last of the old line of de Lacy, who died in 1193. Many writers of histories (cf. Hunter, *Doncaster*, ii. 201-2) and compilers of chartularies have wrought great confusion by mistaking the charters of the later Ilbert and Robert for those of the Ilbert of Domesday and of his son.

⁸ *Pipe R.* 31 Hen. I. (Rec. Com.), 34.

⁹ *Ibid.*

¹⁰ *Chartul. of Pontefract* (Yorks. Rec. Soc.), 535.

¹¹ *Chron. of Stephen, Ric. of Hexham* (Rolls Ser.), 140.

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King Stephen immediately restored the honours of Pontefract and Clitheroe to Ilbert de Lacy, son of Robert,¹ and pardoned his men all forfeitures committed after the death of King Henry until the king's coronation, and especially of the forfeiture for the murder of Maltravers.² Ilbert was a staunch supporter of King Stephen, and is found in frequent attendance upon him. At Easter, in 1136, he attested at Westminster a royal charter confirming the bishopric of Bath to Robert, bishop elect,³ and the same year he attested the royal charter to Winchester and the second charter of liberties granted by the king at Oxford,⁴ and another to Cluny Abbey dated at Winchester.⁵ He was one of the leaders of the English at the battle of the Standard, fought near Northallerton on 22 August, 1138, where his younger brother was slain, the only life lost amongst the English knights.⁶ He fought for his sovereign at the battle of Lincoln in February, 1141,⁷ where it would seem that he was either slain or taken captive and died in captivity, for there is no further chronicle of his acts. He married Alice, daughter of Walter de Gaunt, the founder of Bridlington Abbey, by whom he had no issue. She married, secondly, Roger de Mowbray, and gave to Pontefract Priory a carucate of land in Ingoldmells, with which she had been endowed by her first husband.⁸ Ilbert's next heir was his brother Henry, but the latter did not at once succeed to his brother's fief. Possibly he was under age at the time of Ilbert's death. The honour of Pontefract is said to have been conferred by Stephen upon William de Roumare,⁹ who had then recently been created earl of Lincoln;¹⁰ but the statement must be entirely discredited, and is probably due to confusion with Gilbert de Gaunt—created earl of Lincoln by King Stephen in 1147, apparently during the lifetime of the other earl—who laid claim to the honour of Pontefract against Henry de Lacy, who, however, seems to have been then old enough and powerful enough to resort to force for the recovery or defence of his inheritance.¹¹ The contention between the two claimants was waged without apparent interference by the king, and eventually ended in favour of de Lacy, but not until the priory of Pontefract had been laid in ruins.¹² Possibly de Lacy at this time obtained

¹ *Chron. of Stephen* (Rolls Ser.), iii. 140; *Surtees Soc.* xlv. 64-5, 119.

² *Duchy of Lanc. Misc. Ptf.* i. No. 36, m. 1. ³ *Madox, Hist. of the Exch.* i. 14.

⁴ *Ric. of Hexham* (Rolls Ser.), 150; *Round, Geof. of Mandeville*, 263.

⁵ *Round, Cal. of Docs., France*, 509.

⁶ *Alfred of Rievaulx*, 182; *Matth. Paris, Chron. majora* (Rolls Ser.), i. 258, 260; *Hoveden* (ibid.), i. 196.

⁷ *Ord. Vitalis, Hist. Eccl.* xiii. c. xliii. ⁸ *Chartul. of Pontefract* (Yorks. Rec. Soc.), 527.

⁹ The authority for this statement is *Yorke's Union of Honour*, where it is stated that Stephen gave the earl in 1141 the manor of 'Chirchecoon' (Kirketon, i.e. Tickhill), the castle of Gainsborough (*rectius* Conisborough), and the castle of Pontefract. So far as the first two places are concerned the statement is correct, as an abstract of this grant—in which Kirkton and Gainsborough are mentioned—remains on record. But as regards Pontefract Castle, the same record, by its failure to make any mention of that place or castle, entirely refutes the statement. *Dep. Keeper's 31st Rep.* App. i. 1.

¹⁰ *Round, Geof. de Mandeville*, 271.

¹¹ Gilbert de Gaunt married Roesia, daughter of Richard fitz Gilbert, styled 'de Clare,' and sister of the half-blood to William de Roumare, earl of Lincoln, the date of whose death is very uncertain, but apparently occurred some years after Gilbert de Gaunt had been created earl of Lincoln. The fact that Alice de Gaunt, relict of Ilbert de Lacy, was sister of Gilbert, and at this time held one-third of the de Lacy estates in dower, in some measure may account for her brother's designs upon the honour of Pontefract.

¹² *Chartul. of Pontefract* (Yorks. Rec. Soc.), 49. Gilbert de Gaunt, under sentence of excommunication, covenanted to pay the monks of Pontefract 6 librates of rent yearly in consideration of the great injuries which he had caused to them during the war between him and Henry de Lacy. *Ibid.* 520-1. The gift of 1 carucate of land in Ingoldmells by Alice de Gaunt, relict of Ilbert de Lacy, for which she had the consent of Henry de Lacy (*ibid.* 527), and the gift of Alice de Rumelli of a carucate in Broughton in Craven (*ibid.* 476), were probably made in consideration of the injury suffered by the monks of Pontefract at this time.

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succour at a critical moment by coming to terms with Guy de Laval, by a compact which seems to have involved the sacrifice of one-third part of the honour.¹ These events transpired about the year 1147, a year notable in the history of this family for the foundation by Henry de Lacy of an abbey of Cistercian monks brought from Fountains at Barnoldswick, in Craven, a vill which he held of Hugh Bigod, earl of Norfolk,² having probably been acquired by one of Lacy's predecessors by reason of its contiguity to the hundred of Blackburn. In 1153 the abbey was removed to a more genial site in Airedale, afterwards called Kirkstall.³ Amongst other benefactions Henry de Lacy gave to this house half a mark yearly for altar lights, and a mark yearly for the abbot's vestment, charging his farm of Clitheroe with the payment.⁴ Before 1153-4 he gave lands in Grindleton to the abbey of Salley, which William de Percy had founded in 1147.⁵ It is difficult to arrive at the proximate date of Stephen's charter to Henry de Lacy, granting to him in fee the castle of Almondbury, near Huddersfield, the land of Dalton, near the same, and the castle of Barwick in Elmet.⁶ These places had belonged to the honour of Pontefract since the Conquest, and had doubtless been taken into the king's hand during the civil war for the sake of the castles, which may have been built during the war. The restoration of these places probably took place during the lull which lasted from 1147 to 1152. There is no evidence that Henry de Lacy actively supported either side during the period of war which lasted from 1141 to 1147, perhaps by reason of his youthfulness or on account of the sickness from which he at that time suffered, as we are told;⁷ but Henry, after his accession to the crown, pardoned Lacy anything that the latter had forfeited in the war previous to the pact made between Duke Henry and Stephen.⁸ Another royal charter of the same period testified that the king and his mother, the Empress Matilda, had pardoned Henry de Lacy and his heirs the anger and illwill which Henry, the king's grandfather, had borne towards Robert de Lacy, the father of Henry, and whatever Henry had forfeited before he did homage to the king, and further granted and confirmed to him and his heirs the honour of Pontefract, with all its appurtenances both in England and in Normandy.⁹

In 1158 Henry de Lacy was pardoned the sum of £38 6s. 8d. in Yorkshire due towards the 'donum' assessed in 1156.¹⁰ This relief was probably in respect of military service performed in the Welsh campaign of 1157, in which Eustace fitz John was slain. So also in 1165 he was pardoned the scutage due upon the five knights' fees of his honour of

¹ Dugdale, *Baronage*, i. 99; Madox, *Hist. of the Exch.* i. 643, note b.

² *Mon. Angl.* v. 530. His charter declaring the boundaries between Barnoldswick and the forest of Blackburnshire, and a letter to Henry II. praying for confirmation of the grant of Barnoldswick to the monks of Kirkstall, are in the Coucher of that abbey. *Thoresby Soc.* viii. 189. The bounds of Barnoldswick were perambulated at the time of the foundation of the abbey to establish the boundary between that vill and the forest of Blackburnshire. *Mon. Angl.* v. 532; Co. Plac. Lanc. No. 11. *Coucher of Kirkstall* (Thoresby Soc.), 54-5.

³ *Surtree Soc.* xlii. 90. De Lacy's confirmation of the place of Kirkstall and Barnoldswick, and other lands given by his feudatories, was attested by Henry Murdac, archbishop of York, who died in October, 1153. *Coucher of Kirkstall* (Thoresby Soc.), 50n.

⁴ *Mon. Angl.* v. 535.

⁵ *Ibid.* v. 515b.

⁶ Duchy of Lanc. Misc. Ptf. i. No. 36, m. 2 d.; *Yorks. Topog. Journ.* xv. 118.

⁷ *Mon. Angl.* v. 530.

⁸ Duchy of Lanc. Misc. Ptf. i. No. 36, m. 3.

⁹ *Ibid.* m. 1. Apart from any consideration that Hen. II. may have had for de Lacy's possible services in the past, it is obvious that he would be eager to win over to the crown the support of so potent a noble.

¹⁰ *Pipe R.* (Rec. Com.), 147.

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Clitheroe, because his knights had served with the king in Wales that year.¹ Three years later he accounted for the scutage due from $42\frac{1}{2}$ and $\frac{1}{4}$ knights' fees of the honour of Pontefract and $13\frac{3}{8}$ of new feoffment.² In 1171 he was amerced £100 by the justices in eyre of the forest for a hart killed in the royal forest,³ and next year he rendered account of the scutage due from his Yorkshire fief.⁴ In 1173 he was with the king at Breteuil in the campaign against the French king.⁵ In 1175 he attested the royal confirmation in favour of Welbeck Abbey, dated at Nottingham,⁶ and in 1177 attested the king's award between the kings of Castille and Navarre.⁷ About the month of May that year he set forth with the earl of Essex and other notables to join the count of Flanders in a crusade.⁸ From this expedition he never returned, dying, as it was believed, in the Holy Land on 25 September following.⁹ His wife is said to have been Albreda,¹⁰ sister of William de Vesci, parson of Barwick in Elmet.¹¹ By her he had issue an only son Robert. Only three infuedations which he made in the honour of Clitheroe have remained upon record. To Hugh, son of Leofwin, he gave the manors of Altham, Clayton le Moors, Accrington, and a moiety of the manor of Billington;¹² to Robert Banastre, lord of Makerfield, he gave Walton in le Dale, Mellor, Eccleshall, Little Harwood, Over and Nether Darwen,¹³ and to Richard Fitton he gave Great Harwood.¹⁴ All these grants belong to the period 1160–1177.

Robert de Lacy is first mentioned in one of his father's charters belonging to the year 1160.¹⁵ Before 1183 he gave an oxgang of land in Great Marsden to his maternal uncle, William, son of Eustace de Vesci,¹⁶ and two oxgangs there to the monks of Pontefract.¹⁷ In 1185 he gave 40 marks to have certain of his men, who were said to have slain outlaws, tried in the king's court.¹⁸ He was present at the king's coronation in 1189,¹⁹ and about this time gave to Kirkstall Abbey a vaccary and woodland at Roundhay;²⁰ and for the welfare of the soul of Isabel his wife, and of his own soul, gave all Accrington, with the wood there called the Hay, and also Rushton Grange, in Bowland,²¹ and confirmed many grants to the priory of Nostell.²² He likewise warranted by charter to William de Arches the grants of his ancestors to William's predecessors of the liberty to take venison in their fee in Wiswall, Hapton, and Osbaldeston.²³ To Eward Brun he gave half a caru-

¹ Farrer, *Lancs. Pipe R.* 6; *Pipe R. Soc.* 52; *Staff. Collect.* i. 45.

² *Pipe R. Soc.* xii. 88. In 1166 Henry de Lacy returned his fees of this honour as 77½ fees, including 18½ held by Guy de Laval, 2 held in alms, his own, viz. 40½ of old feoffment, and just over 18 of new feoffment. *Red Book of the Exch.* (Rolls Ser.), 421–4. In 1172 the numbers were 43½ and 31½ respectively. Madox, *Hist. of the Exch.* i. 629.

³ *Pipe R. Soc.* xvi. 73.

⁴ *Pipe R. Soc.* xviii. 61.

⁵ *Benedict* (Rolls Ser.), i. 51.

⁶ *Mon. Angl.* vi. 875.

⁷ *Hoveden* (Rolls Ser.), ii. 131.

⁸ *Benedict* (Rolls Ser.), i. 159. A great battle was fought at Rames in Palestine on 26 November, 1177.

⁹ *Mon. Angl.* v. 533b.

¹⁰ Towneley MSS. Chetham Lib. C. 8, 8; Brooke, *Discovery of Errors* (1723), 63.

¹¹ *Mon. Angl.* v. 533b.

¹² Whitaker, *Hist. of Whalley*, edit. 1876, ii. 265. A Hugh, son of Lefwin, was amerced in Yorkshire in 1175 for having received goods from Flanders into his shop. *Pipe R. Soc.* 21 Hen. II. 180.

¹³ *Hist. of Whalley*, ii. 330.

¹⁴ *Ibid.* 388 n.

¹⁵ *Chartul. of Pontefract* (Yorks. Rec. Soc.), 30.

¹⁶ *Ibid.* 42. William de Vesci died before Easter, 1183; Grimaldi, *Rot. de dominabus*, 5.

¹⁷ *Chartul. of Pontefract*, 26.

¹⁸ *Pipe R.* 31 Hen. II. Yorks. ro. 5 d.

¹⁹ *Benedict* (Rolls Ser.), i. 80.

²⁰ *Mon. Angl.* (Dodsworth), vi. 862; *Chartul. of Pontefract* (Yorks. Rec. Soc.), 315.

²¹ *Coucher of Kirkstall* (Thoresby Soc.), 196, 199.

²² *Mon. Angl.* vi. 92.

²³ Duchy of Lanc., formerly Cl. xxv. bble. R. 13, v.

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cate of land in Briercliffe and 30 acres of wood in Rowley.¹ To Adam de Blackburn, his clerk, he gave the moiety of the church of Blackburn, which Adam's ancestor Richard had held, and the benefice which the said Richard held in the church of Whalley.² To Robert son of Henry he gave half the vill of Ribchester in thegnage for 7 shillings yearly, reserving the advowson of the church.³ His wife's name was Isabella,⁴ in one place named Sabina,⁵ of unknown parentage, by whom he had no issue. She afterwards married Gilbert de L'Aigle.⁶ Robert died on 21 August, 1193, shortly before the commencement of John's rebellion, and was buried in the abbey of Kirkstall.⁷ With his death terminated the old line of Lacy. His two honours of Clitheroe and Pontefract passed at his death to the daughter of his aunt, Albreda, wife of Robert de Lisours, named after her mother who died in 1166. The younger Albreda had married before 1142 Richard fitz Eustace, constable of Chester in right of his mother, who died before 1163,⁸ leaving issue John, constable of Chester, who predeceased his mother. In the account of the barony of the constable of Chester it has already been shown that Albreda, the relict of Richard fitz Eustace, after the death of Robert de Lacy, released to her grandson, Roger, constable of Chester, the honours and estates which had descended to her upon the death of her kinsman in 1193, the fee of Sprotborough being reserved to her for life with remainder to her son William fitz William, to hold of Roger and his heirs by the ancient service of eight knights' fees.⁹ Under this settlement the honours of Pontefract and Clitheroe passed to the line of the constables of Chester, who assumed the surname of Lacy, and eventually became earls of Lincoln of that line.

THE BARONY OF MONTBEGON¹⁰

There is ample evidence of the creation of this fee soon after the Conquest in the references in Domesday to manors held by Roger, the man of

¹ Towneley MSS. Chetham Lib. C 8, 8.

² *Coucher of Whalley* (Chetham Soc.), 76.

³ Duchy of Lanc. Misc. Ptf. 1, No. 36, m. 7.

⁴ *Coucher of Kirkstall* (Thoresby Soc.), 196.

⁵ *Mon. Angl.* v. 515b.

⁶ In 1209, Roger, constable of Chester, was demanding against them lands held by her in dower which she was considered to have forfeited by her second marriage. *Abbrev. Placit.* (Rec. Com.) 65b; *Chartul. of Pontefract* (Yorks. Rec. Soc.), xxii. In 1194 John de Birchin brought a plea of land against Isabella de Lasci, *Rot. Cur. Reg.* (Rec. Com.) i. 127. Isabella survived until 1234. *Excerpta e Rot. Fin.* (Rec. Com.), i. 269.

⁷ *Mon. Angl.* v. 533b; Duchy of Lanc. formerly Cl. xxv. A.A. 8 (7).

⁸ See the barony of Widnes, p. 299.

⁹ *Lanc. Fines*, Lanc. and Ches. Rec. Soc. xxxix. 1. See above, p. 300.

¹⁰ Dugdale, *Baronage*, i. 618b. In this county the lands belonging to this barony included—

Hornby cum membris:—Arkolme with Cawood, Tunstall, Cantsfield, Melling with Wrayton, Wennington, Hornby with Farleton, Wray with Botton, Roeburndale; containing 28½ carucates of land and originally held in demesne.

Croston cum membris:—Croston, Mawdesley, Bispham, Tarleton; containing 10½ carucates of land and held in demesne until circa 1200.

Tottington cum membris:—Tottington Higher End, Tottington Lower End, Musbury, Walmersley cum Shutleworth, Bury, Elton, Birtle cum Bamford, Ainsworth, Great Lever, Heap, Pilsworth, Hopwood, Thornham, Middleton, Tonge, Alkington, Chadderton; containing approximately 12 carucates of land, and held by the service of 2 knights.

In Lincolnshire lands lying in the following townships belonged to this barony:—Northorpe, Southorpe, Thonock, Dunstall, Laughton, Scotton, Yawthorpe, Tealby, Walesby, Otby, Market Rasen, South Kelsey, Waddingham, Stainton, Thornton le Moor, Holton le Moor, Nettleton, Elsham, Clixby, Howsham, Cuxwold, Blyton, Tydd Gote, Sutton, Fleet; these lands were held by the service of 5 knights.

In Suffolk:—Monewden; held by the service of 1 knight.

Testa de Nevill (Rec. Com.), 400, 405, 411; *Lancs. Inq.*, Rec. Soc. Lanc. and Ches. vol. 48, pp. 59-60.

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Roger of Poitou, in South Kelsey, Thornton-le-Moor, Holton-le-Moor, Tealby and elsewhere in Lincolnshire.¹ Between Ribble and Mersey, Roger, the knight of Roger of Poitou, held lands in three out of the six hundreds into which that district was divided.² In 1094 his chief lord confirmed to the abbey of St. Martin of Sées, *inter alia*, the tithe of the land of Roger de Montbegon³ at South Kelsey, Tealby, and Tydd Gote, and of all his demesne between Ribble and Mersey, which Roger and Sezilia his wife had previously granted by their charter, with tithes also of their demesne beyond the river called 'Ripa' (Ribble).⁴ Roger did not participate in the forfeitures of 1102 and 1106, but upon the creation of the honour of Lancaster by Henry became tenant of lands held of that honour by the service of eight knights, which service his descendant owed to the honour in the time of Henry II. At the date of the Lindsey survey (1115-8) Roger held under Stephen, count of Mortain, lands in Waddingham, Laughton, Thorpe, Thonock, Dunstall, Scotton, Yawthorpe, Blyton, Tealby, South Kelsey, Thornton-le-Moor, Holton-le-Moor, Walesby, Market Rasen, Nettleton, Elsham, Clixby, and Howsham,⁵ which his descendants afterwards held.⁶

Roger de Montbegon, probably son of the last-named Roger, was amerced 30 marks in 1129-30 by Richard Basset and William de Albini, justices in eyre in co. Lincoln.⁷ When Stephen, *circa* 1149, temporarily resigned to the earl of Chester his land between Ribble and Mersey, and, the honour of Lancaster beyond the Lyme, the lands of Roger de Montbegon in Lincolnshire were expressly excepted from the grant, a reservation which points to the king's desire to retain the service of a favourite and powerful baron.⁸ Roger de Montbegon II. was succeeded by his son Adam about the commencement of the reign of Henry II.⁹ A few years later Adam attested the confirmation by William, count of Boulogne, of an agreement made between the monks of Furness and Michael le Fleming, lord of one half of Furness.¹⁰ Between 1160 and 1170 he pledged Crofton, in Yorkshire, to Henry de Lacy, of Pontefract, who subsequently obtained the king's charter ratifying the transfer.¹¹ He married Maud, younger daughter and co-her of Adam fitz Swain, lord of Silkstone, co. York,¹² and of Kirkandreas, Melmerby, and Ainstable, co. Cumberland.¹³ Perhaps in connexion with his wife's inheritance in this county, consisting of the manor of Croston with its members and one moiety of the region formerly known as Kaskenmoor, which embraced the townships of Crompton and Oldham with their hamlets, a debt of 75 marks is recorded in 1170 as due from Adam de Montbegon from the time of the shrievalty of Geoffrey de Valoignes (*circa* 1160-64).¹⁴ This debt was pardoned in 1172, after Adam's death, by the king to John Malherbe, who had married Adam's widow.¹⁵ Amongst the various acts of

¹ *Dom. Bk.* i. 352.

² *Ibid.* 269b-270.

³ The name was perhaps derived from the village of Montbizot on the Sarthe.

⁴ Round, *Cal. of Docs. France*, 236-7.

⁵ *Lindsey Survey*, edit. Greenstreet, pass.

⁶ *Testa de Nevill* (Rec. Com.), co. Linc.

⁷ *Pipe R.* 31 *Hen. I.* (Rec. Com.), 116.

⁸ Farrer, *Lancs. Pipe R.* 368.

⁹ To Roger de Montbegon II. may be attributed the feoffment of the ancestor of Gilbert de Notton in the vill of Chadderton, in this county. *Testa de Nevill* (Rec. Com.), 405.

¹⁰ *Coucher of Furness*, Chetham Soc. (New Ser.), xi. 456; Duchy of Lanc. Anct. D., L. 342; Farrer, *Lancs. Pipe R.* 307.

¹¹ Duchy of Lanc. Misc. Ptf. i. No. 36, m. 2.

¹² *Chartul. of Pontefract*, Yorks. Rec. Soc. xxx. pass.

¹³ Prescott, *Reg. of Wetherhal*, 40 n.

¹⁴ Farrer, *Lancs. Pipe R.* 15.

¹⁵ *Ibid.* 23; *Reg. of Wetherhal*, 312.



ROGER DE MONTBEGON, c. 1172-1226.



ROBERT GRELLEY, 1194-1230.



WILLIAM DE LANCASTER, 1220-1246.



THOMAS, LORD LA WARR, 1398-1426.

SEALS OF FEUDAL BARONS OF LANCASHIRE.—PLATE IV.

FEUDAL BARONAGE

Adam de Montbegon are to be noted the grant, with his wife's consent, of Kirkandreas to the monks of Wetherhal¹; their confirmation of the gifts made by Adam son of Swain to the priory of Monk Bretton²; the feoffment of Geoffrey de Valoignes in the villis of Farleton and Cantsfield, members of Hornby³; the foundation of the priory of Premonstratensian canons at Hornby, a filiation of Croxton Abbey; and the grant of his lands of Kelsey, Thornton, and 'Biestorp' to Gilbert Hansard.⁴

Roger de Montbegon III., son of Adam, was probably a minor at his father's death in 1171-2. In 1187 he had acquittance of the scutage of Galwey upon six of his knights' fees outside this county.⁵ In the spring of 1194 he took part in the rebellion of his chief lord, John, count of Mortain,⁶ being one of the defenders of Nottingham Castle against the bishop of Durham, vicegerent during the king's absence.⁷ Whereupon some part of his lands were seized and committed to William de Albini of Belvoir.⁸ On 27 March he submitted himself to the king's clemency⁹ by joining in the surrender of Nottingham Castle, and was afterwards pardoned, compounding for his adherence to the king's rebellious brother by the payment of a fine of 500 marks.¹⁰ In the year 1200 he was with the king in the expedition to Normandy, and had acquittance of scutage upon his eight knights' fees.¹¹ About this time he gave the Holmes in Tarleton, adjoining Martin Mere, with lands in Tarleton and Little Hoole, parcel of his lordship of Croston, and in Cawood, parcel of his lordship of Hornby, to the Cluniac monks of Thetford, who subsequently gave the Holmes to Cockersand Abbey, during the abbacy of Abbot Roger (1199-1205).¹² He also released to the church of St. Martin of Sées and to Lancaster Priory his right in the chapel of Gressingham, and secured to the church of Lancaster for altar lights a yearly rent of two shillings out of the issues of the church of Melling, for the welfare of his own and his ancestors' souls.¹³ To the priory of Monk Bretton he gave the wood of Holcombe and common rights in Tottington.¹⁴ He married, in 1199,¹⁵ Olive, formerly the wife of Robert de St. John, daughter and heir of Alan son of Jordan, lord of Broughton Brant, co. Lincoln, and Tuxford, co. Notts,¹⁶ for whose marriage he gave 500 marks.¹⁷ From 1201 to 1204 he was mostly engaged in the king's service in Normandy, having acquittance

¹ Prescott, *Reg. of Wetherhal*, 368.

² *Mon. Angl.* v. 138.

³ *Testa de Nevill* (Rec. Com.) 406b.

⁴ *Chart. R.* (Rec. Com.), 23.

⁵ Farrer, *Lancs. Pipe R.* 64.

⁶ Perhaps his adherence was purchased by a grant of lands in Legherton, Stretton, Littlebury, and Cotes, co. Notts, to be held by the service of one knight's fee, the service of William de Tatham, in Tatham and Ireby, co. Lanc.—*Close R.* i. 215b—and the manor of Oswaldbec, co. Notts, for the service of one knight, which latter John confirmed when king in 1199 (*Cartæ Antiquæ*, G. 8; *Pipe R.* i John, Ebor. m. 10). Perhaps he also had at this time the manor of 'Waverton,' co. Sussex, *Close R.* (Rec. Com.), i. 241.

⁷ *Hoveden* (Rolls Ser.), iii. 240.

⁸ Farrer, *Lancs. Pipe R.* 93, 95, 99, 101. Also cf. *Rot. de Oblatis* (Rec. Com.), 123.

⁹ *Hoveden* (Rolls Ser.), iii. 240.

¹⁰ Farrer, *Lancs. Pipe R.* 99.

¹¹ *Ibid.* 114, 134.

¹² *Cockersand Chartal.* (Chetham Soc.), 466, 469. Dugdale erroneously attributes this gift to Roger de Montbegon II, *Baronage*, 618b.

¹³ *Regist. of Lanc. Priory* (Chetham Soc.), 20.

¹⁴ *Lansd. MS.* No. 405, 43b; Whitaker, *Hist. of Whalley*, edit. 1876, i. 325-5.

¹⁵ Possibly he had married as his first wife the eldest daughter of Thomas D'Arcy, of co. Lincoln; Grimaldi, *Rot. de Dominabus*, 8.

¹⁶ See Round, *Peerage Studies*, pp. vii, 115 et seqq. *The Genealogist*, xviii. 1 et seqq. *Lancs. Inq. Rec. Soc.* xviii. 81. William de St. John was suing Roger in a plea of land in this county in Easter term, 1206, *Cur. Reg. R.* No. 42, m. 11d.

¹⁷ *Rot. de Oblatis* (Rec. Com.), 41. Roger held Broughton Brant and the soke in demesne and Tuxford with the soke in 1212 of the honour of Richmond. *Testa de Nevill* (Rec. Com.), 22b, 343b.

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of scutage on his fees in the first five scutages of John's reign.¹ In 1202 the castle of Tillières was delivered into his custody by the king,² but in December, 1205, he incurred the royal displeasure in connexion with the imprisonment of a certain Wenhunwen by the earl of Chester, whereupon his castle of Hornby and all his lands were seized, but within three months restored, the archbishop of Canterbury and the constable of Chester being sureties for his future fidelity to the king³ and himself finding hostages, viz., Gilbert son of Gilbert de Notton, and Warin son of Ralph de Mare.⁴ In August, 1208, he was with the king at Kirkby Kendal.⁵

The following particulars of the fees belonging to this barony are taken from the great inquest of service made at Midsummer, 1212,⁶ supplemented by the inquest of the Gascon scutage made in 1242-3.⁷ It will be noted that whilst the barony was held of the honour of Lancaster by the service of eight knights, the total service due to Henry de Monewden in 1242-3 amounted to over eleven knights' fees.

IN CO. LANCASTER

	1212	1242-3
Hornby Castle cum membris	In demesne . Roger de Montbegon .	Hubert de Burgh, holding of Henry de Monewden
Farleton and Cantsfield	$\frac{3}{4}$ knight's fee ($\frac{1}{12}$ fee in 1242-3).	Hugh de Morewich
Wennington	$\frac{1}{4}$ knight	Elias de Wennington
Farleton	$\frac{1}{12}$ knight	Elias de Wennington
Tottington and Holcome	In demesne . Roger de Montbegon .	Henry de Monewden
Bury with the hamlets	1 knight	Adam de Bury
Middleton with the hamlets	1 knight	Roger de Middleton Middleton
Chadderton with Foxdenton	$\frac{1}{4}$ knight	Gilbert de Notton
Croston cum membris	1 knight	John Malherbe

IN CO. LINCOLN

Fleet (6 car.) ⁸	$\frac{2}{3}$ knight	Thomas de Multon
Sutton (9 car. 6 bov.) ⁹		William Lungspee (?)
		William Lungspee (7 car. 6 bov.)
Tydd Gote ¹⁰ (2 car. 2 bov.)	$\frac{1}{2}$ knight	William de Ros (?)
		Adam de Tydd (?)
Howsham ¹¹	$\frac{1}{6}$ knight	Roger de Montbegon (?)
		John son of Benedict, of Simon de Hundon
Nettleton ¹²	$\frac{1}{2}$ knight	Richard Blanchard
Clixby		
Holton le Moor		
Market Rasen ¹³	$\frac{1}{2}$ knight	Richard Blanchard
		Grace de Insula, of William Blanchard

¹ Farrer, *Lancs. Pipe R. pass.*

² *Pat. R.* (Rec. Com.), i. 18.

³ *Close R.* (Rec. Com.), i. 16, 22; *Pat. R.* (Rec. Com.), i. 48b.

⁴ *Rot. de Finibus* (Rec. Com.), 275; *Close R.* (Rec. Com.), i. 53b.

⁵ *Chart. R.* (Rec. Com.), 182.

⁶ Exch. K.R. kts. fees, $\frac{1}{4}$; *Testa de Nevill* (Rec. Com.), Lancs. 404b, 408b, Linc. 334-48.

⁷ *Testa de Nevill* (Rec. Com.), Lancs. 400, 411, Linc. 304, 312-332.

⁸ *Ibid.* 313b, 345, 411.

⁹ *Ibid.*

¹⁰ Said to be held in chief of the honour, *Ibid.* 400.

¹¹ *Ibid.* 315.

¹² *Ibid.* 315b.

¹³ *Ibid.* 316b.

FEUDAL BARONAGE

IN CO. LINCOLN (*continued*)

		1212	1242-3
Holton le Moor ¹	. . . . .	1 knight . . . Richard (?) de Houton .	William de Houton
South Kelsey ²	}	1 knight . . . { Gilbert, son of Gilbert	} John Hansard
Thornton le Moor . . . . .				Hansard^{3} . . . . .
South Kelsey		$\frac{1}{8}$ knight	John de Thornton, Ralph le Paumer
Thornton le Moor		$\frac{1}{4}$ knight	John de Aysterby
Stainton ⁴		$\frac{1}{8}$ knight . . . Roger de Montbegon (?)	William Dawnay
Stainton ⁵	}	$\frac{1}{4}$ knight	} John, son of John
Waddingham			
Waddingham ⁶		$\frac{1}{2}$ knight	Simon de Waddingham
Laughton ⁷		$\frac{1}{2}$ knight . . . Richard Blanchard .	William Blanchard
Thorpe ⁸	}	In demesne . Roger de Montbegon .	} Henry de Monewden
Thonock			
Dunstall			
Yawthorpe ⁹		$\frac{1}{4}$ knight . . . Walter de Vere (?) . . .	Simon de Vere
Walesby ¹⁰		$\frac{1}{2}$ knight . . . Jollan de Nevill (?) . . .	Jollan de Nevill
Northorpe ¹¹		$\frac{1}{4}$ knight . . . Roger de Montbegon (?)	Simon de Hale
Cuxwold ¹²		$\frac{1}{8}$ knight . . . Richard Blanchard . . .	Grace de Insula, of William Blanchard

IN CO. SUFFOLK

Monewden ¹³	1 knight . . . Roger de Montbegon .	Henry de Monewden, John de Monewden holding $\frac{1}{2}$ knight's fee of him ¹⁴
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Roger de Montbegon 'standing up,' as Dugdale says, 'with the rebellious barons against the king,'¹⁵ suffered the seizure of his lands, which were given in the early spring of 1215 to Oliver de Albini,¹⁶ while he himself underwent the sentence of excommunication by the pope.¹⁷ On 20 June, 1215, he was with the barons at Runymede,¹⁸ but about New Year's day, 1216, made his peace with the king and had livery of his lands in six counties, including a grant for his life of Wheatley, co. Notts.,¹⁹ which the king had granted in 1205, for term of life to John Malherbe, deceased, Roger's brother of the half blood.²⁰ About the same time John Malherbe's manor of Appleby, co. Lincoln, was delivered to Eudo de Lungvilers, a knight of the earl of Chester, and to William de Mare, as kinsmen and heirs of John Malherbe.²¹ Henry III., immediately after his accession, seized the lands of Roger de Montbegon and Robert Grelley, and delivered them to William Marshall, the younger,²² afterwards committing Roger's lands to Robert de Vaux for his maintenance in the royal service.²³ But afterwards having letters of safe-conduct to repair

¹ *Testa de Nevill* (Rec. Com.), 400; Richard de Houton in 1236, *Ibid.* 411.

² *Ibid.* 316b.

³ *Linc. Final Concords*, 84.

⁴ *Testa de Nevill*, 304, 317.

⁶ *Ibid.* 304.

⁹ *Ibid.* 304.

⁷ *Ibid.* 304, 398.

⁸ *Ibid.* 411.

⁹ *Ibid.* 304.

¹⁰ *Ibid.* 316b.

¹¹ *Ibid.* 304.

¹² *Ibid.* 318.

¹³ *Ibid.* 411.

¹⁴ *Ibid.* 291.

¹⁵ Dugdale, *Baronage*, i. 618b. *Flores Hist.* (Rolls Ser.), iii. 297.

¹⁶ *Close R.* (Rec. Com.), i. 244.

¹⁷ *Flores Hist.* (Rolls Ser.), iii. 355.

¹⁸ *Chart. R.* (Rec. Com.), 210b.

¹⁹ *Close R.* (Rec. Com.), i. 244b, 245.

²⁰ *Ibid.* 415.

²¹ *Ibid.* 247, 249. Before 1212 Roger gave the manor of Croston with the members to his uterine brother, John Malherbe, as part of the inheritance of their mother. After Malherbe's death in 1216, Roger gave it to John de la Mare, who was probably first husband of Malherbe's sister Mabel. Clementia, the other sister and co-heir, afterwards married Eudo de Lungvilers. *Testa de Nevill* (Rec. Com.), 405b, 411b; *Chartul. of Pontefract*, Yorks. Rec. Soc. xxx. 306.

²² *Close R.* (Rec. Com.), 311.

²³ *Ibid.* 327b.

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to William Marshall, earl of Pembroke, to make his peace, Roger recovered possession of his lands of Oswaldbec and Wheatley, together with his other lands in seven counties.¹ But the sentence of excommunication promulgated against him in 1215, was, in 1220, still being used by his enemies to his annoyance, until the king addressed a letter to the primate requesting him to surcease ecclesiastical censure against Roger.² The same year he obtained a warrant to the sheriff of Nottingham for timber in his demesne woods of Oswaldbec and Wheatley for the rebuilding and repair of his houses, which had possibly suffered destruction during the late troubles.³ Early in 1221 he was appointed with William de Lancaster to lead the king's forces for the siege and destruction of Cocker mouth Castle, then held against the king, as were those of Skipton and Skipsey, by the adherents of William of Aumâle.⁴ In March, 1225, he was obliged by infirmity to withdraw from service with the king at the siege of Bedford, leaving his knights there.⁵ He died in March of the following year,⁶ and on 6 April, the castle and lordship of Hornby were committed to the custody of William, earl of Warenne,⁷ and Thorpe and Thonock to the constable of Chester. His other lands were also taken into the king's hand, except those belonging to the dower of Olive, his wife, who survived him.⁸ Having no heir of his body, several claimants arose in co. Lincoln, making themselves his heirs. Their respective affinities were tried before Martin de Patshull and his associates by a jury of 14 visors from this county, and 5 from co. Lincoln, at the eyre held at Lincoln in mid-September, 1226, when Henry de Monewden was found to be next heir⁹ (namely, son of Robert, brother of Henry, son of Robert, son of Agnes, only daughter of Roger de Montbegon, the elder, grandfather of Roger, then lately deceased),¹⁰ who was accordingly put in seisin of Roger's lands and of the eight knights' fees belonging to his barony, by writ dated 25 September.¹¹ More than a year before his death Roger is alleged to have given the castle and manor of Hornby to John de Lungvilers, who is stated to have tilled the land, taking the grain and rendering a fifteenth of the grain and cattle to the justices sent to assess the fifteenth¹² granted on 11 February, 1225. Probably the true facts were as alleged in evidence in a suit in 1260, that John de Lungvilers intruded himself into the lordship after Roger's death. Although

¹ *Close R.* (Rec. Com.), i. 339, 339b.

⁴ *Ibid.* 474b; Stubbs, *Constit. Hist.* ii. 35.

⁶ *Excerpta e Rot. Fin.* (Rec. Com.), i. 140.

⁸ *Close R.* (Rec. Com.), ii. 105b, 130.

¹⁰ Assize R. No. 482, m. 17. See *Lancs. and Ches. Rec. Soc.* vol. 37, pp. 144-6n. The jurors from the co. were Robert Bussel, Richard de Thorington, William de Tunstall, John de Tuitfeld, Adam de Weninton, Richard de Wraton, William de Tatham, Alexander de Pilkington, Henry de Brodeshagh, Roger Gernet of Burrow, Alan de Penington, William de Millum, Gilbert de Kellet and John Gernet.

¹¹ *Excerpta e Rot. Fin.* (Rec. Com.), i. 148. A writ, directing William, earl of Warenne, to give Henry de Monewden possession of Hornby Castle and manor, dated 13 February, 1227, states that the jury who gave a verdict before Martin de Patshull and his fellows were afterwards convicted by 24 of co. York and 12 of co. Lancaster of a false oath, the said 36 jurors finding before the same justices in eyre in co. Lincoln that Henry de Monewden was next heir of Roger de Montbegon (*Pat. R.* 1225-32, 110). The other claimants were (1) William de Ros, Adam de Tid and Thomas de Scoteny, claiming descent respectively from three daughters of Roger de Montbegon, senior, namely, Beatrice, Agnes, and Emma; (2) John de Mikeham, Robert de Talewrth and Robert de Hamesden, claiming descent respectively from three daughters of the said Roger, namely, Maud, Beatrice, and Emma; (3) John de Cume, claiming descent from an only daughter, Maud; and (4) Adam de Beri (Bury, co. Lanc.) claiming descent from Alice, daughter of Adam de Montbegon, son of Roger, senior. The jury (of 19) found that Roger, senior, had but one daughter, Agnes, from whom Henry de Monewden descended, as above stated. Assize R. No. 482, m. 17.

¹² Assize R. No. 482, m. 17.

² *Ibid.* 418.

³ *Ibid.* 423.

⁵ *Close R.* (Rec. Com.), ii. 24.

⁷ Fine R. 10 Hen. III. m. 7.

⁹ *Bracton's Note Bk.* iii. 304.

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Henry de Monewden failed in 1226 to oust him, owing to the false recognition of a suborned jury, he succeeded the year following in obtaining possession of the lands of Hornby.¹ Immediately after obtaining possession of his inheritance Henry de Monewden enfeoffed Hubert de Burgh (earl of Kent, 1227), and Margaret his wife, of the castle, honour, and soke of Hornby, with the advowson of the priory there, and of the church of Melling, which grant the king confirmed 14 September, 1227.² In Easter term following, Hubert and Margaret impleaded Henry to warrant Hornby to them,³ and in November, 1229, Henry confirmed his grant of the honour to them by fine, to hold of him during their lives by the service of half a knight's fee, conditionally that, failing issue of their bodies, it should revert to Hubert's heirs.⁴ In November, 1232, after the seizure of his lands for having given the king displeasure, Hubert de Burgh recovered his lands and stock, but Hornby with other castles he did not recover until later.⁵ In 1236, Olive de Montbegon released to Hubert and Henry de Monewden her right of dower in Hornby in exchange for 8½ marks of yearly rent from Thonock.⁶ In 1229 Henry resigned his manor of Oswaldbec to the king in exchange for an annuity of 20 marks,⁷ which however he was obliged to resign in 1239 in consideration of the king's aid against his creditors, certain Jews of York and London.⁸ In 1230 he was serving abroad in the retinue of the earl of Kent.⁹ In 1235 he alienated his fee of Tottington to John de Lacy, earl of Lincoln, to hold of him for 2½ knights' fees,¹⁰ which the king confirmed on 10 September.¹¹ In Easter term, 1242, John de Lungvilers commenced process at law against Margaret, countess of Kent, to substantiate his title to the manors of Hornby and Melling.¹² In consequence of the earl's death Hornby Castle was put in charge of Alexander Bacon on the king's behalf, but was restored on 29 July, 1243.¹³ The proceedings dragged on until the beginning of 1252.¹⁴ This John was son of Eudo de Lungvilers by Clemence, sister and co-heir of John Malherbe, the half brother of Roger de Montbegon, the younger.¹⁵ Maud, the other sister and co-heiress, married before 1227, probably as her second husband, Geoffrey de Nevill.¹⁶ Early in 1252 the king took steps to terminate the suit which had long been in progress between John de Lungvilers and John son of John de Burgh, grandson of the earl of Kent.¹⁷ John de Lungvilers died in 1254,¹⁸ and was succeeded by his son John, who probably survived his father only a few years. Early in 1259, Ellen, probably the widow of the younger John de Lungvilers, was suing John de Burgh,

¹ Cur. Reg. R. No. 169, m. 12d.

² Cur. Reg. R. No. 102, m. 16.

³ Close R. 17 Hen. III. m. 17. There is a rental of Hornby for 16-18 Hen. III. in the P.R.O., Min. Accts. 1117, No. 13.

⁴ Lancs. Fines, 147.

⁵ Orig. R. 23 Hen. III. m. 4.

⁶ Duchy of Lanc. Gt. Couchers, i. 63.

⁷ Cur. Reg. R. No. 123, m. 15. See also No. 124, m. 23; No. 128, m. 1; No. 135, m. 35d; No. 139, m. 15.

⁸ Pat. R. 27 Hen. III. m. 2.

⁹ Assize R. No. 1046, m. 73.

¹⁰ Upon the death of John Malherbe in or before 1216 she received half the manor of Appleby, co. Lincoln, as her pourparty (p. 323).

¹¹ Pat. R. (Rec. Com.), ii. 158. Henry de Monewden was suing Maud and her sister Clemence with their respective husbands in 1227 for the half of the church of Penistons, co. York. Cf. *Yorks. Inq. p. m.* (Yorks. Rec. Soc.), i. 279; *Excerpta e Rot. Fin.* (Rec. Com.), i. 192.

¹² Assize R. No. 1046, m. 73. Cokayne, *Compl. Peerage*, iv. 350, note e. See also *Plac. de quo war.* (Rec. Com.), 381.

¹³ Cal. Inq. p. m. i. 77.

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senior, and John de Burgh, junior, for dower in Hornby and Melling,¹ but apparently failed, on the grounds that her husband had never been in possession of the lordship except by intrusion.² In 1269 Henry de Monewden released to Edmund, the king's son, the feudal rights belonging to all the knights' fees and lands held by him, or of him, in the county and honour of Lancaster.³ He was at this time well advanced in years and living in straitened circumstances. Probably he did not out-live his sovereign, Henry III. John de Lungvilers, the younger, left issue at his death, Margaret, his daughter and heir, who was married before 1269 to Geoffrey de Nevill, younger brother of Robert de Nevill of Raby.⁴ In September, 1271, John de Burgh, the younger, was suing his father for the manors of Hornby and Melling,⁵ and in December of the same year his father was defendant with Geoffrey de Nevill and Margaret his wife in the same plea.⁶ This seems to point to the acquisition of these manors by Geoffrey and Margaret from the elder John de Burgh. In 1279 died John de Burgh, junior, leaving issue three daughters, one being the wife of Robert Grelley.⁷ As it does not appear that he was possessed of Hornby at his death, the suggestion that his father had alienated the manor to Geoffrey de Nevill and Margaret his wife, in or before 1271, gains some strength. Geoffrey was in possession of Hornby in right of his said wife at the time of his death,⁸ and in his line this lordship continued for many generations. With the death of Henry de Monewden the barony of Montbegon may be considered to have terminated.

THE BARONY OF GRELLEY ⁹

Albert Grelley¹⁰ resigned his fee in Blackburn hundred sometime after 1086 and obtained instead a grant of the manor of Manchester, possibly with

¹ Cur. Reg. R. No. 162, m. 17d. John de Burgh, senior, was in possession of the castle. The writ of *pone* was granted in February, 1258. *Excerpta e Rot. Fin.* (Rec. Com.), ii. 271.

² *Ibid.* No. 169, m. 12d. The parties were to hear judgment in Michaelmas term 1263, but none was recorded. *Ibid.* No. 173, m. 1d.

³ Duchy of Lanc. Gt. Coucher, i. 63.

⁴ *Inq. p.m.* Lancs. and Ches. Rec. Soc. vol. 48, p. 263; *Yorks. Rec. Soc.* vol. 23, p. 25.

⁵ Assize R. No. 1210, m. 7 (*Lancs. and Ches. Rec. Soc.* xlvii. 124).

⁶ *Pat. R.* 56 Hen. III. m. 30d. (*Lancs. and Ches. Rec. Soc.* xlviii. 251-2).

⁷ *Cal. Geneal.* i. 293.

⁸ *Inq. p.m.* 13 Edw. I. No. 19; *Lanc. and Ches. Rec. Soc.* xlviii. 261.

⁹ This barony comprised the following townships and hamlets in this county. In Salford hundred:—Manchester, Ancoats, Crumpsall, Blackley, half of Moston, Harpurhey, Newton, Clayton and Droylsden, Bradford, Beswick, Ardwick, Openshaw, Gorton, Withington, Chorlton cum Hardy; Didsbury, Moss Side, Rusholme, Levenshulme, Burnage, Heaton Norris, Denton, Houghton, Barton upon Irwell, Pilkington, Kearsley, Farnworth, Little Lever, Darcy Lever, Westhoughton, Aspall, Lostock, Rumworth, Heaton, Horwich, Halliwell, Harwood, Bradshaw, Turton, Longworth, Sharples, Anglezark. These lands were rated at about 46 carucates of land, and were held by the service of 5½ knights.

In Leyland hundred:—Coppull, Wrightington, Parbold.

In West Derby hundred:—Dalton, Childwall, Allerton.

In Amounderness:—Brookholes.

In Lincolnshire, 2 knights' fees in Kirton-in-Lindsey, Swineshead, Sixhills, Bloxholm, Hainton, Canwick, Bracebridge.

In Nottinghamshire, one knight's fee in Cotgrave.

In Norfolk, one knight's fee in Spixworth, Tunstall.

In Suffolk, 2½ knights' fees in Willisham, Little Blakenham, Risby, Almesburn, Blakenham.

Testa de Nevill (Rec. Com.), 291, 404b, 411; *Lancs. Inq.* (Rec. Soc.), xlviii. 52-9. See Dugdale, *Baronage*, i. 608. *Hist. Soc. of Lancs. and Ches.* (New Ser.), xvii. 23; Tait, *Mediæval Manchester*, 120.

¹⁰ He probably owed the nick-name of 'Greslet' (*crematus* in Dom. Bk. ii. 347b), to some personal peculiarity. 'Grêlet,' in old French 'greslet,' signifies marked as by hail, i.e. pitted, or pock-marked. 'Grésillier,' some-

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large additions thereto. We have already stated that at the date of Domesday he held lands under Roger of Poitou in cos. Lincoln, Norfolk, and Suffolk, and that he probably succeeded to Nigel's estates in Manchester not long after the date of the survey.¹ It is evident from the wording of Roger's charter to St. Martin of Sées in 1094, that Albert Grelley then held a considerable estate under him.² He did not share in the forfeitures of 1102 or 1106, but by Henry's favour retained his former estates, and perhaps received some addition thereto, so that upon the creation of the honour of Lancaster he apparently became the largest tenant of the honour with a fee held by the service of 12 knights, which his descendant held in 1187,³ of which 5½ knights represented the service due from Manchester, with its members. He seems to have been still living between 1115 and 1118 as the tenant under Stephen, count of Mortain, of Hainton, in Lindsey,⁴ where he had been tenant of Roger of Poitou in Domesday. To about the same date we must ascribe the grant by 'Albertus Gredle, senex,' of one knight's fee in Dalton, Parbold, and Wrightington to Orm son of Ailward in marriage with Albert's daughter Emma, and another grant by 'Albertus Gredle, senior,' to the same Orm and Emma of one carucate of land in Ashton-under-Lyne.⁵

Robert Grelley, son of Albert I., was apparently tenant in chief of Nettleton and Goltho, in Lindsey, between 1115 and 1118,⁶ which he had no doubt received from Henry after the fief of Erneis de Burun fell into the king's hand. He was a witness to Stephen's foundation charter to Furness in 1127.⁷ Three years later he was engaged in a suit in co. Notts with Serlo de Burgh, and in another suit in co. Lincoln with his chief lord, Stephen, count of Mortain.⁸ In 1134 he and his son Albert II. founded an abbey of Cistercian monks from Furness at Swineshead, in Lincolnshire, endowing it with the site and lands in cos. Lincoln and Nottingham, including in the latter county the church of Cotgrave and all the land they had there, and in this county the mill of Manchester.⁹ Robert appears to have survived until after 1153, for he was one of the witnesses to William, earl of Warenne's charter of confirmation to Furness¹⁰ in 1154 or 1155, so that we are probably correct in attributing to him the grant of Heaton in Lonsdale, the remaining part of Ashton-under-Lyne, and other land, to Roger son of Orm (son of Ailward), which was confirmed by his son Albert II. some few years later,¹¹ as also were Robert Grelley's gifts to the brethren and nuns of St. Mary at Haverholme in Lincolnshire.¹² He died soon after 1154,

times 'grediller,' signifies to shrivel, as parchment does when placed too near the fire. Cf. Littré, *Dict. Française*, s.v. 'grêle' and 'gresiller.' Possible, but less probable, derivations are from 'greslet,' 'graillet,' old French, signifying slim of figure; or on account of harshness of voice, from 'Greille,' 'instrument qui rend un son aigu,' which also appears in the variants *greisile, gredle, greille* (Ducange, *Glossary*, ed. 1887, ix. 225b).

¹ P. 281 above.

² *Ibid.*

³ Farrer, *Lancs. Pipe R.* 64.

⁴ Greenstreet, *Lindsey Survey*, 22.

⁵ Exch. K.R. Kts. fees, 3, m. 5. The evidence as to the date of this infuedation, and the identity of the grantor with Albert I. rests upon the fact that Albert Grelley II. did not succeed his father, Robert, son of Albert I. until after 1154, whilst William, son of Roger son of Orm, grandson of Orm son of Ailward, was in possession of his inheritance before 1184, and apparently attested the important charter of the division of Furness Fells about 1163. (Farrer, *Lancs. Pipe R.* 311, 403, 442; cf. *Furness Coucher* (Chetham Soc.), 318, 346.) Professor Tait finds difficulty in accepting this identification, on the ground that 'Albertus senior,' elsewhere refers to Albert Grelley II., and also upon some other grounds; *Medieval Manchester*, 127-130.

⁶ *Lindsey Survey*, 17, 22. Robert Grelley II. held the land in Nettleton in 1212 in chief; *Testa de Nevill* (Rec. Com.), 347.

⁷ *Coucher of Furness* (Chetham Soc.), 186.

⁸ *Pipe R.* 31 *Hen. I.* (Rec. Com.), 31, 114.

⁹ *Mon. Angl.* v. 337; Thoroton, *Hist. of Notts.* ed. Throsby, i. 167.

¹⁰ Farrer, *Lancs. Pipe R.* 306.

¹¹ *Ibid.* 403.

¹² *Lansd. MS. No. 207, A. 207.*

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having had issue by his wife Maud, a daughter, Amabil, married to Geoffrey Tregoz,¹ who had in marriage with her the vill of Bilsthorpe, co. Notts,² and a son, Albert II., of whom an anecdote is related in the *Life of St. William of Norwich*, under the date 1154. The story tells of the miraculous restoration to life of a favourite falcon of Robert Grelley's son Albert, which had fallen sick and had been taken to the saint by the owner in earnest belief of the saint's powers of healing.³ During his father's lifetime, Albert II. married Maud, sister and co-heiress of William fitzWilliam, constable of Chester, whose pourparty of her brother's estate consisted of the manor of Cuerdley, in this county, Daresbury, co. Chester,⁴ the manor of Woodhead with the vill of Casterton, co. Rutland, the lordship of Pirton, alias Periton, co. Oxon., and $1\frac{1}{2}$ and $\frac{1}{3}$ part of a knight's fee in Barnetby, Bigby, Somerby, Hainton, and Sixhills, co. Lincoln.⁵ He made several feoffments in his Lancashire lands,⁶ and was benefactor to the abbey of St. Benet of Holme, co. Norfolk, remitting to the abbot all claim in the church of St. Peter of Hoveton, for the good of the souls of his father Robert, and grandfather Albert.⁷ To Holy Trinity of Ipswich he gave the church of Willisham, co. Suffolk.⁸ At this time the Grelleys lived at Tunstead in co. Norfolk, or at Sixhills, co. Lincoln.⁹ Albert probably died not long after attesting the agreement for the partition of Furness Fells, made in or soon after 1163, probably before the honour of Lancaster came into the hand of Henry II.¹⁰ and certainly before 1170.¹¹ By Maud his wife he had beside other issue¹² a son, Albert III., described in the inquest of service of 1212 as 'Albertus juvenis, or junior,' who made numerous infeudations in his fee between Ribble and Mersey,¹³ and gave lands and a corn mill, parcel of his manor of Woodhead, co. Rutland, to the abbey of Swineshead,¹⁴ and pasturage for nine score sheep in the fields of Bloxham, to the nuns of Haverholme.¹⁵ He confirmed to Norton priory the grants made within his fee by William FitzNigel, his maternal grandfather, and by William FitzWilliam, his uncle.¹⁶ He married Isabel, daughter of Thomas

¹ Grimaldi, *Rot. de dominabus*, 41.

² *Testa de Nevill* (Rec. Com.), 1b. In 1215, custody of Bilsthorpe was committed to Robert Grelley, apparently after the death of William de Tregoz. *Close R.* (Rec. Com.), i. 215.

³ *Op. cit.* Camb. Univ. Press, 1896, Bk. vi. No. 19, p. 258

⁴ Ormerod, *Hist. of Ches.* edit. Helsby, i. 732b.

⁵ *Testa de Nevill* (Rec. Com.), 101, 106, 308, 315, 332.

⁶ To Wlvric de Mamecestre (probably Wulfrich, lord of Withington, and ancestor of the Derbyshire Hathersages, whose estates passed by marriage to the Longfords) 4 oxgangs of land of the demesne; to the church of Manchester 4 oxgangs of the demesne; to Henry son of Siward (of Lathom) 1 carucate of land in Flixton. *Testa de Nevill* (Rec. Com.), 404b.

⁷ Cott. MSS. Galba E. ii. xxxiii.

⁸ *Chart. R.* (Rec. Com.), 116.

⁹ Grimaldi, *Rot. de dominabus*, 4, 25.

¹⁰ *Hist. Soc. Lanc. and Ches.* (New Ser.), xvii. 37.

¹¹ *Mon. Angl.* v. 337.

¹² Seifred or Seyffray had the manor of Grimsthorpe, co. Linc., but dying, s.p., the manor passed to his brother Albert. Assize R. No. 482, m. 18. Perhaps Bernard was another son. *Farrer, Lancs. Pipe R.* 403.

¹³ *Lancs. and Ches. Hist. Soc.* (New Ser.), xvii. 23, where a facsimile of a fine charter with Albert Grelley's seal is given. He gave to Thomas Pierpont 3 carucates of land in Rumworth and Lostock for the service of $\frac{1}{3}$ knight; to Robert de Bracebridge 2 oxgangs of the Manchester demesne; to William le Norreys 2 carucates of land in Heaton (Norris); to Alexander son of Uvieth 2 oxgangs of land in Little Lever; to Ellis de Pendlebury the land of Snyder in Westhoughton; to Richard son of Henry (of Lathom) 2 oxgangs in Anlezargh. *Testa de Nevill* (Rec. Com.), 404; to William, the clerk of Eccles, the fourth part of the church of Eccles. *Coucher of Whalley*, 40.

¹⁴ *Hund. R.* (Rec. Com.), ii. 53.

¹⁵ Lansd. MS. 207A, 207.

¹⁶ Ormerod, *Hist. of Ches.* edit. Helsby, i. 732b. The witnesses to his charter were Robert de Byron, William son of Wulfric (of Withington and Hathersage), and Richard son of Henry.

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Basset, the justiciar,¹ and died about 1180. She re-married after his death Guy son of Maurice de Creon.² In 1190 tallage was levied from the men of Tunstall, co. Norfolk, which had been Albert Grelley's.³

Robert Grelley, son of Albert III. was aged 11 in 1184-5, and in 1191 was in ward of his uncles, Gilbert, Alan, and Thomas Basset,⁴ and attained his majority in 1194, when his quota of £12 to the scutage levied for the king's redemption was pardoned because his twelve knights had accompanied the king to Normandy.⁵ His equestrian seal, attached to a fine charter granting lands in Norfolk and this county to Robert de Byron, may be seen amongst the Duchy of Lancaster charters preserved in the Public Record Office.⁶ During his lifetime he enfeoffed Robert de Byron of the hamlets of Clayton (1 carucate), Droylsden (4 oxgangs), and half Failsworth (2 oxgangs),⁷ these being parcel of his Manchester demesne. He enfeoffed Ralph de Ancotes of 2 oxgangs of land, representing the hamlet of Ancoats,⁸ and Aca, the clerk, of a field, parcel of the demesne of Manchester.⁹ He married Margaret, daughter and heir of Henry de Longchamp, lord of Werlingham and Weston, co. Suffolk, brother of the chancellor.¹⁰ From 1195 to 1203 he and his knights were almost every year engaged in military service.¹¹ In 1203 Ranulf, earl of Chester, Roger de Montbegon, Robert Grelley, and William le Boteler of Warrington were requested by the king as a favour to give him the aid of their men in the work then being done upon the ditches of Lancaster Castle.¹² In 1215 he had a warrant for six harts to be taken in the royal forest of Clive, probably for restocking his park at Blackley or Horwich Chase.¹³ He was one of the northern barons who were prominent in extorting the Charter of Liberties from John,¹⁴ for which cause, towards the end of 1215 he underwent the sentence of excommunication by the pope,¹⁵ and his estates were seized, the king giving Periton to Ralph Gernon,¹⁶ and placing Adam de Yealand in charge of the castle of Manchester and the lands dependent upon it.¹⁷ On 20 June, 1215, five days after the date of Magna Carta, he was at Runymede, between Windsor and Staines, in the king's company.¹⁸ In 1217 Henry III. restored to Robert his estates in cos. Oxford, Lincoln, and Rutland,¹⁹ those in this county having been previously restored. In 1218 he was with the king's forces at the siege of Newark,²⁰ and in 1221 at the siege of Bytham Castle,²¹ and the same year was appointed with three others to pursue and arrest the rebel Richard Siward, with his adherents,²² for opposing the king in the last-mentioned siege.²³ In 1224 he was with the king's forces at the siege of Bedford, and the year following witnessed the reissue of the Great

¹ Grimaldi, *Rot. de dominabus*, 3-4, where an account of the issues of Albert Grelley's Lincolnshire estate for about 4-5 years will be found, and at p. 25, of his Norfolk estates.

² Pipe R. 28 Hen. II. co. Linc.

³ Pipe R. 1 Ric. I. *Ric. I.* (Rec. Com.), 46.

⁴ Grimaldi, *Rot. de dominabus*, 33; Pipe R. 2 Ric. I. co. Linc.

⁵ Farrer, *Lancs. Pipe R.* 78.

⁶ See also *Lancs. and Ches. Hist. Soc.* (New Ser.), xvii. 41.

⁷ *Testa de Nevill* (Rec. Com.), 404b.

⁸ *Ibid.*

⁹ *Ibid.* 405.

¹⁰ *Testa de Nevill* (Rec. Com.), 295; *Cal. Close R.* 1216-25, 65.

¹¹ Farrer, *Lancs. Pipe R. pass.*

¹² *Pat. R.* (Rec. Com.), 87.

¹³ *Close R.* (Rec. Com.), i. 215.

¹⁴ Matth. Paris, *Chron. majora* (Rolls Ser.), ii. 585; *Flores Hist.* (*ibid.*), iii. 297; Rymer, *Foedera*, ed. 1816, i. 144.

¹⁵ *Flores Hist.* (Rolls Ser.), iii. 356.

¹⁶ *Pat. R.* (Rec. Com.), 165.

¹⁷ *Close R.* (Rec. Com.), i. 241.

¹⁸ *Chart. R.* (Rec. Com.), 210b.

¹⁹ *Close R.* (Rec. Com.), 337.

²⁰ *Ibid.* 447b.

²¹ *Ibid.* 475.

²² *Pat. R.* 1216-25, 282-3.

²³ *Ibid.* 300.

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Charter.¹ He was appointed also, with Richard de Copeland, a justice of the forest in this county, for the perambulation and disafforesting of those places so to be dealt with according to the *carta de foresta*,² and was himself served with a writ to disafforest wood and moor in Heaton under Horwich, which Henry de Boulton claimed as his tenement, and in Anderton, which Thomas de Burnhull so claimed.³ In 1222 he proffered 5 marks and a palfrey to have a fair yearly at his manor of Manchester on the eve and the feast of St. Matthew the Apostle,⁴ and in 1227, when the king attained his majority, obtained a charter of this privilege.⁵ He died towards the end of the year 1230,⁶ after returning to England from the expedition to Poitou, where his health had been undermined by exposure and improper food.⁷ The abbot of Vaudey, the executor of his will, had livery of his chattels in January, 1231.⁸

The inquest of service of 1212 contains full particulars of his fee in this county, from which it may be of interest to tabulate the names of the tenants by knight's service, their tenements and quota of service, comparing the same with similar particulars for the years 1242-3.

IN CO. LANCASTER⁹

		1212	1242-3 ¹⁰
Withington cum membris	1 knight and 1 judge	{ Matthew, son of William de Hathersage Roger, son of the said William	} Matthew de Hathersage
Barton upon Irwell cum membris	} 1½ knight .	{ Gilbert de Notton, <i>jure uxoris</i> Edith, lady of Barton	} Gilbert de Barton
Worthington	} ½ knight .	} Thomas de Worthington	} { William de Worthington
Coppul			
Childwall			
Aspull	} ⅔ knight .	} Richard, son of Robert de Latham	} Robert de Latham
Turton			
Brockholes			
Harwood	} ⅓ knight .	{ Roger de Samlesbury Alexander de Harwood	} { [William de Samlesbury] ¹¹ [John de Harwood]
Dalton			
Parbold	} 1 knight .	} [Roger, son of William de Kirkby]	} Robert de Latham
Wrightington			
Pilkington	} { ¼ knight 1 judge .	} Alexander de Pilkington	} Roger de Pilkington
Rumworth	} ½ knight .	} [Richard de Pierpont]	} Richard de Pierpont
Lostock			
Clayton			
Droylsden	} ½ knight .	} [Richard, son of Robert de Byron]	} { (Changed to socage tenure)
½ Failsworth			

CO. NOTTS

Cotgrave 1 knight . Robert Greley¹² Abbot of Swineshead¹³

¹ *Ann. de Barton* (Rolls Ser.), i. 232.

² *Ibid.* 576.

³ Fine R. 6 Hen. III. m. 3.

⁴ Chart. R. 11 Hen. III. m. 4; *Cal. Chart. R.* 56.

⁵ Matth. Paris, *Hist. Angl.* (Rolls Ser.), ii. 328. The chronicler describes him as 'vir nobilis et potens.'

⁶ *Cal. Close R.* 1227-31, 474.

⁷ Exch. K.R. Kts. fees. Bble. 1, No. 9, m. 5; *Testa de Nevill* (Rec. Com.), 404b.

⁸ *Testa de Nevill* (Rec. Com.), 397b.

⁹ *Testa de Nevill* (Rec. Com.), 22b.

¹⁰ *Pat. R.* 1216-25, 570; cf. 575.

¹¹ Fine R. 15 Hen. III. m. 8.

¹² *Lancs. Fines*, Rec. Soc. xxxix. 90.

¹³ *Ibid.* 3b, 7b, 11b.

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CO. LINCOLN

	1212		1242-3
Bloxholme	$\frac{3}{4}$ knight	[Robert Grelley] ¹	Thomas Grelley ²
Swineshead	1 knight	Robert Grelley ³	Thomas Grelley, Margaret his mother holding in dower ⁴
Sixhills	} $\frac{1}{4}$ knight)	[Robert Grelley] ⁵	{ Thomas Grelley ⁶ " " ⁷
Hainton			
Bracebridge			
Canwick			

CO. NORFOLK

Tunstead 1 knight . [Robert Grelley]⁸ Thomas Grelley⁹

CO. SUFFOLK

Risby 1 knight . [Robert Grelley]¹⁰ Robert le Breton¹¹
 Willisham 1 knight . Robert Grelley¹² Thomas Grelley¹³
 (Little Blakenham¹⁴ $\frac{1}{2}$ knight) .
 (Almesburn¹⁵ $\frac{1}{4}$ knight) .

On 3 January, 1231, the king received the homage of Thomas Grelley, son and heir of Robert.¹⁶ In June, 1242, he was summoned with horses and arms to accompany the king in the campaign for the recovery of Saintonge.¹⁷ In the summer and autumn of the following year he was in Gascony in the king's service, and had acquittance of his yearly render for ward of Lancaster Castle.¹⁸ In the summer of 1244, in obedience to the royal summons, he was in Scotland on the king's service.¹⁹ In 1245 the king presented him with five bucks and fifteen does, taken alive in the park of Macclesfield, for the restocking of his park,²⁰ and four years later he obtained a charter of free warren in his demesne lands in Manchester.²¹ In the spring of 1258 he was summoned to serve in the Welsh expedition,²² and, taking a prominent part in the crisis of that year, was one of the twelve elected by the barons under the Provisions of Oxford to treat with the king's council on behalf of the commonalty touching the common need, and also one of the twenty-four elected to treat about the raising of an aid.²³ In 1259 he was appointed warden of the king's forests south of the Trent.²⁴ Two years later we find his name amongst those summoned to assemble before the king in London after Easter,²⁵ and the same year he was summoned to serve in the expedition against Llewelyn.²⁶ In 1259

¹ No return in 1212.
² Ibid. 346.
³ No return in 1212.
⁴ No return in 1212.
⁵ No return in 1212.
⁶ *Testa de Nevill* (Rec. Com.), 319.
⁷ Ibid. 312*b*, there 'Crek' appears for 'Grelley.'
⁸ *Testa de Nevill* (Rec. Com.), 411.
⁹ *Testa de Nevill* (Rec. Com.), 411. For 'Constude' read 'Tonstude.'
¹⁰ *Testa de Nevill* (Rec. Com.), 291*b*.
¹¹ *Inq. p.m.* 25 Edw. I. 51.
¹² Ibid. 295*b*.
¹³ Ibid. 411.
¹⁴ Fine R. 15 Hen. III. m. 7.
¹⁵ Close R. 26 Hen. III. pt. i. m. 3*d*. In response to an earlier summons in May, 1242, he gave 100 marks besides his ordinary scutage to be freed from foreign service, but afterwards accompanying the king had acquittance of castleguard (Dugdale, *Baronage*, i. 608; *Roles Gascons*, 1013, 1556), was allowed 100 marks for his passage, and was excused debts amounting to £70 mostly due to Aaron of York; *Roles Gascons*, 1365, 1460, 1556.
¹⁶ Close R. No. 56, m. 7. He had proffered 100 marks not to transfrete, but had afterwards accompanied the king. Ibid. m. 2.
¹⁷ Ibid. No. 58, m. 4; Rot. de Summon. 28 Hen. III. m. 1.
¹⁸ Close R. 29 Hen. III. No. 59, m. 1.
¹⁹ Close R. 42 Hen. III. m. 11*d*.
²⁰ *Annales Mon.* (Rolls Ser.), i. 449, 450; Stubbs, *Select Charters*, ed. 1870, 381, 385.
²¹ Pat. R. 43 Hen. III. m. 2.
²² Close R. 42 Hen. III. m. 16*d*.
²³ Ibid. m. 9*d*.

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he was one of the commissioners appointed to inquire into the state of the forests,¹ and in 1261 was twice summoned to Parliament, once at London and once at St. Albans, on 21 September.² His death occurred about five months later.³ He was twice married, having issue by his first wife, whose name is unknown, at least two sons who lived to man's estate. He took for his second wife Christiana Ledet, widow of Gerard de Furnival, and previously of Henry de Braybroc, and in her right possessed a life estate in the barony of Wardon, in co. Northampton,⁴ and possibly also in the manors of Sutton, Potton, and Cadebury.⁵ In respect of the former he had respite of the scutage of Gannoc in 1248.⁶ In 1261 he enfeoffed his younger and surviving son, Peter Grelley, for the benefit of his grandson, of the manors of Manchester and Cuedley together with the advowsons of the churches of Manchester and Childwall, and chapels of Ashton under Lyne, Hale, and Garston, and also of the manor of Barton, which he had purchased from his knight, Gilbert de Barton.⁷ The king, however, set aside this feoffment as of too recent date before Thomas Grelley's death to debar the sovereign of his right of wardship of the heir, and of the lands which Thomas Grelley had held in chief 'by barony.'⁸

Robert Grelley, eldest son of Thomas, predeceased his father in 1261, leaving issue, Robert his son,⁹ whose wardship fell to the king on the death of Thomas Grelley. Subsequently the wardship passed to Edmund, earl of Lancaster, who distributed the inheritance amongst his favourites to the grave detriment of the ward, upon whose petition an inquiry and extent of the Grelley possessions south of the Trent was made in 1272.¹⁰ Robert Grelley made proof of being of full age in 1275, and had livery of his lands.¹¹ In 1277 he was summoned to serve in the Welsh expedition,¹² and, having acknowledged that the service of two knights was due from his barony, himself served, and John Grelley, William Byron, and Peter de Wotton with him.¹³ The year following, upon going beyond seas, he had letters of protection.¹⁴ In Charles's Roll of Arms the coat of Robert 'de Greleie' bears—Gules, three bends or.¹⁵ He married, before 1278, Hawise, younger daughter and co-heir of John de Burgh, junior, by which union the manor of Wakerley, co. Northampton, parcel of the barony of Lanvaley, and the manor of Portslade, co. Sussex, passed to Grelley.¹⁶ Upon the death of Robert Grelley, before 12 March, 1282, his widow had assignment of dower in various places

¹ *Annales Mon.* (Rolls Ser.), i. 478.

² Close R. 45 Hen. III. m. 19 d. and m. 6 d. His arms are given in Nicolas's Roll, temp. Hen. III.—'Thomas Greiley, de goules, a trois bendes d'or embelief.' See Glover's *Roll*, 73.

³ Writ of D.C.E. tested 18 February, 1262.

⁴ *Testa de Nevill* (Rec. Com.), 23, 34-5; Dugdale, *Baronage*, i. 728, 736.

⁵ *Testa de Nevill* (Rec. Com.), 243, 252. *Cal. Inq. p.m. Hen. III.* 259. Walter Ledet, son and heir of Henry de Braybroc and Christiana Ledet, had two daughters, who were heirs of this barony in 1272.

⁶ *Excerpta e Rot. Fin.* (Rec. Com.), ii. 32.

⁷ Close R. No. 82, m. 11 d.

⁸ *Inq. p.m.* 56 Hen. III. Nos. 6 and 60; *Cal. Inq. p.m. Hen. III.* No. 786; *Rec. Soc. Lanc. and Ches.* xviii. 238. *Excerpta e Rot. Fin.* (Rec. Com.), ii. 372.

⁹ *Abbrev. Plac.* (Rec. Com.), 172b.

¹⁰ *Inq. p.m.* 56 Hen. III. Nos. 6 and 60; *Cal. Inq. p.m. Hen. III.* No. 786; *Rec. Soc. Lanc. and Ches.* xviii. 238; *Excerpta e Rot. Fin.* (Rec. Com.), ii. 372.

¹¹ *Cal. Close R.* 1272-9, 166, 171, 173. He entered pleas in the king's court, in Trinity term, the same year, against those who had been keepers of his lands for having made waste. In this county Peter Grelley, his uncle, was complained against. De Banc. R. No. 10, m. 77 d.

¹² *Cal. Pat. R.* 1272-81, 221.

¹³ *Mil. Writs* (Rec. Com.), i. 206.

¹⁴ *Ibid.* 255.

¹⁵ Roll ed. by G. J. Armytage, bart., No. 53. See also Planché's Roll, 614.

¹⁶ *Cal. Close R.* 1279-88, 107, 126, 128-9, 186.

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in cos. Lancaster, Lincoln, and Cheshire.¹ The wardship of Thomas Grelley, the heir, who was then but three years of age, was given to Amadeo of Savoy.² In 1291 his marriage was given to Joan, wife of John Wake, for the benefit of one of her sisters,³ but there is no evidence that any marriage resulted. He proved his age in 1300,⁴ and was the same year summoned to serve against the Scots,⁵ and again in 1301, 1303, 1306,⁶ and yearly from 1308 to 1311.⁷ He was summoned to Parliament as a baron no less than six times between 1308 and 1311.⁸ The year after attaining his majority he granted a charter of liberties to his burgesses of Manchester.⁹ In 1304 he sold his manor of Willisham, co. Suffolk, to William de la More,¹⁰ and in 1308 that of Periton, co. Oxon., to John de Guise,¹¹ and in 1309 he alienated the manor or lordship of Manchester to the husband of his sister Joan, John la Warr, knight.¹² The year following he practically completed the dispersal of his barony by the sale of the manor of Wakerley, co. Northampton, to the same John la Warr.¹³ Nevertheless he retained a life estate in some of these manors, and the presumption seems to be that he alienated them because he had no heir of his body and, being unmarried, no expectation of any. On Whitsunday, 1306, he was made a Knight of the Bath with Prince Edward and some 300 noble youths, preparatory to the expedition to Scotland.¹⁴ In 1307 he was required to do homage to Thomas, earl of Lancaster.¹⁵ In 1310 the king seized the manor of Wakerley, on the grounds that it had been acquired from Thomas Grelley without licence, but it was restored to John la Warr in the autumn of the same year, as the result of an inquiry made at Wakerley on 20 September, at which time Thomas Grelley was holding the manor of Manchester in this county and the manor of Swineshead, co. Lincoln, for the term of his life.¹⁶ On 23 December, 1313, he was summoned to attend the array at Berwick on Tweed on 10 June, 1314,¹⁷ but his name was included amongst the summonses in error, as the writs to take his lands into the king's hand after his decease had been already tested at Windsor on 18 October, 1311.¹⁸

Thomas Grelley's heir was his sister Joan, the wife of John la Warr, son and heir of Roger la Warr, lord of Isfield, co. Sussex, and Wickwar, co. Gloucester, who was present at the siege of Carlaverock,¹⁹ and died in 1320.²⁰ John la Warr was made a Knight of the Bath in 1306 by the Prince of Wales, and was frequently summoned to Parliament, both in his father's lifetime and after, between 1307 and 1342. He took part in the Scotch, Flemish, and

¹ *Cal. Close R.* 1279-88, 155, 251, &c. She was living in 1297, being then summoned to perform military service beyond the seas. *Mil. Writs* (Rec. Com.), i. 289, 294.

² *Cal. Pat. R.* 1281-92, 24.

³ *Ibid.* 445.

⁴ *Cal. Gen. ii.* 314, 569. He was born at Sixhills, co. Linc. on the eve of St. Lawrence 7 Edw. I. (9 August, 1279).

⁵ *Mil. Writs* (Rec. Com.), i. 333-4.

⁶ *Ibid.* 349, 377.

⁷ *Ibid.* i. and ii. *passim*.

⁸ *Ibid.* Cf. Cokayne, *Comp. Peerage*, iv. 93. His arms are given among those of the bannerets of England—'Sire Thomas de Greley, de goules, a iiii bendes de or' (Cott. MS. Calig. A. xviii.).

⁹ Harland, *Mancestre* (Chetham Soc.), lvi. 212; Tait, *Mediæval Manchester*, 60-119.

¹⁰ *Cal. Pat. R.* 1301-7, 267.

¹¹ *Ibid.* 1307-13, 68. Acknowledgements for payment of £7,000 by John de Guise, and of £4,000 by John la Warr were made on 14 May, 1308. *Cal. Close R.* 1307-13, 65.

¹² Harland, *Mancestre*, 248. Confirmed by fine levied 20 January, 1310.

¹³ *Cal. Pat. R.* 1307-13, 287.

¹⁴ Dugdale, *Baronage*, 608b.

¹⁵ *Cal. Pat. R.* 1301-7, 502.

¹⁶ *Inq. a.q.d.* 4 Edw. II. No. 82.

¹⁷ *Close R.* 7 Edw. II. m. 14.

¹⁸ Writ of D.C.E. tested 18 Oct. 5 Year; Fine R. Edw. II. MS. in P.R.O. 12. Also Orig. R. 5 Edw. II. No. 5.

¹⁹ Nicolas, *Carlaverock*, 155.

²⁰ Cokayne, *Comp. Peerage*, iii. 45.

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French wars; was at the sea fight off Sluys in 1340, captain of twenty men-at-arms and twenty archers at the siege of Nantes in 1342, and was at Crecy in 1346. He died in 1347, his will, with codicil directing his burial to be in Swineshead Abbey, was proved at Lincoln, in June, 1347.¹ By inquest taken at Manchester after his death it was found that he held jointly with Joan his wife, who survived him,² of Henry, earl of Lancaster, by knight's service, the manors of Manchester and Cuerdley by the gift and feoffment of Thomas Grelley, brother of the said Joan, made to the said John la Warr and Joan Grelley and their heirs. Roger la Warr, son of John, son of the said John la Warr, was his heir, then aged eighteen years.³ In 1331 John la Warr, the son, was paying a rent of £100 a year to his father for a lease of the manors of Manchester, Cuerdley, Barton, Heaton Norris, and the chase of Horwich.⁴

Roger la Warr, eldest son and heir of Sir John la Warr (by Margaret, daughter of Robert Holland), who died during his father's lifetime, was knighted in 1360, and summoned to Parliament in 1362 and 1363.⁵

Thomas, fifth Lord la Warr, brother and heir of John, fourth Lord la Warr, was a priest, and rector of Manchester from 1373 to 1426. By his instrumentality the church of Manchester was made collegiate in 1421. He died unmarried in 1426, when he was succeeded by Reginald West, sixth Lord la Warr, being second but only surviving son and heir of Thomas, Lord West, by Joan, only daughter of Roger, third Lord la Warr, by his second wife, Eleanor Mowbray, the said Joan being sister of the half blood to John la Warr and Thomas la Warr, fourth and fifth lords.⁶ He succeeded his elder brother Thomas, Lord West, in the family estates in 1415, and his maternal uncle in the manors of Manchester, Wickwar, and other entailed estates of the la Warr family in 1426, being summoned to Parliament the year following by writ directed to Reginald la Warr, chivaler, as Lord la Warr.⁷

The fifth in descent from Reginald, sixth Lord la Warr, was Thomas, second Baron la Warr, who succeeded to his father's peerage in 1575. In 1579 he alienated the lordship of Manchester to John Lacye, citizen and clothworker of London, in consideration of £3,000, subject to the right of redemption, which was not exercised within the stipulated time.⁸ In 1596 Lacye sold the lordship to Nicholas Mosley, esquire, citizen and alderman of London, and to Rowland Mosley, his son and heir apparent, for the sum of £3,500.⁹ The eleventh in descent from Nicholas Mosley, viz. Sir Oswald Mosley, bart. of Rolleston Hall, co. Stafford, sold the lordship in 1845 to the mayor and corporation of Manchester for the sum of £200,000.¹⁰

¹ Cokayne, *Comp. Peerage*, iii. 45.

² She died in 1353. *Inq. p.m.* 27 Edw. III. (1) 59.

³ *Inq. p.m.* 21 Edw. III. pt. 1, No. 56.

⁴ Campbell, *Chart.* ii. 20. Dr. Hibbert-Ware, historian of the Foundations in Manchester, erroneously records an imaginary alienation of the manor of Manchester by John la Warr to the abbey of Dore, co. Hereford. Following him, John Harland, in his historical collections relating to Manchester, fell into the same error (*Mamecestre*, ii. 268-71). The true facts are these: As the result of an inquest *ad quod damnum*, made in 1327, licence was given to John la Warr to alienate to the abbey of Dore one acre of land in Albrighton, co. Stafford, together with the advowson of the church there. (*Abbrev. R. Orig.* (Rec. Com.), ii. 11). The *Calendar of Inquests ad quod damnum* (Rec. Com.), 20 Edw. II. No. 42, not only recites the locality of the intended alienation to Abbey Dore, but also the usual particulars of estates remaining to John la Warr after making this gift, amongst which was the manor of Manchester, worth £200 a year. The authors referred to, basing their remarks upon the bare details given in the calendar, supposed that the alienation comprised all the places named in the calendar, and thus fell into an error which an examination of the original document would have prevented.

⁵ Cokayne, *Comp. Peerage*, iii. 46.

⁶ *Ibid.*

⁷ *Ibid.*

⁸ Harland, *Mamecestre*, 523.

⁹ *Ibid.*

¹⁰ *Ibid.* 530.

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THE BARONY OF PENWORTHAM¹

The date of the creation of this barony has not been ascertained, but there is evidence in Domesday of the existence of a fee held in 1086 by a certain Warin which became the nucleus of this barony.² A charter of 1094 in favour of the abbey of Sées appears to prove that Warin Bussel then held Preston in Amounderness,³ and a grant of Henry I. made in 1102 in favour of Robert de Lacy tells us that the same Warin had then recently held 5 carucates of land in Chippingdale, Aighton, and Dutton, also in Amounderness.⁴ In another charter of 1094 the brothers Warin and Albert Bussel are associated with Pain de Vilers and Albert Grelley as witnesses.⁵

To the foundation charter of Furness Abbey, bearing the date 1127, Geoffrey Bussel was a witness with Robert Grelley, baron of Manchester.⁶ Neither grants to religious houses nor feoffments to vassals assist in fixing the date of creation of this barony, if we except a document which records an agreement which Warin Bussel, in conjunction with his wife and children, made with Robert (*sic*), abbot of Evesham, for the confirmation of certain gifts of churches and lands within this barony which Warin had previously made.⁷ The date of this instrument cannot be earlier than 1140, and may be as late as 1147. Where so little evidence is forthcoming for fixing the exact date of the creation of this fee, it is probably safe to attribute it to the reign of Stephen.⁸ Warin Bussel died about 1150, leaving issue by his wife Maud three sons and six daughters, two of the latter being then unmarried.⁹ Richard, his heir, confirmed to Evesham his father's gifts of the church of Penwortham, the vill of Farrington, and other lands and tithes, and added thereto the gift of the church of Leyland, the chapel of North Meols, and lands in Longton and Penwortham.¹⁰ His brothers Albert and Geoffrey were assenting parties to, and his sisters Sibil and Maud witnesses of, the grant of Leyland Church.¹¹ He attested several charters of William de Blois, count of Boulogne, and of Ranulf, earl of Chester, between 1149

¹ Dugdale, *Baronage*, i. 593; *Priory of Penwortham*, Chetham Soc. (Old Ser.), vol. 30, p. xviii. The barony of Penwortham, so styled in the Inquest of Service taken 1212 (*Testa de Nevill*, Rec. Com. 403), comprised the following townships in this county: Heaton in Lonsdale, in the hundred of Lonsdale; Elswick, Cloughton (pronounced Clyton), Whittingham, Newsham, Elston, Mythorp, Prees, Warton, Freckleton, and Newton, in Amounderness hundred; Penwortham, Howick, Hutton, Longton, Farrington, Leyland, Exuton (pronounced Exton), Ulneswalton, Bretherton (exclusive of Thorp), Rufford, Clayton-le-Woods, Whittle-le-Woods, Brindle, Houghton, Withnell, Wheelton, Charnock Richard, Welch Whittle, Heath Charnock, Duxbury, Adlington, Anderton, Standish with Langtree, and Shevington, in Leyland hundred; North Meols, Birkdale, and Kirkdale, in West Derby hundred; and Ashton-under-Lyne, in Salford hundred. These vills, rated at 67½ carucates of land (*Lancs. Inquests*, Rec. Soc. Lancs. and Ches. vol. 48, pp. 35-6), were held by the service of three knight's fees. Thorp-Morieux, in Suffolk, and Nether Broughton, in Leicestershire, were also held of this barony by the service of two knights, making a total service of five knights. (*Ibid.*)

² In West Derby hundred Warin held ½ hide (Kirkdale), in Warrington hundred 1 car., and in Salford hundred 2 car. (Ashton-under-Lyne).

³ Round, *Cal. of Docs. France*, 237.

⁴ Farrer, *Lancs. Pipe R.* 382.

⁵ *Reg. of Lancs. Priory*, Chetham Soc. (New Ser.), xxvi. 10. The names of the witnesses are extended in *Duchy of Lancs. Great Coucheur*, i. 129. Professor Tait points out that 'G. Boisel' in the first reference stands for 'Guarinus Boisel' (*Medieval Manchester*, 191 n), as in the Chartul. of Sées, fol. 104.

⁶ *Coucheur of Furness*, Chetham Soc. (New Ser.), ix. 123, 186.

⁷ *Priory of Penwortham*, Chetham Soc. (Old Ser.), xxx. 2.

⁸ Unless it can be shown that the five fees comprising the barony were of ancient feoffment; cf. *Testa de Nevill* (Rec. Com.), 410b. No infeudations, either within the county or without, can be traced to an earlier grantor than Richard Bussel (1153-1160). Cf. *Lancs. Inq. Rec. Soc.* xlviii. 28-9.

⁹ *Testa de Nevill* (Rec. Com.), 403.

¹⁰ *Priory of Penwortham*, Chetham Soc. (Old Ser.), xxx. 3.

¹¹ *Ibid.* 40.

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and 1159.¹ To Richard Fitton he gave 8 carucates of land in the fee of Penwortham;² to the abbey of St. Werburgh of Chester the vill of Rufford;³ to Hervey, father of Ranulf de Glanvill, one knight's fee in Thorp Morieux, co. Suffolk;⁴ and to the predecessor of Henry Falconer one knight's fee in Nether Broughton, co. Leicester.⁵ At the foundation of Croxton Abbey, before 1160, he gave one carucate of land in Nether Broughton.⁶ In the same place he also gave to the priory of Lenton the church and 12 bovates of land,⁷ and died before 1164, leaving no issue by his wife Margaret. Albert, his brother, seems to have paid half his relief upon five knights' fees before Michaelmas, 1164, when the honour of Lancaster was resigned to the crown by the representatives of William de Blois.⁸ Albert Bussel, with his wife Leticia, confirmed his father's and brother's gifts to Evesham, Albert adding some further gifts thereto.⁹ He died in or before 1193, when his son Hugh made fine with John, count of Mortain, by 40 marks for his relief.¹⁰ Between 1189 and 1194 he was engaged in litigation with his uncle, Geoffrey Bussel, touching this honour, to which he established his title in the court of John, count of Mortain.¹¹ In 1199 Hugh Bussel obtained the king's confirmation of the Lancashire portion of this honour which he had so recovered,¹² but the year following, Robert, son of Geoffrey Bussel, gave 100 marks for an inquest touching this plea, averring that his father had been wrongfully and without judgment disseised whilst 'in the essoins of Langvoie.'¹³ For illegal procedure in this plea and concealment of the truth on the part of Hugh, the barony was taken into the king's hand and committed to the custody of Benedict Gernet.¹⁴ In 1202 Hugh gave 400 marks of an amercement for his default and for restitution of the barony;¹⁵ but, failing to meet the due terms for payment, he and his kinsman Robert were constrained to alienate the barony in 1205 to Roger de Lacy, constable of Chester, in return for acquittance against the king of the sum of 390 marks still remaining unpaid.¹⁶ From that time so much of the barony as lay within this county was annexed to the possessions of the constables of Chester and earls of Lincoln, and passing with the possessions of Henry de Lacy to the earls of Lancaster, was ultimately merged in the duchy of Lancaster. Hugh Bussel married Antigonía,¹⁷ but died without surviving issue soon after 1210. His kinsman Robert, who had brothers, Thomas and Henry, living in 1214, and William, then deceased,¹⁸ was styled lord of Leyland, and with Geoffrey his son made many grants to Evesham Abbey.¹⁹ From the sons of Geoffrey Bussel descended various branches of this ancient family, whose representatives possibly continue to this day in the families of Leyland and Farington, and possibly amongst those bearing the name of 'Bushell.'

¹ Farrer, *Lancs. Pipe R. pass.*

² *Ibid.* 374.

³ *Lancs. Inq. Rec. Soc.* xlvi. 32.

⁴ *Abbrév. Plac.* (Rec. Com.), 67b. Elsewhere it is stated that Thorp was given by Richard Bussel to Geva, sister of Ranulf de Glanvill, in dower; *Testa de Nevill* (Rec. Com.), 403.

⁵ *Testa de Nevill* (Rec. Com.), 408.

⁶ *Mon. Angl.* vi. 877.

⁷ *Ibid.* v. 113.

⁸ From the death of the earl in 1159 to Michaelmas, 1164, the honour seems to have been administered by Reginald de Warren, Geoffrey de Valoignes being his sheriff. In 1170 Albert owed 18½ marks, apparently a moiety of 37½ marks, the relief upon five fees. Farrer, *Lancs. Pipe R.* 15.

⁹ *Priory of Penwortham*, Chetham Soc. 5.

¹⁰ Farrer, *Lancs. Pipe R.* 78.

¹¹ *Rot. de Oblat.* (Rec. Com.), 49.

¹² *Chart. R.* (Rec. Com.), 27b.

¹³ *Rot. de Oblat.* (Rec. Com.), 49.

¹⁴ Farrer, *Lancs. Pipe R.* 170.

¹⁵ *Rot. de Oblat.* (Rec. Com.), 188.

¹⁶ Duchy of Lanc. Gt. Coucher, i. 73; *Close R.* (Rec. Com.), i. 60b.

¹⁷ *Priory of Penwortham*, Chetham Soc. 7.

¹⁸ *Rot. de Fin.* (Rec. Com.), 535.

¹⁹ Kuerden's folio MS. Chetham Lib. *pass.*

FEUDAL BARONAGE

BUTLER, BARON OF WARRINGTON

No evidence of the existence of the barony of Warrington is to be found in the Domesday Survey, either in the region between Ribbles and Mersey, or in cos. Lincoln, Notts., and Derby, where part of this barony afterwards lay. It was probably created by Stephen of Blois after 1118.¹ The Lindsey Survey shows that three of the manors afterwards belonging to this barony, viz. Croxton, Ingham, and Fillingham, were respectively held at that date (1115-8) by Hugh de Croxton, Reynold Purcell, and Godfrey, whilst Ranulf Biliun held Fillingham immediately of Stephen of Mortain.² In fact the Pain de Vilers whose name occurs in the Lindsey Survey as tenant of 1 carucate 5 oxgangs of land in Upton, in Well wapentake, under Stephen, was probably of an earlier generation than the first recorded baron of Warrington.³ This is the more probable because Upton did not afterwards belong to the honour of Lancaster, nor did it descend to the heirs of Pain de Vilers, but seems to have fallen into the honour of Brittany, of which it was held by the family of Trehamton.⁴ The Pain de Vilers of the Lindsey Survey may no doubt be identified as the 'Paganus de Vilers' who in 1088 attested a charter of Robert, duke of Normandy, to the abbey of Mont St. Michel,⁵ and six years later attested the grant of the church of Lancaster and other churches, lands, and tithes in this county by Roger of Poitou to the abbey of St. Martin of Sées.⁶ At a later date we find Robert de Vilers attesting a Lancashire charter of Stephen, count of Boulogne and Mortain, about the year 1123.⁷ Whilst it is probable that Pain held some fee of Roger of Poitou between 1088 and 1102, which his descendants may have held of the honour of Lancaster, we should not be justified in ascribing the creation of the barony of Warrington, and the infeudation of Pain de Vilers in the same, to an earlier date than 1118 to 1123. That Pain was the first to be infeoffed we know upon the authority of the great inquest of service made in 1212.⁸ Only one act of ascertained date in connexion with this barony can be attributed to Pain I. By a charter of confirmation in favour of Salop Abbey, expedited at Bridgenorth in 1155, the king confirmed the grant from Pain de Vilers of the tithes of Laton and Warbreck.⁹ The same inquest records many other grants and infeudations made by Pain. To the Knights Hospitallers he gave the vill of Beconsall, in Leyland hundred, being 1 carucate of land;¹⁰ to Alan de Vilers, his son, 5 carucates of land (probably Cropwell Butler, co. Notts), and Treyford, co. Sussex;¹¹ to William, another son, the vill of Newbold, including part of Kinalton, and the moiety of Owthorpe, co. Notts.;¹² to Thomas, another son, the other moiety of Owthorpe, Calverton, co. Notts.,

¹ The only fees in the pre-conquest hundreds of West Derby and Warrington which may possibly have formed the nucleus of the later barony of Warrington were those of 1½ hide in West Derby hundred, and of 1½ carucate in Warrington hundred which Theobald held in 1086, and 1 hide and ½ carucate in the latter hundred which Adelard held. The survey gives no indication that any of the manors in the cos. of Lincoln, Notts., and Derby, which were afterwards included in the barony of Warrington 'without the Lyme,' were in the possession of the Vilers family at that date.

² *The Lindsey Survey*, edit. Greenstreet, 5 and 17.

³ *Ibid.* 9.

⁴ *Testa de Nevill* (Rec. Com.), 345; Gale, *Regist. Honor. Richmond*, App. 29.

⁵ Round, *Cal. of Docs. France*, 257.

⁶ Chartul. of Sées. No. cclxv.; *Gibtham Soc.* (New Ser.), xxvi. 10.

⁷ Farrer, *Lancs. Pipe R.* 427.

⁸ *Testa de Nevill* (Rec. Com.), 402; *Lancs. and Ches. Rec. Soc.* xlviii. 6.

⁹ Reg. of Salop Abbey, No. 36; see also Hen. III.'s confirmation, *Mon. Angl.* iii. 523.

¹⁰ *Testa de Nevill* (Rec. Com.), 402; *Lancs. and Ches. Rec. Soc.* xlviii. 6.

¹¹ *Ibid.*

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and in this county Hoole, in Leyland hundred; to Roger de Stainsby, Ince Blundell (3 carucates) and half of Barton near Halsall (4 oxgangs); to Robert de Molyneux the third part of Thornton near Sefton (1 carucate); to Elwin, the third part of Thornton (1 carucate); to William Gernet, the vill of Lydiate (6 oxgangs); to Vivian Gernet, in marriage with his daughter Emma, the vills of Windle and Halsall (each 1 carucate); to Gerard de Sankey, the carpenter, Little Sankey (1 carucate); to Adam the Violer, 1 carucate, which was probably the vill of Penketh.¹ About the year 1156 he was one of the witnesses to William de Roumare's confirmation charter to Reading Abbey,² and probably died soon after. Matthew de Vilers, son and heir of Pain, with his brothers William, Alan, and Thomas, gave to the priory of Thurgarton the church of Warrington, in this county, and the church of Tythby, with the chapel of Crophill, co. Notts., all his land of Lound, with the service of Ralph de Sankey—evidently a native of Warrington parish—and 1 carucate of land in Crophill.³ Matthew does not appear to have long survived his father. Shortly before his death—which probably occurred about the year 1160—he took the religious habit in the priory of Thurgarton, and with the consent of his heirs, Robert fitz Helgod and his wife Beatrice, Matthew's daughter, confirmed to the canons of that house in free alms the carucate of land in Crophill which he had assigned to them out of his demesne there.⁴ Beatrice, his daughter and heir, had no issue by Robert fitz Helgod,⁵ who died before 1159, in or before which year she had married Richard 'Pincerna,'⁶ generally supposed to have been a younger brother, but more probably a cousin, of Robert, the earl of Chester's butler.

The first upon record of this family, to which belonged the hereditary office of butler to the earls of Chester, seems to have been Richard the butler, who held in Cheshire, at the date of the Domesday Survey, Pontone, now Poulton by Pulford, and Caluintone (unidentified).⁷ He was one of the witnesses to William de Malbanc's grant to St. Werburgh, upon the foundation of that abbey by Earl Hugh of Chester.⁸ Before 1120 he gave to the same abbey the church of St. Olave, in Chester.⁹ Robert the butler, living in the time of Stephen and Henry II., was either his son or grandson, probably the latter. Before 1153 he founded the abbey of Pulton, afterwards removed to Deulacres, to which he gave half the mill of Pulton, his wife Ivetta and son Robert being witnesses.¹⁰ He appears to have held Ingleby, co. Derby, under the earl of Chester, a manor which afterwards descended to his eldest son, Robert 'Pincerna' of Ingleby.¹¹ Before 1155 he had a grant from the crown of 10 solidates of rent in Budiford, co. Warwick, which Robert his son still held in 1177.¹² In that year, as Robert the butler, he

¹ *Testa de Nevill* (Rec. Com.), 402; *Lancs. and Ches. Rec. Soc.* xlviii. 6.

² *Arch. Journ.* xii.

³ *Mon. Angl.* vi. 190-2; Beamont, *Annals of Warrington* (Chetham Soc.), lxxxvi. 18-19.

⁴ Reg. of Thurgarton at Southwell; *Annals of Warrington*, 18.

⁵ He was perhaps a scion of the house of Helgot, barons of Castle Holgate, co. Salop. See Eyton, *Antiq. of Shropshire*, iv. 56.

⁶ The date of Robert fitz Helgod's death and his widow's marriage to Richard Butler is approximately fixed by an entry in the Pipe Roll of 23 Henry II. 1177, Notts. and Derby, to which reference will be made.

⁷ *Dom. Bk.* i. 265.

⁸ *Mon. Angl.* ii. 386.

⁹ *Ibid.* 387.

¹⁰ *Ibid.* v. 628; Ormerod, *Hist. of Ches.* edit. Helsby, ii. 862.

¹¹ Ormerod, *Hist. of Ches.* ii. 864-6; Beamont, *Annals of Warrington*, 31.

¹² *Pipe R. 2 Hen. II.* (Rec. Com.), 45; *ibid.* 23 *Hen. II.* (Pipe R. Soc.), 26. Ralph son of Robert Pincerna held 10 solidates of rent in Budiford in 1 Ric. I., *ibid.* (Rec. Com.), 1 Ric. I. 117; and in 3 John, *ibid.* 3 John, 1.

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proffered 10 marks for a recognition of his land of Cossington, co. Leicester,¹ an estate which his heirs held of the earls of Chester. Robert de Ingleby, the son, dying without issue between 1175 and 1189, was succeeded by his sister Edeline, wife of Walter de Somervill, by whose marriage the greater part of her brother's inheritance passed to that family.²

The only document which in anywise connects Richard the butler, of Warrington, with the above family is a deed addressed to Walter, bishop of Lichfield (1149-1159), by which Richard Pincerna grants to God, St. Mary, and St. Giles of Calk, 8 virgates of his demesne land in Durandesthorp (Donasthorpe, co. Derby), to which Beatrice, his wife, Ranulf the clerk, and Hugh, his brothers, and several Derbyshire men were witnesses.³ Donasthorpe was a member of the earl of Chester's fee in Derbyshire,⁴ and, like Ingleby, had probably been added to the earl's fief in that county after the forfeitures of 1102.⁵ The attestation of the grantor's wife, Beatrice, and the fact that Calk Priory was found in possession of burgage property in Warrington at a later date, seem to confirm the opinion that the grantor was Richard, the first of the family of Butler who were barons of Warrington. As Richard the butler, he attested many charters of Ranulf, earl of Chester, in the last decade of Stephen's reign.⁶ In 1165 he had acquittance of the sheriff's demand for 8 marks of a scutage in connexion with the Welsh campaign of that year, having performed military service with the king in person.⁷ The only recorded feoffment which he made in his Warrington fee was to Waldeve de Walton, master serjeant of the wapentake of West Derby, of lands in Eggergarth, in Lydiat.⁸ His death occurred in or before 1176.⁹ William, his son, was in ward of Ralph fitz Bernard, sheriff of Lancaster, during his minority,¹⁰ and probably attained his majority between 1185 and 1190. He was in arms against the king with his chief lord, John of Mortain, in 1193-4, but made his peace with Richard in 1194 by payment of a small fine of 30 marks.¹¹ He confirmed to the priory of Thurgarton the church of Warrington, the church of Titheby with the chapel of Cropwell, and the carucate of land in Cropwell which Matthew de Vilers, his grandfather, gave to that house.¹² His first wife, whose name was Dionisia, was probably the mother of his issue. She died before 1215, in which year William the butler obtained a letter from the king in support of his suit for the hand of Aline, the relict of William de Furness, who died in 1204.¹³ He married this lady shortly after. About the year 1205 he attested a charter of Ranulf, earl of Chester, as the latter's butler.¹⁴

¹ In 1237 Roger de Somervill held half a fee in Cosinton, viz. one half of the earl of Ferrers, the other of the seneschal of Mohaut (Montalt). *Testa de Nevill* (Rec. Com.), 92.

² See *Mon. Angl.* ii. 362; *Inq.* p.m. 18 Edw. I. No. 113; Ormerod, *Hist. of Ches.* ed. Helsby, ii. 864-6; *Testa de Nevill*, cos. Derby, Staff, and Leicester, *pass.*

³ From the original formerly in the possession of the Rev. W. Massie of Chester. Beamont, *Annals of Warrington*, 34.

⁴ Durandestorp was part of Nigel de Stafford's fief in Domesday (Dom. Bk. i. 278). Engelebi was divided between Nigel de Stafford, Ralph fitz Hubert, the king, and the king's thegns (*ibid. passim*).

⁵ Beamont, *Annals of Warrington*, 35.

⁶ *Ibid.* 33; Farrer, *Lancs. Pipe R. passim*. The earliest appears to be a charter dated at Lincoln on the eve of the feast of SS. Simon and Jude (27 October), probably in the year 1145. *Dep. Keeper's 35th Rep.* App. i. 7, No. 65.

⁷ Farrer, *Lancs. Pipe R.* 6.

⁸ *Inq. of 1212*, Rec. Soc. Lancs. and Ches. xlviii. 10.

⁹ *Inq. of 1212*, Rec. Soc. Lancs. and Ches. xlviii. 6.

¹⁰ *Mon. Angl.* vi. 191.

¹¹ *Lancs. Pipe R.* 180, 252.

⁹ *Pipe R.* 23 Hen. II. Notts.

¹¹ Farrer, *Lancs. Pipe R.* 77.

¹⁴ *Cal. Pat. R.* 1317-21, 26.

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The details of his knights' fees and the names of his tenants by knight's service are as follows :

BETWEEN RIBBLE AND MERSEY—2 FEES

		1212	1242-3
Tyldesley (1 car.) ¹	. . .	$\frac{1}{10}$ fee	Hugh, son of Henry de Tyldesley
Culcheth (4 car.) ²	. . .	$\frac{3}{10}$, $\frac{1}{10}$ fee	Hugh, son of Gilbert de Culcheth
Rixton and Glazebrook (2 car.) ³	} . . .	$\frac{1}{2}$ fee	Alan de Rixton Alan de Rixton
Atherton (1 car.) ⁴			$\frac{1}{10}$ fee	Henry, son of William de Atherton
Little Sankey (1 car.) ⁵	. . .	$\frac{1}{10}$ fee	Robert, son of Thomas Robert de Samlesbury
Penketh (1 car.) ⁶	. . .	$\frac{1}{20}$ fee	Robert, son of Robert de Sankey
Lydiat (6 oxg.)	. . .	$\frac{1}{10}$ fee	{ Benedict, son of Simon de Halsall ⁷ Henry, son of Gilbert de Walton ⁸
Eggergarth (2 oxg.)	. . .		
Thornton (1 car.)	. . .	$\frac{1}{10}$ fee	Robert, son of Richard de Molyneux ⁹
Thornton (1 car.)	. . .	$\frac{1}{10}$ fee	Gilbert, son of Eawin de Thornton ¹⁰
Ince Blundell (3 car.)	} . . .	$\frac{1}{2}$ fee	William Blundell Richard Blundell
Barton (4 oxg.)			. . .
Hoole (2 car.)	. . .	$\frac{1}{2}$ fee	Robert de Vilers Robert de Vilers
Halsall (1 car.)	. . .	$\frac{1}{10}$ fee	Alan, son of Simon de Halsall
Windle (1 car.)	. . .	$\frac{1}{10}$ fee	Alan, son of Alan de Windhull
Beccosall (1 car.)	. . .	In alms	Hospitallers of Jerusalem Same as 1212

IN AMOUNDERNESS—1 FEE

Laton with Warbreck . . .	} . . .	1 fee	In demesne	{ The heir of Emery the Butler
Bispham with Norbreck . . .				

IN NOTTINGHAMSHIRE¹¹

Cropwell Butler (6 car?)	} . . .		Walter de Stanton	{ Walter de Stanton Alina, relict of Emery the Butler
Kinelson				
Calverton (1 car.)	. . .	$\frac{1}{4}$ fee	{ Robert de Vilers William de Vilers	John de Vilers
Owthorpe . . . . .	. . .	$\frac{1}{2}$ fee	William, son of Pain de Vilers	John de Vilers
Newbold	$\frac{1}{2}$ fee	William, son of Pain de Vilers	John de Vilers

IN CO. SUSSEX

Treyford ¹²	Robert de Vilers Robert de Vilers
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IN CO. LINCOLN¹³

Croxton	} . . .	1 fee	{ Robert, son of Richard Robert, son of Richard Robert, son of Richard	Richard, son of Robert de Croxton $\frac{1}{2}$ fee	
Fillingham			$\frac{1}{2}$ fee	{ Robert Breton Robert Breton Robert Breton	John de L'Isle $\frac{1}{2}$ fee
Ingham				Robert le Breton, 1 fee	
Cold Hanworth	} . . .	1 fee	Henry, son of Ralph	Robert le Breton, 1 fee	
Ellsham			Henry and Simon de Fillingham		
Bultham	} . . .	$\frac{1}{2}$ fee	William, son of Winnoc	Henry and Simon de Fillingham	
Fillingham					
Ingham . . . . .	. . .	$\frac{1}{2}$ fee	William, son of Winnoc	

¹ *Cockersand Chart.* (Chetham Soc.), 714; *Testa de Nevill* (Rec. Com.), 402.

² *Lancs. Ing. Rec. Soc. Lancs. and Ches.* xviii. 9.

³ *Ibid.*

⁴ *Cockersand Chart.* (Chetham Soc.), 632 n.; *Lancs. Ing., Rec. Soc.* vol. xviii. 8.

⁵ *Lancs. Ing. Rec. Soc.* vol. xviii. 10.

⁶ *Ibid.* 10. ⁷ *Ibid.* 10. ⁸ *Ibid.* 9.

⁹ *Ibid.* 7.

¹⁰ *Ibid.* 8.

¹¹ *Testa de Nevill* (Rec. Com.), 3, 7, 11, 22; *Lancs. Ing., Rec. Soc.* vol. xviii. 5-11.

¹² This manor was not a member of the honour of Lancaster but of that of Arundel.

¹³ *Testa de Nevill* (Rec. Com.), 304, 315, 326, 408; *Lancs. Ing., Rec. Soc.* vol. xviii. 10-11.

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William the butler died before 20 November, 1233, when Emery his son had livery of six knights' fees which he held in chief, the two fees between Ribble and Mersey being then held of the earl of Ferrers.¹ Emery died before 4 September, 1235, when the earl gave the king £100 for wardship of the heir.² His wife Alina had her dower in Cropwell.³ She was probably the daughter and heir of Stephen de Upton, lord of Upton, co. Warwick, who was returned in 1236 as holding one knight's fee in Upton,⁴ which fee the heir of Emery le Botiler held in 1242.⁵ William, his son and successor,⁶ attained his majority about the year 1245.⁷ In 1249 he held Exhall and Foleshill of Roger de Montalt of Hawarden, co. Flint, as of his manor of Coventry,⁸ and in 1268, after the death of William Mauduit, earl of Warwick, was returned as holding of him one knight's fee, probably in Upton.⁹ On 20 October, 1255, he had a grant of a yearly fair at Warrington to be held on the vigil, the feast, and the morrow of the Translation of St. Thomas the Martyr.¹⁰ The grant of a weekly market on Wednesday at the manor of Laton, in Amounderness, was made on 26 October, 1257, in error to 'Robert' the Butler.¹¹ On 5 February, 1259, upon his appointment as sheriff, the county and castle of Lancaster were delivered to William the butler as *custos*,¹² and so continued in his charge until Michaelmas following. In 1260 he was summoned to attend a council in London with other magnates of the kingdom.¹³ About the year 1260 William the butler acquired Burtonwood from Robert de Ferrers, earl of Derby, with vert and venison in his woods and lands in Sankey, Penketh, and Dallam for a yearly quit-rent of one penny.¹⁴ The earl also resigned his mesne lordship over the manors of Halsall and Windle, which had been created by Pain de Vilers I., and had been acquired by the earl's grandfather apparently from Warin de Vilers, lord of Hoole, a supposed younger brother of Robert de Vilers, living in 1212.¹⁵ He also enfeoffed William the butler in the mesne lordship of Bold, quit of suit to the wapentake court of West Derby, and from the yearly thegnage rent of 10s. due for this manor.¹⁶ As a vassal of the earl of Derby he took part in the barons' rebellion of 1264, but after the battle of Evesham made his peace with Henry, in September, 1265, and recovered his lands,¹⁷ only, however, to be again dispossessed the year following. On 25 October, 1266, his lands in cos. Notts, Warwick, Leicester, and Lancaster were given to David, son of Griffin, for 200 librates of land,¹⁸ but seem to have been restored to him a few days later

¹ Rot. Fin. 18 Hen. III. m. 11; Close R. 17 Hen. III. m. 4.

² Fine R. 19 Hen. III. m. 4.

³ *Testa de Nevill* (Rec. Com.), 398.

⁴ Ibid. 83, 89.

⁵ Ibid. 99b; cf. Close R. 29 Hen. III. m. 2.

⁶ In a deed granting to the priory of Lancaster the site of a grange in Laton he is described as 'Willelmus filius Almarici le Botyler' (*Reg. of Lanc. Priory*, 438).

⁷ When he contributed £8 for eight fees to the aid to marry the king's eldest daughter (Pipe R. 30 Hen. III. Lanc. m. 12 d.). See also a fine at Lancaster in 1246; *Rec. Soc. Lanc. and Ches.* xxxix. 100, 104, 109.

⁸ Sir Peter Leycester's MSS. Liber C. 26; quoted in *Annals of Warrington*, 65.

⁹ *Cal. Inq. p.m. Hen. III.* (Rolls Ser.), i. 213.

¹⁰ *Cal. of Chart. R.* i. 451.

¹¹ Ibid. 476.

¹² Rot. Orig. 43 Hen. III. m. 2; Pat. R. 43 Hen. III. m. 13.

¹³ *Rep. on the Dignity of a Peer*, App. 1, 20.

¹⁴ Beamont, *Annals of Warrington*, 73. The consideration for the purchase of Burtonwood seems to have been 900 marks, of which only 105 marks had been paid on 12 February, 1270. Ibid. p. 87.

¹⁵ Ibid. (See *Lancs. Inq. Rec. Soc.* vol. xviii. 8, 147.)

¹⁶ Ibid.

¹⁷ Close R. 49 Henry III. m. 2; Dugdale, *Baronage*, 653.

¹⁸ Miscel. R. Chanc. Bundle 16, m. 2, m. 2 d.

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under the 'Dictum de Kenilworth.'¹ Between 1266 and 1271, during the shrievalty of John de Cantsfield, William the butler and Richard his brother attested an important agreement made between the abbots of Shrewsbury and Deulacres, touching the villis of Norbreck and Little Bispham.² In Hilary term, 1276, the burgesses of Warrington complained in the King's Bench that William the butler was distraining them to render toll, tallage, and aids and to perform other customs and services than those which they and their ancestors had hitherto done, and to sell fish taken in their free fisheries in Mersey at a less price than they sold to others, contrary to the terms of the charter of liberties granted to them and their ancestors by William the butler, his grandfather, and they sought redress.³ The complaint was renewed before the justices at Lancaster in 1292, when William the butler confirmed the charter of liberties mentioned below.⁴ On 7 November, 1277, he obtained a charter for a weekly market at Warrington on Friday, and for a fair yearly for eight days, on the vigil, the feast, the morrow of St. Andrew the Apostle, and five following days.⁵ In 1277 he took part in the campaign against the Welsh⁶ and again in 1282, when he was a commissioner for the levying of 1,000 Lancashire men to serve in the Welsh war.⁷ In 1285 he obtained a charter transferring the weekly market at Warrington from Friday to Wednesday and the annual fair from 29 November—6 December to the vigil and feast of the Translation of St. Thomas the Martyr, and five following days (6—13 July). He likewise obtained a charter of free warren in his demesne lands of Sankey, Penketh, Warrington, and Laton, in this county, in Cropwell-Butler, co. Notts, and in Eccleshall, Foleshill, and Summercotes, co. Warwick;⁸ pontage for four years upon goods passing over Warrington bridge,⁹ and again for five years in 1305 and 1310 for Warrington and Sankey bridges.¹⁰ In 1287 he was again in Wales,¹¹ and in June that year was summoned with other magnates to attend the council at Gloucester,¹² while in 1291 he was summoned to Norham with other knights of the northern counties to attend the king with horse and arms against the Scots.¹³ In 1292 he established his title to market, fair, and gallows at Warrington, and to wreck of the sea in Laton,¹⁴ and on 22 July in the same year granted a charter of liberties to his men of Warrington.¹⁵ In 1294 he was summoned to attend the king at Portsmouth, about to set forth to prosecute the campaign against the French in Gascony,¹⁶ and was further summoned to Parliament as a baron by writs of 8 June, 1294,¹⁷ 23 June, 1295, 26 August, 1295,¹⁸ 26 January, 1297, and 6 February, 1299.¹⁹ He was summoned in October, 1297, to be with horse and arms at Newcastle-upon-Tyne on the day of St. Nicholas following to take part in the war in

¹ Stubbs, *Constit. Hist.* edit. 1880, ii. 105.

² De Banc. R. No. 13, m. 75 d. The charter there referred to has not been preserved.

³ Beamont, *Annals of Warrington*, 102.

⁴ *Cal. Pat. R.* 1272—81, 220.

⁵ *Plac. de quo war.* (Rec. Com.), 386.

⁶ *Ibid.* 1301—7, 334; 1307—13, 236.

⁷ *Rep. on Dig. of a Peer*, App. 1, 52.

⁸ *Plac. de quo war.* (Rec. Com.), 386.

⁹ Beamont, *Annals of Warrington*, 102—113.

¹⁰ *Parl. Writs* (Rec. Com.), 260; *Rep. on Dig. of a Peer*, App. i. 57.

¹¹ Cokayne, *Comp. Peerage*, i. 382 n. The writs of 1294 and 1297 are not considered as regular summonses to Parliament. See also *Rep. on Dig. of a Peer*, i. 78.

¹² *Parl. Writs* (Rec. Com.), i. 79.

¹³ *Reg. of Salop Abbey*, penes W. Farrer, No. 270.

¹⁴ Chart. R. 13 Edw. I. pt. 2, No. 97.

¹⁵ Palgrave, *Mil. Writs*, 222, 228.

¹⁶ *Cal. Pat. R.* 1281—92, 229.

¹⁷ *Ibid.* 272.

¹⁸ *Ibid.* 54.

¹⁹ *Annals of Warrington*, 116.

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Scotland.¹ In the year 1300 he granted charters to his chief tenants of the fee of Warrington, releasing them, their heirs and tenants, from finding thenceforth more than one beadle to do service at the three weeks' court of Warrington, acquitting them from any claim in respect of waste land brought under cultivation and enclosed, saving always pature of one beadle from their oxgangland, and from bode and witness, stallage, and forstal.² In 1301 he was summoned to Berwick to serve in the war against the Scots.³ He died before the middle of the year 1304.⁴ Henry his son, who was one of the knights of the shire returned to the Parliament of 1297,⁵ predeceased his father before August 1299, leaving by his wife Isabel, said, but on insufficient grounds, to have been a daughter of the first Richard the butler of Marton,⁶ a son William, who succeeded to the barony on his grandfather's decease.⁷ In 1299, as William the butler, son of the late Henry the butler, kt., he granted lands in Foleshill, co. Warwick, to William le Warner of Exhall.⁸ In Trinity term, 1304, John son of John de Vilers was suing William son of Henry le Boteler to perform the service due to Thomas, earl of Lancaster, for some unspecified lands in co. Lancaster.⁹ In 1313 he participated in the pardon granted to Thomas, earl of Lancaster, for complicity in the murder of Peter de Gaveston.¹⁰ He is frequently described as 'of Bewsey,' in the charters and leases of his time.¹¹ In the years 1314, 1316-7, and 1321-3, he served in person against the Scots in response to various summonses.¹² His arms—azure, a bend between 6 covered cups or—are preserved in a MS. of the time of Edward II.¹³ William, his son, sealed with these arms in the 2 Edward III. (1328).¹⁴ On 12 November, 1321, he was inhibited from attending the meeting of the 'Good Peers,' illegally convened by Thomas of Lancaster, and the year following appears to have attended upon the king with some forces in the brief campaign against the earl.¹⁵ In 1320 the manors of Laton, Great Marton, and Great Sankey were settled upon him and his wife Sibyl and the heirs of their bodies.¹⁶ In 1323 he was appointed one of the chief keepers of the peace in the county,¹⁷ and the following year was sum-

¹ *Rep. on Dig. of a Peer*, i. 89, 104.

² *Annals of Warrington*, 121; Lancs. MSS. Chetham Lib.

³ *Parl. Writs* (Rec. Com.), 355; *Rep. on Dig. of a Peer*, App. i. 138.

⁴ In Easter term, 1305, there is reference to a claim for relief made by Thomas, earl of Lancaster, after the death of William the butler for a tenement in Kinalton, co. Notts.; *Abbrev. Plac.* (Rec. Com.), 254. There seems to be no doubt that William le Boteler was in possession of the barony from 1245 to 1303, a period of fifty-eight years. Not only is there the evidence, given in the plea of 'quo waranto' in 1292, that he had obtained royal charters in 1257, 1277, and 1285, but in a plea in the King's Bench in 1313 respecting a tenement in Warrington which his grandson William was called by the defendant to warrant, the said tenement was described as having been given by William son of Emery le Boteler to the plaintiff's father, one William the clerk. De Banc. R. No. 201, m. 68.

⁵ *Parl. Writs* (Rec. Com.), i. 58.

⁶ On 8 January, 1304, by deed dated at Summerby, co. Lincoln, Walter de Hepaym released a debt of £29 to Isabel, formerly the wife of Henry le Boteler, in which sum she was bound to him on 8 September, 1303. She had lands in Lincolnshire worth £17 a year. De Banc. R. No. 149, m. 18 d.

⁷ He is described as 'William son of Henry le Boteler' in a deed of 1 Edw. II. *Annals of Warrington*, 135; and in a plea against Robert son of Roger de Sonky, at Martinmas, 1306. Assize R. No. 420, m. 11.

⁸ *Anct. D.*, A. 3273.

⁹ De Banc. R. No. 152, m. 178.

¹⁰ *Cal. Pat. R.* 1313-17, 24.

¹¹ *Beamont, Annals of Warrington*, 133-160.

¹² *Mil. Writs* (Rec. Com.), i. 428-631, *passim*; *Rep. on the Dig. of a Peer*, App. i. 256-339 *passim*.

¹³ *Harl. MSS.* No. 337, f. 296, No. 3. See *The Genealogist* (New Ser.), iii. 120. The arms of 'Sire William le Botiler de Wemme' [*sic* for Werinton] were 'de azure, a une bende e vj coupes de or.' Nicolas, *Roll of Arms*, temp. Edw. II. 82; *Roll*, temp. Edw. III., 16th cent. copy *penes* W. Farrer.

¹⁴ *Beamont, Annals of Warrington*, plate facing p. 149.

¹⁵ *Parl. Writs* (Rec. Com.), ii. (2), 545b, 549b.

¹⁶ *Lancs. Fines*, Rec. Soc. xlv. 40.

¹⁷ *Parl. Writs* (Rec. Com.), ii. (2), App. 238.

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moned as holding lands of £15 yearly value to the Great Council of Westminster.¹ About this time Richard son of Henry de Trafford, kt., was living with him 'de son conseil et a ses robes' as one of the servants of his house.² In 1328 he settled his manor of Cropwell-Butler upon his son Matthew, in tail, with remainder to his other son William.³ As the latter re-settled two-thirds of the manor in 1332 upon himself and Elizabeth his wife and the heirs of their bodies, it would appear that Matthew died during his father's lifetime.⁴ William the butler the father, married Sibyl, whose family and parentage are unknown, and died in 1329.⁵ In 1332 two-thirds of the manor of Warrington and other lands were settled upon his son and heir William, and Elizabeth his wife, and their issue.⁶ This lady appears to have been sister and co-heir of Richard son of Nicholas de Havering, who died in 1335, in whose right her husband acquired half the manor of Chalkwell, co. Essex, which Thomas Butler, kt., alienated in 1498.⁷ In 1335 he was summoned to be at Newcastle-upon-Tyne with horse and arms to attend the king in the campaign against the Scots, this being the last occasion in which he was summoned in the same form as the barons of the realm.⁸ In 1336, as 'William le Boteler, son and heir of William le Boteler of Weryngton,' he confirmed the gift of an annuity of 40s. yearly to Cocker-sand Abbey made by his great-grandfather, William the butler, kt., in consideration of the remission of a mark yearly of the annuity during the lifetime of his mother Sibyl.⁹ In 1337, together with Thomas de Latham, he was ordered to raise a force of 1,500 men-at-arms in the county, and to lead them into Scotland.¹⁰ On 16 July, 1338, he and John the butler, being about to set out on the king's service in France, had letters of protection from pleas whilst absent from the kingdom.¹¹ From this time he is described as 'chivaler.'¹² In 1340, shortly after the marriage of his eldest son, Richard, to Joan, daughter of Thomas de Dutton of Dutton, kt., he settled his Lancashire estates and his manor of Exhall, co. Warwick, upon himself and Elizabeth his wife for their lives, remainder to Richard his son and Joan his wife, and the heirs of their bodies, with remainder to his younger son John and the heirs of his body.¹³ In 1341 he was in the king's service either at Berwick-upon Tweed, in the marches, or elsewhere in Scotland.¹⁴ The following year 'Sir John Boteler of Warrington,' whilst taking part in the war of succession in Brittany on the side of the comte de Montfort, was wounded in the assault of the castle of

¹ *Parl. Writs* (Rec. Com.), ii. (2), 638.

² *Annals of Warrington*, 159.

³ Cf. *Cal. Chose R.* 1330-3, 146; *Assize R. No. 1404*, m. 18. In Trinity term, 1329, Sibyl, late the wife of William le Boteler, of Warrington, was suing Adam de Southworth in a plea of dower. *De Banc. R. No. 278*, m. ii d. A wooden effigy of a cross-legged knight, habited in mail from head to foot with a heater-shape shield on his left arm, and both hands upon his sword's hilt, which was formerly in the Friary church at Warrington, possibly represented the above William the butler. *Harl. MSS. No. 139*, f. 22.

⁴ *Lancs. Fines* (Rec. Soc.), xlv. 82-6.

⁵ *Inq. p.m.* 9 Edw. III., No. 20; 10 Edw. III. (2nd Nos.), No. 25; and 20 Edw. III. *Morant, Hist. of Essex*, ed. 1768, i. 296. Elizabeth, wife of William le Boteler, kt., seals with a coat having a bend between 6 covered cups (Boteler) impaling a lion rampant double queued (Havering). See Nicolas, *Roll of Arms, Edw. III.* (W. Pickering, 1829), 9.

⁶ *Rep. on Dig. of a Peer*, App. i. 443.

⁷ *Cockersand Chertul.* Chetham Soc. 161.

¹⁰ *R. Scot.* (Rec. Com.), i. 486b.

¹¹ *Cal. Chose R.* 1337-9, 523. John Butler was slain in this campaign. *Chron. de Lanercost* (Rolls Ser.), s. d. 1340.

¹² *Assize R. No. 1425*, m. 6 d.

¹³ *Lancs. Fines* (Rec. Soc.), xlv. 195.

¹⁴ *Rot. Scot.* (Rec. Com.), i. 606, 611-2, 627.

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Roche Perion and taken a prisoner to the stronghold of Favuet. The story of his rescue from the camp of Charles of Blois before Hennebon, where he and another English knight were detained captives, is recorded by Froissart.¹ There is some doubt as to the identity of this John the butler, but it seems probable that he was a kinsman of the lord of Warrington, and of the family of Butler of cos. Warwick and Stafford.² William the butler was probably in the French war before Calais and at Crecy in 1346, his name appearing in a list of those to whom wages of war were due.³ At a muster of Lancashire men-at-arms and archers made in 1359, William the butler, chivaler, had Robert de Sankey and Richard de Rixton assigned to his aid, because a great part of his lands and tenements were not in his hands.⁴ He died on 17 March, 1380, John Butler, kt., being his son and heir, aged 52 years.⁵ Sir John Butler, chivaler, had held the office of sheriff of the county for three years from Christmas, 1371.⁶ In 1366 he was elected one of the knights of the shire to the Parliament which sat on 4 May in that year,⁷ and again in 1372.⁸ In 1369 and 1370 he was in the retinue of John, duke of Lancaster, in the expedition to Gascony.⁹ In the beginning of 1374, being then described as 'chivaler,' he was appointed seneschal of West Derbyshire and Salfordshire,¹⁰ and at the end of the year constable of Liverpool Castle and warden of the parks of Toxteth, Croxteth and Simonswood, and of the forest and chase of West Derbyshire for life.¹¹ In July, 1372, he was summoned to attend the duke with other knights of the county, each accompanied by twenty good archers, to join the king in the contemplated expedition to Aquitaine,¹² and from 13 September, 1372, to 9 August, 1373, was in the retinue of Robert de Assheton, kt. banneret, in the king's service in Ireland.¹³ About the year 1364, Butler married Alice, daughter of William de Plumpton, kt., and relict of Richard Sherburn, kt.¹⁴ In 1376 he was returned to the Parliament summoned to meet at Westminster on 12 February,¹⁵ again in 1377 to the Parliaments summoned for 27 January and 13 October,¹⁶ which latter sat for sixty-six days, and again to the Parliaments of 1378 and 1380.¹⁷ In 1386 he was one of the king's commissioners in the Scrope and Grosvenor trial, being styled 'Baro de Weryngton,'¹⁸ and the same year with other Lancashire knights led ten men-at-arms and thirty archers of his own retinue to Ireland on the king's service.¹⁹ In 1388 he

¹ *Chron.* (ed. Berners, 1812), i. 109.

² *Staff. Collections* (New Ser.), vi. (2), 40, 52.

³ *Ibid.* xviii. (2), 214.

⁴ *Misc. R. Chanc. bdle.* 20, No. 23, m. 2.

⁵ *Chebbam Soc.* (Old Ser.), xcvi. 7; *Dep. Keeper's 39th Rep.* App. No. 3, 535. Writ of D.C.E. tested 18 April; *Dep. Keeper's 32nd Rep.* App. No. 4, 353. Sir John Butler had livery 6 August, 1380. *Ibid.*

⁶ *Duchy of Lanc. Misc. Bks.*, No. xiii. 48b, 55b, 214.

⁷ *Parl. Ret.* i. 177. He and his colleague each received 4s. a day.

⁸ *Ibid.* 188.

⁹ *Dugdale, Baronage*, 653. *French R.*, 43 Edw. III. *Staff. Coll.* viii. 112.

¹⁰ *Duchy of Lanc. Misc. Bks.*, No. xiii. 64b.

¹¹ *Ibid.* 65b. In 1378 the duke of Lancaster directed the Chancellor to send the great seal of the duchy into the castle of Liverpool to remain in the custody of Mons. John Butiller, constable of the same, during the chancellor's absence from the duchy. *Palat. of Lanc. Chan. Misc. bdle.* i. file 9, m. 4.

¹² *Duchy of Lanc. Misc. Bks.* xiii. 154b. Letter dated 18 July. On 22 November the receiver was ordered to pay him £56 8s. 8d. due for his wages in that expedition. *Ibid.* f. 160b.

¹³ *Exch. K.R. Accts. bdle.* 32, No. 25, m. 2. Assheton had in his retinue six knights, forty-nine men-at-arms, and ninety-four horse archers.

¹⁴ Whitaker, *Hist. of Whalley*, 110; *Plumpton Papers*, Camden Soc. xxviii.

¹⁵ *Parl. Ret.* i. 193.

¹⁶ *Ibid.* 196, 198.

¹⁷ *Ibid.* 200, 204, 206; *Dep. Keeper's 32nd Rep.* App. 4, 352-3.

¹⁸ *Nicolas, Scrope and Grosvenor Roll*, i. 245.

¹⁹ *Cal. Pat. R.* 1385-9, 163.

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was again returned as one of the knights of the shire.¹ In 1389 he took part in the expedition to Barbary,² in which he appears to have been taken prisoner, but was subsequently ransomed.³ In 1395 he and his son William, with Gilbert de Haydock, of Bradley and Haydock, and others were defendants in a plea at Lancaster in which William Daas, parson of Winwick, successfully resisted an attempt to set up a right of way through his close called 'Wyndmylnflat,' near Warrington.⁴ In 1397-8 he was again returned as one of the knights of the shire.⁵ He died early in the year 1400. The inquest after his death has not been preserved, but writs for livery of his estates to William Butler, kt., his son and heir, and for the assignment of dower to his widow Alice are dated on 21 March in that year.⁶ William Butler was made a Knight of the Bath at the coronation of Henry IV. in 1399.⁷ He married, in the spring of 1403, Elizabeth, eldest daughter of Robert Standish, of Standish, kt., relict of John, son of Hugh de Wrottesley, kt.⁸ In 1406 he was summoned to Parliament as one of the knights of the shire.⁹ In 1415 he undertook to attend the king to Guienne for a year with nine men-at-arms and thirty archers,¹⁰ but in the siege of Harfleur was attacked by the pestilence, which proved fatal to so many of the English in that siege, and died on 26 September, leaving John Butler his son and heir, then aged twelve years.¹¹ His widow, having re-married without the king's licence, found security for payment of her fine, and had assignment of her dower on 30 January, 1416.¹² John Butler, who was born at Bewsey on 26 February, 1402-3, proved his age on 8 March, 1424,¹³ and had livery of his father's lands a week later.¹⁴ His father had married him in 1411 to Isabel, daughter of William Harrington, of Hornby, kt., and had settled upon them and their issue his lands in the cos. of Wilts, Beds. and Essex.¹⁵ In 1426 he was one of the knights of the shire summoned to Parliament,¹⁶ and was probably knighted the same year by the king at Leicester.¹⁷ He died in his twenty-eighth year on 12 September, 1430, leaving his wife Isabel, him surviving, a son and heir, John Butler, aged one year, and three daughters.¹⁸ John Butler, the son, was born on the feast of St. Bartholomew (24 August), 1429.¹⁹ In 1437 Isabel, widow of

¹ *Parl. Ret.* i. 232.

² Holinshed, *Cbron.* (ed. Hooker, 1587), iii. 473.

³ *Palat. of Ches. Rec.* 13-4 Ric. II. *Dep. Keeper's Rep.*

⁴ *Palat. of Lanc. Chanc. Misc. bdl. i. fol. i. m. 7.*

⁵ *Parl. Ret.* i. 256.

⁶ *Dep. Keeper's 33rd Rep.* App. i. 1.

⁷ Baines, *Hist. of Lanc.* 1st ed. ii. 532.

⁸ *Staff. Hist. Colls.* (New Ser.), vi. (2) 191-2. She married in 1416 as her third husband, William de Ferrers, kt., baron of Groby.

⁹ *Parl. Ret.* i. 269.

¹⁰ Rymer, *Foedera*, ix. 223; Beaumont, *Annals of Warrington*, 232-3. The indenture was dated 29 April, 3 Hen. V. The wages of himself and his retinue commenced on 8 July and ended on 6 October following, when many of his retinue returned to England sick. Exch. K.R. Army Accts. bdle. 46, No. 35, m. 7. On 27 June at Winwick he gave an acquittance to the sheriff for £113 15s. for payment made to fifty archers retained in the king's service for a year to come, which he sealed with a hexagonal signet in red wax, having a covered cup, between the initials **W. B.** Exch. K.R. Army Accts. bdle. 46, No. 35, m. 7.

¹¹ *Chetbam Sac.* xcvi. 114.

¹² *Dep. Keeper's 33rd Rep.* App. No. 1, 13 bis.

¹³ Add. MSS. No. 32,104, f. 317b. John Shrewsbury, abbot of Norton, and Katherine Bruche, were his godparents.

¹⁴ *Dep. Keeper's 33rd Rep.* App. No. 1, 25. Inquest taken at Lanc. on Wednesday in the first week of Lent, 2 Hen. VI. *Palat. of Lanc. Chanc. Misc. bdl. 1, file 1, 20.*

¹⁵ Beaumont, *Annals of Warrington*, 230; *Chanc. Inq. p.m.* 9 Hen. VI. No. 11.

¹⁶ *Parl. Ret.* i. 311.

¹⁷ Metcalfe, *Book of Kts.* 1.

¹⁸ The inquests taken after his death show that he held by the gift of his father half the manor of East Grafton, co. Wilts; half the manor of Chalkwell; half a messuage called Houghtons, and lands in Little Barfield, co. Essex. *Chanc. Inq. p.m.* 9 Hen. VI. No. 11.

¹⁹ *Palat. of Lanc. Inq. p.m.* Nos. 27-8. Writ of D.C.E. 4 Nov. *Dep. Keeper's 33rd Rep.* App. i. 31.

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John Butler, was peaceably living with her children at Bewsey, when in the early morning of 22 July her house was broken into by William Poole, of Wirrall, gent., younger brother of John Poole, of Poole Hall, kt., who violated her and carried her away naked—save for her kirtle and smock—to Birkenhead, whence on the following day he took her to Bidston church and by menaces compelled her to marry him. Subsequently he led her into the wild and desolate parts of Wales, and at length brought her back to Birkenhead, where she was found by Sir Thomas Stanley, of Hooton. She subsequently petitioned Parliament for redress, but her ravisher does not appear to have ever surrendered himself to justice.¹ She died in 1441, when an inquest was taken after her death.² Elizabeth Ferrers, relict of William Ferrers, of Groby, died the same year, when the lands which she had held in dower in Warrington and Great Sankey were delivered to William Mascy, of Rixton, esq., during her grandson's minority.³ John Butler received knighthood before 20 July, 1447, when he obtained a grant of view of frankpledge in Warrington, Burtonwood, and Great Sankey.⁴ On 16 January following he had livery of all his lands within the palatinate.⁵ In 1449 he was summoned to Parliament as one of the knights of the shire,⁶ and in 1452 had a grant of an annuity of £20 for life.⁷ In 1444 he married Margaret, daughter of Peter Gerard, of Kingsley and Bryn, esq.,⁸ by whom he had issue two sons and four daughters. His wife died in or before 1452,⁹ in which year Sir John Butler married his eldest son, John, to Anne, daughter of John Savile, of Howley, kt., but his son died before the consummation of the marriage.¹⁰ About the year 1454 Sir John married Isabel, daughter of Thomas, lord Dacre of Gillesland, but in 1458 the union was dissolved on the grounds of a former marriage contracted in 1453 with Thomas, late lord Clifford.¹¹ Subsequently, in 1460, he married Margaret, daughter of Thomas, first lord Stanley, and relict of William Troutbeck of Dunham-on-the-Hill, kt.¹² He died on 26 February, 1463,¹³ leaving issue William, his eldest surviving son, then aged 13 years and married to Joan, daughter of William Troutbeck, kt.¹⁴ This William Butler was knighted on the field of Grafton in 1471 by Edward IV.,¹⁵ but died the same year without issue, having but recently succeeded to his inheritance. By the inquest taken after his death it was found that Thomas, his brother

¹ *Rolls of Parl.* (Rec. Com.), iv. 497-8.

² *Chetham Soc.* xcix. 48-50. She held at her death the manor of Exhall, co. Warwick, of the king, as of his manor of Chelymslowe, the reversion being to John, son of John Boteler of Bewsey, and his heirs. Inq. p. m. 20 Hen. VI. No. 29. Her father, William Harrington, kt., died on 22 February, 1440, holding as trustee two-thirds of the Butler estates in Bewsey, Warrington, Penketh and Great Sankey, as appears by the inquest taken after his death. Towneley MSS. vol. D.D. 1510, *penes* W. Farrer.

³ *Palat. of Lanc. Chanc. Misc. bdlc.* 1, file 1, No. 12. The lands which she held in dower are set forth in the inquest after her death. Towneley MSS. vol. D.D. 1476, *penes* W. Farrer.

⁴ *Dep. Keeper's 40th Rep.* App. 4, 539.

⁵ *Ibid.*

⁶ *Parl. Ret.* i. 342.

⁷ *Palat. of Lanc. Chanc. Misc. bdlc.* 1, file 1, Nos. 13-4.

⁸ *Beaumont, Annals of Warrington*, ii. 263.

⁹ *Ibid.* 270.

¹⁰ *Ibid.* 270-5.

¹¹ *Lichfield Epis. Reg.* Bothe.

¹² *Beaumont, Annals of Warrington*, 284, 288. In January, 1463, the custody of William, son and heir of William Troutbeck, kt. was committed to John Butler, kt. and Margaret his wife. *Cal. Pat. R.* 1461-7, 209.

¹³ The late Mr. Beaumont, in *Annals of Warrington*, 303-23, disproves the ancient tradition of the murder of Sir John Butler in his bed at Bewsey by Lord Stanley, Sir Piers Leigh and Mr. William Savage. The different accounts of the tragedy are interesting and curious, but no satisfactory theory as to the origin of the story has yet been put forth.

¹⁴ *Chetham Soc.* xcix. 73-4. Writ of D.C.E. dated 28 April, 1463. *Dep. Keeper's 37th Rep.* App. ii. 177.

¹⁵ Metcalfe, *Book of Kts.* 3.

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of the half blood, son of John Butler and Margaret Stanley, was his next heir, then aged 10 years.¹ Thomas Butler had livery of his inheritance upon attaining his majority on 4 July, 1482.² He married Margaret, daughter of John Delves of Doddington, kt.³ At the intended coronation of Edward V. in 1483 he was summoned to receive the order of knighthood,⁴ but did not receive it until the coronation of Elizabeth, queen to king Henry VII. on 25 November, 1485.⁵ In 1486 he was placed on the commission of the peace for the county.⁶ In 1498 he was summoned to show his title to markets and fairs at Laton and Warrington, free warren in his demesne lands, wreck of the sea and gallows in Warrington and Laton, a court with view of frankpledge in his manor of Bewsey, waif and stray, and amends of the assize of bread and ale broken, a free fishery in Warrington and Laton, and a ferry over Mersey.⁷ In reply he cited the charters shown by his ancestor William the butler to the justices at Lancaster in 1292, and declared his descent as kinsman and heir of the said William, namely as son of John, son of John, son of William, son of John, son of William [son of William, son of Henry], son of the said William, lord of Warrington.⁸ In 1505 the king appointed him master forester of the forests and chases of Toxteth, Croxteth, and Simonswood, and seneschal of Liverpool.⁹ In 1513 he was present at the battle of Flodden Field, when several of his free tenants and retainers were slain.¹⁰ By his will dated in 1520 he founded a grammar school at Warrington, which he endowed with lands purchased at Chaddock, in Tydesley.¹¹ He died on 27 April, 1522, and was buried in Warrington Church, where Dodsworth saw his marble epitaph in 1625, and his arms impaling Delves in the east window.¹²

His only son and heir, Thomas Butler, was aged 28 at his father's death.¹³ He was knighted at Greenwich before the coronation of Queen Anne Bullen, on Sunday before Whitsunday, 1533.¹⁴ Soon after coming into possession of his inheritance he incurred great debts, probably by gaming and cock-fighting,¹⁵ to meet which he alienated the manor of Cropwell-Butler, co. Notts.¹⁶ In 1534 he served the office of sheriff of the county,¹⁷ and the same year alienated his manor of Exhall, co. Warwick, to Julius Nethermill, alderman of Coventry.¹⁸ In 1508 he was married to Cecily, daughter of Piers Legh, of Lyme, kt., but this union was dissolved before 1542,¹⁹ in or before which year he had married Elizabeth, daughter of Edward Sutton, kt., and relict of John Huddleston of Sawston, co. Cam-

¹ Metcalfe, *Bk. of Kts.* 81-3; Inq. p. m. exemplified 17 May, 1482. Duchy of Lanc. Enrollments in Chanc.; Add. MSS. No. 32,108, f. 239. It was during the minority of William Butler that the Legh rental of 1465 was compiled. *Chetham Soc.* (Old Ser.), xvii.

² Add. MSS. No. 32,108, 240.

⁴ *Ibid.* 339-40.

⁵ *Dep. Keeper's 40th Rep.* App. iv. 540.

⁷ *Palat. of Lanc. Writs, Lent, 13 Hen. VII.*

⁸ Dodsworth MSS. cxlix. 110.

¹⁰ *Beaumont, Annals of Warrington*, 384-6.

¹³ *Ibid.* 414. The epitaph is now in the Warrington Museum.

¹⁵ Duchy of Lanc. Inq. p. m. vol. v, No. 13. The record contains a list of the free tenants of the barony of Warrington circa 1326.

¹⁴ Metcalfe, *Book of Kts.* 62.

¹⁷ Thoroton, *Hist. of Notts.* edit. Throsby, i. 193.

¹⁸ *P.R.O. Lists and Indexes*, vol. ix.

¹⁹ Dugdale, *Hist. of Warwick*, 114, 796.

²⁰ *Annals of Warrington*, 422, 452.

³ *Beaumont, Annals of Warrington*, 337.

⁶ Metcalfe, *Book of Kts.* 19.

⁹ *Dep. Keeper's 40th Rep.* App. iv. 544.

¹¹ *Ibid.* 408, 411.

¹² *Beaumont, Annals of Warrington*, 424-5.

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bridge.¹ In 1543 he sold to the king lands in Burtonwood and Great Sankey of the yearly value of £50 12s.² He died on 15 September, 1550, being succeeded by Thomas, his son and heir, then aged 37 years.³ Thomas Butler, esq., married in 1543 Eleanor, daughter of John Huddleston, of Sawston, co. Cambridge, whose widow, Thomas Boteler, the father, had married in 1542.⁴ He was returned to serve the county in the Parliament of 1553.⁵ About the year 1560 he married, as his second wife, Thomasina, whose family name is unknown.⁶ She died in 1573 and was buried in the church of St. Andrew by the Wardrobe, in London.⁷ In 1574 he married as his third wife, Anne, daughter of Edward Norris of Speke.⁸ He was knighted in the house of Sir Nicholas Bacon, Lord Keeper of the Great Seal, in May, 1577.⁹ Shortly before his death, being in fear that his son and heir, Edward Butler, would dissipate his patrimony, he made a lease of the whole of his estate to his daughter Elizabeth, to commence from the death of his said son, if the latter died without issue.¹⁰ He died on 22 September, 1579, Edward his son being 26 years of age.¹¹ Edward Butler, the last of his line, was a man of singularly weak character. Four years previous to his father's death, and in anticipation of that event, he caused his father grievous distress by an attempt to alienate the family estate to Sir William Boothe of Dunham. This proceeding, which is believed to have been the outcome of a visit made by Edward Butler to his distant kinsman, the earl of Leicester, at Kenilworth in 1575, upon the occasion of the Queen's memorable visit, was discovered by his father in 1579, who immediately repaired the contemplated mischief by obtaining a re-grant of the estates to himself from Sir William Boothe.¹² But immediately after his father's death Edward Butler proceeded to bar all claims upon the estates, so as to secure to himself an estate in fee simple. Having secured this result, he conveyed his estates in 1581 to his kinsman the earl of Leicester, subject to certain powers of appointment to wife or wives, sons and daughters, and to certain unusual provisions affecting the earl and himself.¹³ By various subsequent deeds the estates were further secured to that unscrupulous nobleman. In 1586 Edward Butler died childless, having married firstly in 1563, Jane, daughter of Richard Brooke of Norton, co. Chester; from whom and at whose instance he was divorced in 1569 or 1570, owing to his extraordinary behaviour in refusing to consummate the marriage.¹⁴ He married secondly, in or before 1586, Margaret, daughter of Richard Maisteron, of Nantwich.¹⁵ His will is dated on 2 November, 1586.¹⁶ With the death of this weak and capricious youth terminated the line of the Butlers, barons of Warrington.

¹ Beamont, *Annals of Warrington*, 452.

² Duchy of Lanc. Inq. p.m. vol. ix. No. 22.

³ *Parl. Ret.* i. 379.

⁴ Perhaps she was a Croston of Croston Hall, near Chorley. See the *Visit. of Warw.* Harl. Soc. xii. 357; *Annals of Warrington*, 473.

⁷ Harl. MSS. No. 3,610, 39; Stowe, *Survey*, ed. 1618, 641.

⁸ *Annals of Warrington*, 482.

¹⁰ *Annals of Warrington*, 485.

¹¹ Duchy of Lanc. Inq. p. m. vol. xiv. No. 2.

¹² Beamont, *Annals of Warrington*, 482, 484-5, 493.

¹⁴ The story is recorded in *Chetbam Soc.* xciii. 100.

¹⁶ *Ibid.* 512-5. A survey made for the earl of Leicester on his acquiring this inheritance is quoted in the introduction to the ballad entitled *Sir John Butler* in Bp. Percy's folio manuscript (N. Trübner & Co. 1868), iii. 205.

² *Ibid.* 455.

⁴ *Annals of Warrington*, 468.

⁹ Metcalfe, *Book of Kts.* 130.

¹⁸ *Ibid.* 498-500.

¹⁶ *Annals of Warrington*, 509.

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THE BARONY OF BUTLER OF AMOUDERNESSE¹

Hervey² Walter, the first of this family upon record, was the tenant in the time of Henry I. of a small fee which he held of the honour of Lancaster, comprising the chief manor of Weeton (or Witheton, as it was formerly and more correctly written) in Amounderness, held by the service of half a knight, and the manor of Boxstede, co. Suffolk, held by the same service,³ and Newton, co. Suffolk, for one seventh of a knight's fee. He also held lands in Belaugh and 'Hulmested,' co. Norfolk.⁴ He or his son may possibly be identified as Hervey son of Hervey who in 1130 rendered account in co. Suffolk of 10 marks for his land which he had recovered from, or held of, Hamon Peche.⁵ In the great inquest of service taken for this county in 1212, he is specifically named as the father of Hervey Walter, and also as having enfeoffed Orm son of Magnus in marriage with his daughter Aliz of 4 carucates of land in Rawcliffe, Thistleton, and Greenhalgh, members of his fee of Weeton.⁶ The issue of this marriage was Roger son of Orm, lord of Hutton in Leyland hundred, father of Elias de Hutton, who gave his manor of Hutton to the canons of Cockersand between the years 1201 and 1210.⁷ Hervey Walter II., son and heir of the above Hervey, advanced the fortunes of the family by his marriage with Maud, daughter of Theobald de Valoignes, lord of Parham, co. Suffolk, and sister of Bertha, wife of Ranulf de Glanvill, the justiciar under Henry II.⁸ To this kinship with the house of Glanvill was undoubtedly due the great advancement obtained by the sons of Hervey Walter under Henry II. and Richard. Upon the foundation of Butley Priory by Ranulf de Glanvill in 1171, Hervey gave to that foundation all the land he had in the vill of Wingfield and elsewhere, doubtless of his wife's inheritance.⁹ In this county he gave, with the consent of Theobald his son, land in Medlar to Roger de Heaton, of Heaton, near Lancaster.¹⁰ William son of

¹ Dugdale, *Baronage*, i. 633. This barony consisted of the following townships and hamlets, situate within the hundred of Amounderness:—Weeton, half of Marton, Greenhalgh with Thistleton, Wesham, Treales, Wharles, and Roseacre, Out Rawcliffe including Middle Rawcliffe. These villi were rated at 16 carucates of land and were held by the service of half a knight. To the barony originally belonged Boxstede, co. Suffolk, held by the service of half a knight, and Old Newton, in the same county, held by the service of one-seventh part of a knight.

² Mr. Round has called attention in his *Peerage and Family History* (122 note) to the 'Herveus pincerna' and 'Herveus botellarius,' who attests, with other officers and tenants of the castle of Dol in Brittany, two charters to the abbey of St. Florent, one bearing the date 1086 (*Cal. of Docs. France*, 416), as the possible ancestor of the Butlers of Ireland. This Hervey may perhaps be identified as the Hervey, son of Hubert, who with his father attested a charter of Baderon to the nunnery of St. George at Rennes circa 1080–90 (*Genealogist* (New Ser.), xviii. 1). It is also to be noted that Edmund Butler, styled earl of Carrick, held in 1298 of Richard Fitz John, his uncle, part of the manor of Skelbrook, co. York (*Yorks. Ing. p.m.* (Rec. Soc.), xxxi. 86), which had formed part of the Domesday fief of Hervey de Campels, the bishop of Bayeux's vassal. There is, however, nothing to show that the Butlers of Ireland descended from either of these Herveys. Nor is there anything to show that the Butlers had any interest in Skelbrook before the marriage of Theobald IV. to Joan, sister of Richard Fitz John. Mr. Glanville-Richards has collected much information relative to the bearers of the name of Hervey in the twelfth century, and suggests as the possible ancestor of Hervey Walter a certain Hervey of Gisors, eldest son of Theobald Pain, whose family held the hereditary office of castellan of Gisors, and were Bretons by race (*House of Glanville*, xviii.). Hervey appears to have been a common name amongst the Bretons.

³ *Testa de Nevill* (Rec. Com.), 17b, 403b; *Pipe R. Soc.* xvii. 20.

⁴ *Ibid.*

⁵ *Pipe R.* 31 Hen. I. (Rec. Com.), 98. For the connexion between Glanvill and Peche see Glanville-Richards, *Ho. of Glanville*, 18.

⁶ *Testa de Nevill* (Rec. Com.), 403b; *Lancs. Ing. Rec. Soc.* xlviii. 37.

⁷ *Chartul. of Cockersand*, Chetham Soc. (New Ser.), xliii. 408.

⁸ Dugdale, *Baronage*, i. 633b; *Mon. Angl.* vi. 1128.

⁹ *Mon. Angl.* vi. 380.

¹⁰ Farrer, *Lancs. Pipe R.* 437.

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Hervey, who held lands in Selfleet temp. Henry II., given by Ranulf de Glanvill or Henry II. to Butley,¹ was probably a younger brother of Hervey II. and father of William Hervey, who held Boxstede in 1212, for the service of half a knight's fee of the honour of Lancaster;² which fee continued in his descendants for some generations. In 1158 Hubert Walter, possibly a younger brother of Hervey Walter, rendered account of 40s. of the pleas of Wandelbery in cos. Norfolk and Suffolk.³ Hervey Walter had issue five sons, Theobald, Hubert, Walter, Roger, and Hamon.⁴ Hubert was born at West Dereham, in Norfolk, where he founded an abbey in 1188. He was educated in the house of his uncle the justiciar, to whom on his ordination he became chaplain.⁵ In 1186 he was dean of York; in 1189 was elected bishop of Salisbury; and from 1193 to his death in 1205 held the see of Canterbury. His bones were identified in Canterbury Cathedral in 1890.⁶ He joined with his brother Theobald in the gift to the canons of West Dereham of land in Ickleton, co. Cambridge, which Hamon Walter, probably their younger brother, held;⁷ to which foundation Peter Walter, probably another kinsman, also gave a rent out of his mill of Isted. Whilst Ralph fitz Robert of Middleham, co. York, was in his custody, Hubert gave land in Saxthorpe, co. Norfolk, to his brother Theobald; to recover which Ranulf, brother of Ralph, paid a fine in 1205.⁸ Theobald, the eldest son and heir, inherited his grandfather's estate, as appears by an agreement which he made in the king's court in 1195 with his kinsman, William Hervey, whereby the latter took half a knight's fee in Boxsted, half a knight's fee in Hulmestead, and the third part of a fee in Belaugh (which Peter Walter held) to hold of Theobald, releasing in return all claim to Theobald's other lands.⁹ Theobald first comes into notice *circa* 1182 as one of the witnesses with John, the king's son, of Ranulf de Glanvill's charter to Leystone.¹⁰ It was probably through the instrumentality of Glanvill that Theobald, in 1185, accompanied John to Ireland. The expedition crossed from Milford Haven to Waterford in the latter part of April, whilst five vessels sailed later from Chester with the 'harnesium' of those of John's company who had been left behind for lack of transport.¹¹ Immediately upon landing, Theobald received from John a grant to Glanvill and himself of 5½ cantreds in Limerick;¹² and the same year with the men of Cork he fought and slew Dermot Mac Arthy.¹³ Before 1189 he received from John the fief

¹ *Mon. Angl.* vi. 380; cf. *Testa de Nevill* (Rec. Com.), 295.

² *Testa de Nevill* (Rec. Com.), 17b, 408b. His descendant William Hervey died seised of Boxstede in 1256; *Cal. Inq. p. m. Hen. III.* i. 101.

³ *Pipe R.* 4 *Hen. II.* (Rec. Com.), 130.

⁴ *Mon. Angl.* vi. 380. Theobald and Roger attested Ranulf de Glanvill's foundation charter of Ledstone Priory in 1182. *Ibid.* vi. 881.

⁵ *Mon. Angl.* vi. 899; Hoveden (Rolls Ser.), ii. 310.

⁶ For particulars of the numerous offices he held and his acts see Hook, *Lives of Archbops. of Cant.* ii. 584-656; *Dict. Nat. Biog.* xxviii. 137; *Mem. of Ric. I.* (Rolls Ser.), ii. pass.

⁷ *Chart. R.* (Rec. Com.), 21b.

⁸ *Rot. de Fin.* (Rec. Com.), 369. Waleran, Ralph, and Ranulf, the three sons of Robert fitz Ralph of Middleham, by his wife Helewis, daughter of Ranulf de Glanvill, the justiciar, were each in turn in ward of Hubert Walter. Gale, *Regist. Honoris de Richmond*, App. 235; *Genealogist* (New Ser.), iii. 32-3.

⁹ *Pipe R. Soc.* xvii. 20; *Rot. Cur. Reg.* (Rec. Com.), i. 105. This fine is interesting as affording evidence by the endorsement which it bears that Hubert Walter and the king's barons of the exchequer at this time introduced the chirograph of a fine in three parts, of which the foot was to be preserved in the Treasury.

¹⁰ *Mon. Angl.* vi. 881; Eytton, *Itinerary of Hen. II.* 24.

¹¹ Eytton, *Itinerary of Hen. II.* 263-4.

¹² Carte, *Life of James, Duke of Ormonde*; Glanville-Richards, *Records of Glanville*, 65.

¹³ Giraldus Cambrensis, *Expugnatio* (Rolls Ser.), v. 386.

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of Arklow, afterwards confirmed to him by William Marshall on becoming *jure uxoris* lord of Leinster,¹ and in 1188 he attested the charter of his brother Hubert, then dean of York, founding the abbey of Premonstratensian canons at West Dereham.² In 1189 he accompanied his uncle Glanvill to France, witnessing with him a charter of Henry II., confirming the translation of the canons of Swainby to Coverham in Richmondshire.³

Soon after his accession to the honour of Lancaster in 1189, John granted to Theobald for his homage and service all Amounderness for the service of three knights' fees, the grant comprising the town of Preston with the demesne lands belonging to it, all the demesne lands of the hundred or wapentake with the service of knights and freemen in the hundred, the wapentake court with the pleas, and the forest of Amounderness with pleas of the forest, reserving only pleas of the crown.⁴ Mr. Round tells us that from 1185 to 1193 Theobald 'was in constant attendance on John, witnessing his charters to St. Augustine's, Bristol (*Mon. Angl.* xi. 367), and Jerpoint Abbey in Kilkenny (*ibid.* vi. 1132), and receiving from him, as lord of Ireland, the office of his 'butler.' He first assumes this style ('Pincerna') when testing John's charter to Dublin, 15 May, 1192, at London (*Mun. Doc.* p. 55; *St. Mary's Chart.* i. 266-70); and it was apparently about this time that he received a grant from the archbishop of Dublin as 'pincerna domini comitis Moretoniae in Hibernia' (*Cott. MS.* fol. 266), a style proving that he was appointed by John. He now adopted a fresh seal, adding to his name (Theobald Walter) the style 'Pincerna Hiberniae.' This has escaped notice. Hence he is occasionally, in his latter days, spoken of as 'le Botiller,' or 'Butler,' which latter became the surname of his descendants.⁵ Towards the end of 1192 he was with John at Nottingham,⁶ and on 12 June, 1193, with John at Dorchester.⁷ Mr. Cokayne considers that the grant of the office of 'Butler of Ireland' would probably comprise baronial rank and position for the holders of that office.⁸ Theobald is said to have subsequently obtained the valuable monopoly of the prisage of wines in Ireland, which was purchased by Act of Parliament in 1811, from his successor, the first marquess of Ormonde, for £216,000.⁹ Some strength is given to this statement by the petition to Parliament in 1335, of James Butler, first earl of Ormonde, in which he declared that his ancestors, time out of mind, had enjoyed the prisage of wines in the four towns of Dublin, Drogheda, Waterford, and Limerick, by rendering 40s. for each cask at the exchequer in Dublin.¹⁰ He adhered to John in the rebellion of 1193-4, when he held the castle of Lancaster on the latter's behalf;¹¹ but in February, 1194, being summoned by his brother Hubert, then justiciar, to surrender, he delivered it to him, and through his mediation made his peace with Richard,¹² who immediately appointed him sheriff of the county (which office he retained until John's accession)¹³ and on 22 April, 1194, re-granted to him the hundred of Amounderness, to hold as before by the service of three knights.¹⁴ In August of the

¹ Carte, quoted by Round in *Dict. Nat. Biog.* viii. 77-8.

² *Mon. Angl.* vi. 900.

³ *Cott. MS.* Titus B. xi. fol. 252.

⁴ *Cott. MS.* Titus B. xi. 347.

⁵ *Complete Peerage*, ii. 94.

⁶ *R. Parl.* (Rec. Com.), ii. 90.

⁷ *Ibid.*

⁸ *Cart. Antiq. R.* 24d.; Farrer, *Launc. Pipe R.* 81, 434.

⁹ *Mon. Angl.* vi. 920b.

¹⁰ *Dict. Nat. Biog.* viii. 78.

¹¹ Farrer, *Launc. Pipe R.* 416.

¹² Carte, *Life of James D. of Ormonde.*

¹³ *Hoveden* (Rolls Ser.), iii. 237.

¹⁴ *P.R.O. Lists and Indexes*, vol. 9.

same year he was appointed by his brother, then archbishop, collector of the money for his tournament licences.¹ In 1196 he was pardoned the quota from his three Amounderness fees to the second scutage of Normandy, assessed the preceding year,² and the year following had similar remission in respect of the third scutage,³ having doubtless performed personal service with his knights and men-at-arms. Shortly after this, Theobald endowed certain Cistercian monks from Furness with the church of St. Michael on Wyre and lands there, including the Hay of 'Wirisvalle' (Wyresdale), but within a year or two translated them to his possessions in Ireland, and established them at Wotheny, or Wythney, in the parish of Abington, co. Limerick.⁴ This was his first foundation in Ireland,⁵ but subsequently as butler of Ireland, he endowed another house of Cistercian monks at Arklow, who likewise came from Furness, for the welfare *inter alios* of his father, Hervey Walter, and mother, Maud de Valoignes,⁶ and about the year 1200 founded a house of canons at Nenagh, in the county of Tipperary.⁷ Between 1194, and the accession of John, he endowed the canons of Cockersand with the Hay of Pilling, in the wapentake of Amounderness.⁸ Owing to this benefaction he has been erroneously described by Dugdale, and by innumerable writers since Dugdale's time, as the founder of Cockersand Abbey. In 1196 he obtained from the monks of Shrewsbury a recognition of his title to the advowson of Kirkham Church,⁹ and from the monks of Sées, a like recognition touching Preston Church, subject to a fine upon presentation, whilst to the last-named monks he released all claim to the advowson of the churches of Poulton and Bispham.¹⁰ In 1197 he acted as a justice itinerant, assessing a tallage in Colchester.¹¹ Upon the accession of John, who was incensed at his defection to Richard in 1194, Theobald lost possession of Amounderness, and was removed from the office of sheriff of Lancaster, held by him since Easter, 1194. His Irish possessions were also seized and his fief of Limerick¹² sold on 12 January, 1201, to the king's favourite, William de Braose, but by the interest of his brother, the archbishop, he redeemed his lands for 500 marks, and within a year became Braose's tenant.¹³ On 2 January, 1202, he obtained a re-grant from John of the wapentake of Amounderness.¹⁴ Theobald married Maud, daughter of Robert Vavasour, of Denton and Askwith, co. York, and had with her the manors of Edlington and Shepley and lands in Bolton by Bowland, co. York, and Narborough, co. Leicester.¹⁵ He probably died before 8 October, 1205 (when Narborough was delivered to Thomas Basset),¹⁶ and is said to have

¹ *Hoveden* (Rolls Ser.), ii. 268.

² *Ibid.* 98.

³ Farrer, *Lancs. Pipe R.* 340.

⁷ *Ibid.* vi. 1145.

⁹ *Lancs. Fines* (Rec. Soc.), xxxix. 2.

¹² *Hoveden* states (iv. 152-3) that all his Irish possessions were sold to William de Braose, but Mr. Round has pointed out that only his Limerick fief was sold. (*Dict. Nat. Biog.* viii. 786.)

¹⁵ *Hoveden* (Rolls Ser.), iv. 153.

¹⁴ *Liberate R.* (Rec. Com.), 25. Theobald seems to have acted with harshness and injustice to his tenants of Amounderness. There are numerous references to complaints and pleas instituted against him whilst out of favour with John (1199-1201) by those whom he had dispossessed, in *Rot. Cur. Reg., Rot. de Oblatis, Abbreu. Plac.* (Rec. Com.), and other contemporary records. At an inquest held in 1253 an Amounderness jury declared on oath that Theobald had been deprived of Amounderness by King John by reason of the manifold transgressions done by him against sundry liege men of that wapentake, who had complained to the king. *Inq. p. m.* 37 Hen. III. No. 16; *Lancs. Inquests*, 191.

¹⁶ Dodsworth MSS. xxxiii. 17, 21; *Cal. of Close R.* 1227-31, 87. Mr. Cokayne identifies Norbury as Newborough, co. York, but Narborough, co. Leicester, is clearly the place referred to. Cf. *Testa de Nevill* (Rec. Com.), 98; *Feud. Aids*, iii. 101.

⁴ Farrer, *Lancs. Pipe R.* 94.

⁵ Farrer, *Lancs. Pipe R.* 336-40, Cott. MS. Titus, B. xi. fol. 252b.

⁶ *Mon. Angl.* vi. 1128.

⁸ *Chartul. of Cockersand* (Chetham Soc.), 375.

¹⁰ *Ibid.* 6.

¹¹ *Pipe R.* 9 Ric. I. ro. 5d.

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been buried at Wothney. His widow was married by her father to Fulke fitz Warin,¹ and duly obtained her dower in Amounderness, and in her late husband's Irish estates.² Theobald's estates in Norfolk and Suffolk, which he held of Robert fitz Roger, were committed to the latter in ward, whilst his Irish estates were delivered to William Marshall, earl of Pembroke.³ The heir was only five years old at his father's death, and with his sister was first committed to the charge of his kinsman, Robert Vavasour,⁴ afterwards to Gilbert fitz Reinfred,⁵ in 1213 to Philip Mark, sheriff of Nottingham,⁶ and in February, 1214, to the bishop of Winchester,⁷ the justiciar. In 1214 Reginald de Poinz obtained the marriage of the heir in favour of his daughter, and possession of his lands, including the manor of Saxton, co. Norfolk, but the king retained Amounderness.⁸ The same year Geoffrey de Mareys, justiciar of Ireland, was commanded to deliver Theobald Walter's castles of Roscrea, Thurles, Lusk, 'Armolen,' and 'Kakaules' to Reginald de Poinz,⁹ who answered the year following for the scutage of a knight's fee in this county and of another in co. Norfolk, as guardian of Theobald's lands.¹⁰ In 1219 young Theobald was in the care of Geoffrey de Mareys, justiciar of Ireland, who had charge of his Irish estates.¹¹ The year following, his sister Maud, who had been brought up in the household of Gilbert fitz Reinfred, baron of Kendal, and after his death by his son, William de Lancaster, was delivered to his charge.¹² About Midsummer, 1221, Theobald attained his majority and was put in possession of his English and Irish estates.¹³ He at once entered upon active service, being with the earl of Pembroke in Lincolnshire in 1223.¹⁴ The year following he obtained a grant of half the manor of Marton in Amounderness for his maintenance in the king's service,¹⁵ and for two years had charge of the king's castle of Roscrea.¹⁶ Two years later he obtained remission of a great part of his father's debts, in consideration of three years (1226-8) to be spent in the king's service in Ireland.¹⁷ In 1228 he was one of the mainperners to secure the delivery of the king's castles in Ireland by Geoffrey de Mareys upon his resignation of the office of justiciar of Ireland in favour of Richard de Burgh.¹⁸ By his marriage with Joan, eldest sister and eventual co-heir of Geoffrey de Mareys the justiciar,¹⁹ he had issue

¹ Robert Vavasour gave 1,200 marks and two palfreys to have his daughter's marriage with her dower in Ireland, and in England, except in Amounderness. *Rot. de oblat.* (Rec. Com.), 383.

² *Close R.* (Rec. Com.), i. 65*b*, 223*b*, 352; *Pat. R.* (Rec. Com.), i. 74*b*; *Rot. de Fin.* (Rec. Com.), 383.

³ *Close R.* (Rec. Com.), 65*b*, 68, 69*b*.

⁴ *Pat. R.* (Rec. Com.), i. 59.

⁵ *Ibid.* 35.

⁶ *Close R.* (Rec. Com.), i. 151*b*.

⁷ *Pat. R.* (Rec. Com.), i. 110*b*.

⁸ *Close R.* (Rec. Com.), 163*b*, 167, 208; *Testa de Nevill* (Rec. Com.). In 1212 Anselm de Newton held the seventh part of a knight's fee in Newton by Stow, co. Suff., of the heir of Theobald Walter. *Testa de Nevill* (Rec. Com.), 17*b*.

⁹ *Pat. R.* (Rec. Com.), 120*b*, 121*b*.

¹⁰ *Ibid.* 140*b*.

¹¹ *Close R.* (Rec. Com.), i. 400; *Pat. R.* (Rec. Com.), i. 110*b*.

¹² *Pat. R.* 1216-25, 235. She is said to have married Thomas de Hereford (Lodge, *Peerage of Ireland*), but it is clear that she became the wife of Gerald de Prendergast, a great Irish baron; *Cal. Ing. p. m.* i. 64. Their only daughter and heir married John de Cogan, father of another John de Cogan. Gerald de Prendergast married secondly the daughter of Richard de Burgh, feudal lord of Connaught, and by her had issue an only daughter, aged 10 years in Lent, 1252; *Cal. Gen.* i. 45. Carte (*Life of James, Duke of Ormonde*, pp. xii.-xiv.) has suggested, on the strength of a Plea Roll of 1295-6 (Plac. 24 Edw. I. m. 68), that Theobald Walter had by a previous marriage a daughter Beatrice, who married, first, Thomas de Hereford, and, secondly, in her father's lifetime, Hugh Purcell. Mr. Round considers this not improbable. *Dict. Nat. Biog.* viii. 78*b*.

¹³ *Close R.* (Rec. Com.), i. 463*b*, 505*b*.

¹⁴ *Ibid.* 573.

¹⁵ *Ibid.* 601*b*.

¹⁶ *Pat. R.* 1216-25, 426, 430; 1225-32, 62.

¹⁷ *Close R.* (Rec. Com.), ii. 92*b*; *Pat. R.* 1225-32, 41.

¹⁸ *Pat. R.* 1225-32, 178.

¹⁹ Lodge, *Peerage of Ireland*, iv. 5, describes her as Joan, sister and co-heir of John de Marisco.

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Theobald III., his son and heir.¹ This wife lived but a few years, for in 1225 he married, through the instrumentality of his royal patron, Roesia, daughter and ultimately sole heiress of Nicholas de Verdon.² In the autumn of 1229 he crossed with the king to Brittany,³ continuing abroad at least seven months engaged in the Gascon campaign, in which almost all the Lancashire barons, and indeed the strength of the nation, took part.⁴ From this expedition he apparently did not return, for he was dead on 19 July,⁵ and his lands in this county and in Norfolk, Suffolk, and Ireland, as well as those of his first wife's inheritance in the hundred of Norton, co. Somerset, together with the heir and his marriage, were committed to the charge of Richard, earl of Cornwall.⁶ His widow Roesia survived him, and upon the death of her father, Nicholas de Verdon, about a year after her husband's death, inherited a great estate, giving 700 marks for her relief and that she might not be constrained to marry.⁷ By Theobald Butler she had with other issue a son, John de Verdon, who gave 1,300 marks in 1247, after his mother's death, for livery of his inheritance.⁸ From him descended the Lords Verdon, who in 1857 were represented by the Lords Stourton and Petre, the Baroness le Despencer, and the duke of Buckingham and Chandos.⁹ The direct heir of Theobald II. was Theobald III., who was under age at his father's death, still under age in 1236, when he held half a knight's fee in Weeton and Rawcliffe, of ancient feoffment,¹⁰ and in 1243, when the 'heir of Theobald Walter' was returned as holding one-third part of a knight's fee in Weeton and Treales.¹¹ In 1247 he held four knights' fees in Gowran, co. Kilkenny, of the earl of Gloucester.¹² He is said to have married Margery, eldest daughter of Richard de Burgh, feudal lord of Connaught and Lord Deputy of Ireland. Theobald did not long enjoy his inheritance, for he died before 5 November, 1248, and was buried in the conventual church of the Friars Preachers at Arklow.¹³ The year following, his Irish estates, together with those of Richard de Burgh, were committed to the custody of Peter de Birmingham.¹⁴ He also held in addition to his estate in this county the vill of Shepley, co. York, and the manor of Belaugh, co. Norfolk. Theobald IV., his son and heir, was aged about six years at his father's death.¹⁵ In 1250 the issues of the land and the marriage of the heir were given to Peter of Savoy,¹⁶ but the following year John fitz Geoffrey, justiciary of Ireland, gave 3,000 marks for the custody of the same.¹⁷

Theobald IV. attained his majority about 1265. The same year he was one of the Irish nobles who aided Prince Edward against the Mortimers in

¹ Geoffrey, reporting to the king in 1226 that Theobald was ill-affected and counselling his removal from the castle of Roscray, mentions that Theobald had married his daughter and had issue by her. *Royal Letters Hen. III.* (Rolls Ser.), i. 293.

² *Close R.* (Rec. Com.), ii. 60, 60b.

³ *Close R.* 1227-31, 256.

⁴ *Ibid.* 413; *Pat. R.* 1225-32, 360.

⁵ *Ibid.* 421-3.

⁶ *Close R.* 1227-31, 370; *Excerpta e Rot. Fin.* (Rec. Com.), i. 200; *Testa de Nevill* (Rec. Com.), 161b.

⁷ *Excerpta e Rot. Fin.* (Rec. Com.), i. 217-8; cf. Dugdale, *Baronage*, i. 472.

⁸ *Excerpta e Rot. Fin.* ii. 11.

⁹ Cokayne, *Comp. Peerage*, viii. 24-5.

¹⁰ *Testa de Nevill* (Rec. Com.), 411; *Lancs. Inq. Rec. Soc.* xlviii. 145.

¹¹ *Testa de Nevill* (Rec. Com.), 397b.

¹² *Cal. Pat. R.* 1272-81, 353. He is said to have been lord justice of Ireland in 1247 with John de Cogan (Haydn, *Bk. of Dignities*, ed. 1851, 438), but this appears very unlikely, and is probably an error founded on the fact that Edmund Butler acted in 1312 as deputy of John Wogan. See p. 357 below.

¹³ Cokayne, *Comp. Peerage*, ii. 95.

¹⁴ *Excerpta e Rot. Fin.* (Rec. Com.), ii. 44.

¹⁵ *Cal. Inq. p. m.* i. 37; *Inq. p. m.*, Yorks. Rec. Soc. xii. 18.

¹⁶ *Abbrev. R. Original.* (Rec. Com.), i. 12.

¹⁷ *Excerpta e Rot. Fin.* (Rec. Com.), ii. 96.

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his successful campaign which culminated at Evesham.¹ By charter dated at Denewell, 11 January, 51 Henry III. (1267), he granted to his beloved kinsman Richard le Botiller (brother of William le Botiller of Warrington) all the lands he had in Out Rawcliffe.² In 1275 he was plaintiff in a plea in the King's Bench to recover land in Edlington, co. York. The pleadings prove the correctness of the descent given above.³ He married John fitz John's⁴ sister Joan, fourth daughter of John fitz Geoffrey fitz Peter and sister, and ultimately co-heir, of Richard fitz John,⁵ baron of Berkhamstead, co. Herts.⁶ Joan survived her husband, and in 1298 had her pourparty of her brother's inheritance assigned to her.⁷ She died early in 1303.⁸ Theobald IV. sat in the Irish Parliaments of Edward I. In 1277 he was summoned to send his service against Llewelyn, and again in 1282 to serve in person against the Welsh.⁹ He died in Ireland¹⁰ 26 September, 1285.¹¹

Theobald Butler V. was under age at his father's death, William the Butler of Warrington having custody of two-thirds of the lands in this county during the minority of the heir.¹² In 1291 Theobald was commanded to do homage to Edmund, earl of Lancaster, in respect of the fee which he held of the honour of Lancaster.¹³ In 1294 he pledged his manor of Weeton to Richard fitz John as security for a debt of 560 marks which had not been redeemed at the latter's death.¹⁴ The same year he was summoned to perform military service in Gascony,¹⁵ and in that and the two following years was enjoined as one of the 'Fideles' of Ireland to place himself under the orders of the justiciar of Ireland touching military service.¹⁶ His name stands the fifth, without any territorial designation, on the roll of the Parliament of 1295. He accompanied the king to Scotland in 1296, and died unmarried at his manor of Turvey, 14 May, 1299, and was buried in Wotheney Abbey.¹⁷ Edmund Butler, brother and heir of Theobald, sat in the Parliament of 1302. He was knighted by the king in 1309 in London.¹⁸

¹ *Annales Mon.* (Rolls Ser.), ii. 365.

² Sealed with a chief indented (Dodsworth MSS. cxlix. 114, 116*b*), arms evidently of affection adopted with variations by Butler from Glanvill, as also were the arms of the lords of Middleham. In Charles's roll (No. 665) the arms of 'Tebaud le Botiler' are given as or, a chief indented azure, similar to those assigned to Raulf le Fitz Randolf in Glover's Roll (No. 136).

³ In the King's Bench in 1275 he demanded against Agnes Bacun—who called to warrant Fulk, son of Fulk fitz Warin, and, further, John Vavasour—1 carucate of land in Edlington which he pleaded had been in the seisin of his ancestress Maud in the time of King John, from whom the right descended to Theobald, as son and heir, from whom it descended to another Theobald as son and heir, and from that Theobald to another Theobald as son and heir, and from that Theobald to this Theobald, the plaintiff, as son and heir. De Banc. R. 3 Edw. I. No. 7, m. 29.

⁴ John fitz John, Theobald's guardian, was grandson of Geoffrey fitz Peter, chief justice of England. Chanc. Inq. p. m. 4 Edw. I. No. 47.

⁵ Chanc. Inq. p. m. 52 Edw. I. No. 50.

⁶ The lands which Richard fitz John held in chief of the king were extended at *L451 121. 3d. Inq. p. m.* Yorks Rec. Soc. xxxi. 87 note.

⁷ Fine R. 26 Edw. I. m. 9; 27 Edw. I. m. 2.

⁸ Chanc. Inq. p. m. 31 Edw. I. No. 32.

⁹ The Patent Rolls of Edward I. prove that he spent most of his time in that country.

¹⁰ Inquests were taken after his death in cos. Lanc. and York. *Lancs. Inq. Rec. Soc.* xlviii. 264; *Yorks. Inq. Rec. Soc.* xxiii. 44, 68. The escheator accounts for *£33 2s. 8d.* assized rent of Weeton, co. Lanc. and for *£5* from Shepeley, co. York, which had been Theobald le Botiller's 'qui obiit in Hibernia, a festo Sancti Mathei, apostoli, anno xiii. finiente, quo die rumor venit de morte ejusdem,' to 20 Feb. 14th year. Pipe R. 16 Edw. I. Esch. Acct.

¹¹ *Cal. Pat. R.* 1281-92, 226.

¹² Chanc. Inq. p. m. 25 Edw. I. No. 50*a*.

¹³ Palgrave, *Parl. Writs*, i. 485.

¹⁴ *Ibid.* 417.

¹⁵ Gascon R. 22 Edw. I. m. 9*d*.

¹⁶ Cokayne, *Comp. Peerage*, ii. 95.

¹⁷ *Ibid.*

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He acquired lands in cos. Warwick, Bucks, Suffolk, and Essex, in the year 1310 from John Pypard,¹ and the same year obtained a charter of free-warren in his lands in Skelbrook and Shepley, co. York.² In 1312 he acted as deputy of John Wogan, justiciary of Ireland,³ to which office he was himself appointed in 1315.⁴ As Edmund Walter he granted about this time to Nicholas de Mareys for the term of his life the hamlet of Roseacre, near Kirkham, in this county.⁵ From 1312 to 1313, and again from 1315 to 1317, he was chief governor of Ireland, under the style of Lord Keeper, and was active in dispersing the rebellion. At a feast in Dublin in 1313 he created no less than 30 knights. For his services against Edward Bruce and the Scots,⁶ as also against the rebel Irish, he received in 1315 the fee 'of the castle and manors of Karryk Macgriffyn, and Roscrea,' to hold in fee 'under the name and honour of the earl of Karryk.'⁷ Mr. Cokayne shows that this grant failed to confer upon the recipient the earldom of Carrick, notwithstanding that on 26 November, 1315; 3 and 8 October, 23 November 1316,⁸ and 28 April 1317,⁹ he is styled in Letters Close and Patent 'Edmund le Botiller, earl of Carryk.' He married in 1302 Joan, daughter of John fitz Thomas fitz Gerald, first earl of Kildare. He died in London on 13 September, 1321, after returning from a pilgrimage to St. James of Compostella in Spain, and was buried at Gowran. At the time of his death he held the manor of Weeton of the king by barony, and in addition to his Irish and Yorkshire estates held the manor of Shere, co. Surrey, of the earl of Warenne by the service of two knights, and the manor of Sopley, co. Hants.¹⁰ Of his son James Butler, created earl of Ormonde in November, 1328,¹¹ and of his successors to the present day, a full account will be found in Mr. Cokayne's *Complete Peerage* (vi. 139-154), from which source many items of information have been taken for this account.¹²

THE LANCASTER FEE OF WARTON AND GARSTANG¹³

The origin of the family of Lancaster, lords of Ulverston, Warton, and Garstang in this county, and barons of Kendal in Westmorland, is obscure.

¹ *Cal. Pat. R.* 1307-13, 207.

² *Cal. Chart. R.* (Rec. Com.), 144.

³ *Cal. Pat. R.* 1309-13, 595.

⁴ *Ibid.* 1313-7, 207.

⁵ Cott. MSS. Titus, B. xi. f. 252b. Nicholas de Mareys was bailiff of Weeton to Theobald Butler V. (Chanc. Inq. p. m. 25 Edw. I. No. 50a). According to Lodge (iv. 5) the Butler family succeeded to considerable estates in England and Ireland on the death of Stephen de Mareys, which occurred in February 1373 (Chanc. Inq. p. m. 5 Ric. II. No. 39), in right of Joan Butler, daughter of the said Stephen. Cokayne makes the strange suggestion (*Comp. Peerage*, ii. 95, note c) that this Joan was the first wife of Theobald Butler II. whose first wife died before 1225!

⁶ *Chron. Edw. I. and II.* (Rolls Ser.), ii. 211.

⁷ *Chart. R.* 9 Edw. II. m. 51.

⁸ Also possibly as late as 1320. *Cal. Pat. R.* 1317-21, 442?

⁹ Palgrave, *Parl. Writs*, ii. (3) 576.

¹⁰ Inq. a. q. d. 16 Edw. II. No. 32. The manors of Shire and Sopley were the pourparty of Joan (died 1303), wife of Theobald Butler IV. (Inq. p. m. 4 Edw. I. No. 47; 25 Edw. I. No. 50; 31 Edw. I. No. 32).

¹¹ *Chron. Edw. I. and II.* (Rolls Ser.), i. 343.

¹² See also Carte, *Life of James, Duke of Ormonde*, 1736, and other authorities cited by Mr. Round in *Foster, Collect. General.*, 84-93, and in *Dict. Nat. Biog.* viii. 79.

¹³ Dugdale, *Baronage*, i. 421. The following townships composed the fee in this county which belonged to the barons of Kendal. The parish of Warton, containing Warton with Lindeth, Silverdale, Yealand Redmayne, Yealand Conyers, Priest Hutton, Borwick, and Carnforth; in Lonsdale and Wyresdale, part of Lancaster, Scoforth, Ashton with Stodday, Thurnham and Cockersand, Ellel, Holleth, Forton, Clevely, Nether Wyresdale, Cockerham, Winmarleigh, Cabus, Garstang, Barnacre with Bonds, Nateby, Kirkland, Catterall, Upper Rawcliffe with Tarnicar, Inskip with Sowerby, Great Eccleston, Little Eccleston with Larbreck, and Great and Little Carleton. This fee was said to contain 36½ carucates of land in 1246 (Inq. p. m. 31 Hen. III. No. 45. *Lancs. Inq. Rec. Soc.* xlviii. 166), but the Domesday assessment was about 58 carucates. It was held by the service of one knight.

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The family first had its origin as small landowners within the barony of Coup-land, where they probably received a grant of lands from William Meschin when the latter received this fief from Henry I.¹ Within this barony they held the vills of Muncaster,² Hensingham, Preston, Lamplugh, and Workington, and within the barony of Westmorland a great part of the parishes of Barton and Morland,³ where their lands, although lying within the limits of that barony, were actually members of the barony of Kendal, a fact pointing to the early date of the original feoffment of these lands.⁴ In Yorkshire the greater part of the vills of Middleton and Kneeton were held by this family of the honour of Richmond at least as early as 1235,⁵ and the wapentake of Ewcross with some half dozen manors or more was held of the barony of Mowbray from about the middle of the twelfth century, if not earlier.⁶

Of the first recorded member of this family there is little to mention beyond the bare fact that his name was Gilbert and his wife's name Godith.⁷ To this the monkish chroniclers have added the fiction that he was the son of Ketel, son of Eldred, son of Ivo Taillebois,⁸ whereas he was almost, if not quite contemporary with Ivo, by whom Gilbert or his predecessor was probably enfeoffed of those manors within the barony of Westmorland of which his descendants, the barons of Kendal, were chief lords.⁹ The connexion which existed between the heirs of Ketel son of Eldred, namely the Curwens of Workington, and the Lancasters, of whom the former held several manors in Cumberland and Westmorland, was probably of tenure rather than of consanguinity. Intimately connected with this subject is a charter, of which an ancient transcript is preserved at Levens Hall, by which Roger de Mowbray grants to William, son of Gilbert de Lancaster, in fee and inheritance, 'all my land of Lonsdale, and of Kendal, and Horton in Ribblesdale,' to hold by the service of four knights.¹⁰ It would be interesting to discuss the question as to whether this charter represents an original grant or merely a confirmation of a much older infeudation, but this belongs to the history of Westmorland, and cannot with propriety be dealt with here.

William son of Gilbert was the first to be enfeoffed of lands in Lancashire. This seems evident from the inquest of service taken in 1212, where, in the enumeration of feoffments made by him,¹¹ he is described as 'Willelmus filius Gilberti, primus.' He is not always described as 'de Lancaster,' from which it may be inferred that he was the first of his line to be associated with the county and its lords. The monastic chronicle to which allusion has already been made tells us that he caused himself to be called 'de Lancaster' by the king's licence, and to be styled before the king in Parliament (*sic*) 'William de Lancaster, baron of Kendal.' The same chronicle states that he married Gundreda, formerly countess of Warwick, whose husband, Roger de Newburgh, died in 1153. She was the eldest daughter of William, second earl Warenne,

¹ *V. C. H. Cumb.* i. 421.

² *Coucher of Furness*, Chetham Soc. (New Ser.), ix. 125.

³ *Lancs. Fines*, Rec. Soc. xxxix. 213-4.

⁴ Hackthorpe and Melkathorpe, in the parish of Lowther, and a great part of the parish of Morland, were all members of the barony of Kendal, although by situation falling within the barony of Westmorland. Nicholson and Burn, *Hist. of Cumb. and Westmld.* i. 441-53.

⁵ *Lancs. Fines*, Rec. Soc. xxxix. 61; *Kirkby's Quest*, Surtees Soc. xlix. 170.

⁶ *Farrer, Lancs. Pipe R.* 389.

⁷ *Farrer, Lancs. Pipe R.* 392.

⁸ *Mon. Angl.* iii. 553; *Cockersand Chartul.* Chetham Soc. (New Ser.), xxxix. 305.

⁹ Gilbert fitz Reinfred and Helewise his wife confirmed some of Ivo's grants to the abbey of St. Mary, York. *Mon. Angl.* iii. 566; *Prescott, Reg. of Wetherbal*, 338.

¹⁰ *Reg. of Deeds at Levens Hall*, f. 79; *Lancs. Pipe R.* 389.

¹¹ *Exch. K.R. Kts. fees*, 1, m. 3a.

by his wife Isabel, or Elizabeth, of Vermandois, widow of Robert, count of Meulan, who died in 1118. There is nothing in respect of her age to render improbable her marriage to William fitz Gilbert after 1153,¹ for although the information springs from a doubtful source, there is a copy extant of a charter of William fitz Gilbert, in which, as William de Lancaster, he grants free right of pasturage throughout his fee in Lonsdale and Amounderness to the canons of St. Mary de Pré of Leicester, by the advice and consent of William his son and heir, and of Gundreda his wife, and for the health of the souls of his lord Henry, king of England, Queen Eleanor, and their children, and of Gilbert his father, Godith his mother, Jordan his son, and of Margaret, daughter of the countess. This charter was attested by 'Gundreda, daughter of the countess.'² William fitz Gilbert made many donations to religious houses.³ One of the earliest, which was confirmed by King Stephen, was the grant of Muncaster to Furness Abbey.⁴ The grant did not, however, long continue in force. He also gave the manor and church of Cockerham, the chapel of Ellel, 2 carucates in Cockerham and the hamlet of Crimbles, on either side of the River Cocker, to the canons of St. Mary de Pré at Leicester,⁵ land in Swarthof, or Swarthead, in Hensingham (or Preston) to St. Bees, which William Meschin confirmed,⁶ land in the same place to St. Mary's Abbey in York,⁷ land in Bartonhead to the hospital of St. Leonard of York,⁸ and a fishery in the River Lune, called Chil or Childe, to Fountains Abbey.⁹ An important matter arising during his time was the agreement made before the king, in or about 1163, between William and the monks of Furness for the demarcation of Furness Fells from the barony of Kendal, and a partition of this mountainous district between them. Before that time there had been no set limit to the great forest area extending from the Duddon to the upper waters of the Lune. William and his predecessors had been wont to chase buck and doe, and to take hawks from the eryies found there. By this agreement he took the western part of the fells, retaining venison and hawks throughout the whole area, but paying to the monks a yearly service of 20 shillings, whilst the monks took the eastern part of these fells.¹⁰ The kinship which would exist between Lancaster's wife (if she was the countess Gundreda) and Isabel de Warenne, the wife of William of Blois, who was *jure uxoris suæ* fourth earl of Warenne, may well have been the origin of the feoffment to Lancaster of the lordships of Warton and Garstang by Warenne, and the association of William fitz Gilbert with the castle and district of Lancaster, as governor or seneschal,¹¹ which led to his assumption of 'Lancaster' as a surname. The service of one knight due for Warton and

¹ Gundreda, countess of Warwick, had ten knights' fees assigned to her in dower in 1159. *Pipe R. Soc.* i. 26. Cf. *Red Bk. of Exch.* (Rolls Ser.), 326.

² Farrer, *Lancs. Pipe R.* 392-3.

³ His lay feoffments included 2 carucates in Ellel to Grimbald de Ellel; 2 carucates in Scotforth to Hugh Norman; $\frac{1}{2}$ carucate in Lancaster to Ralph de Torrisholme; $\frac{1}{2}$ carucate in Ashton to Gilbert de Ashton; and 2 bovates in Carnforth to Robert the falconer. *Exch. K.R. Kts. fees*, $\frac{1}{2}$, m. 3a; *Lancs. Inq. Rec. Soc.* xlviii. 4-5.

⁴ *Coucher of Furness*, Chetham Soc. N.S. ix. 125.

⁵ *Exch. K.R. Kts. fees*, $\frac{1}{2}$, m. 3a; Farrer, *Lancs. Pipe R.* 391-2. Roger fitz Gilbert, his brother, gave to St. Bees the vill of Hensingham, which Alan held of him in drengage, for the health of the souls of William his brother and William his nephew. *Ibid.* No. 223.

⁶ *Reg. of St. Bees*, Harl. MSS. No. 434. ch. 3.

⁷ *Mon. Angl.* iii. 550. Roger fitz Gilbert gave 2 bovates in Hensingham to the same house. *Ibid.*

⁸ *Mon. Angl.* vi. 613.

⁹ *Burton, Mon. Ebor.* 178.

¹⁰ Farrer, *Lancs. Pipe R.* 310-311.

¹¹ Dugdale, *Baronage*, i. 421b; cf. Round, *Feudal England*, 168.

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Garstang was extended by the barons of Kendal in the thirteenth century to include estates in Ulverston granted to their tenants to hold by knight's service.¹ This was perhaps a straining of feudal rights, for Ulverston was held of the monks of Furness at fee farm by the yearly service of 10 shillings.² This infeudation had probably been made to William de Lancaster, or to Gilbert his father, before the date (1127) of Stephen of Mortain's gift of half the territory of Furness to the Cistercian monks from Savigny. If this was not so, it is inexplicable that the monks should have let Ulverston go out of their hands for a paltry rent of 10 shillings a year. In 1166 William de Lancaster appears in the return of the fees held by Roger de Mowbray in chief as tenant of two knights' fees, representing the wapentake of Ewcross.³ The Mowbray interest in Kendal had been extinguished or relinquished before this time, and before the end of the twelfth century the Lancasters' interest in the wapentake of Ewcross also appears to have been relinquished.

William de Lancaster I. died in or before 1170.⁴ Besides William, his son and successor, he had a son Jordan, named above, who probably died in his father's lifetime; and at least three daughters: (1) Avice, who married Richard de Morevill, eldest son of Hugh de Morevill, the friend and subject of David, king of Scots, and founder of the abbeys of Dryburgh and Kilwinning, which Richard had Great and Little Eccleston and Larbrick in this county⁵ and considerable estates in Ewcross wapentake, co. York, of his wife's dowry, and was father of William de Morevill, who died childless, having confirmed his parents' grants to the monks of Furness of pasture in Selsete and Birkwith;⁶ (2) Agnes, married to Alexander de Windsore, who had with her in frank marriage the manors of Heversham, Grayrigg, and Morland, co. Westmorland;⁷ (3) Siegrid, married to William the clerk of Garstang, who had with her lands and a mill in Garstang in frank marriage,⁸ and was father of Paulin de Garstang, named with his father in an agreement made between 1194 and 1199 by the abbot and monks of Wyresdale with H., chaplain of St. Michael's on Wyre.⁹ From this William descended the family of Wedacre.¹⁰

William de Lancaster II. is chiefly noted as the founder of the Premonstratensian Hospital at Cockersand,¹¹ which was erected into an abbey in 1190. He confirmed to the monks of St. Bees his father's and uncle's grants to that place.¹² To the hospital of St. Leonard of York he gave land called Dochergh (now Docker, par. of Kendal) in exchange for land in Kendal, which had been given to the hospital by Ketel, son of Eldred, and land in Bartonhead which his father gave.¹³ He was a liberal benefactor to the canons of Conishead, to whom he gave land between Ulverston and Bardsea, the church of Ulverston and the estate of Gascow, near Ulverston.¹⁴

¹ Exch. K.R. Kts. fees, $\frac{3}{4}$, m. 3a; *Rec. Soc.* xlviii. 2, 159.

² *Lancs. Fines*, *Rec. Soc.* xxxix. 5. The service was increased in 1196 to 30 shillings.

³ *Red Bk. of Exch.* (Rolls Ser.), 420.

⁴ Farrer, *Lancs. Pipe R.* 16; 'Richard de Morevill, 200 m. pro recto,' etc.

⁵ *Lancs. Inq.* (*Rec. Soc.*), xlviii. 3 note.

⁶ Duchy of Lanc. Anct. Chart. *Dep. Keeper's 36th Rep.* App. 2, 181-2.

⁷ Anct. transcript at Levens Hall, Regist. f. 41.

⁸ De Banc. R. No. 321, m. 294.

⁹ *Cockersand Chbartal.* Chetham Soc. *pass.*

¹⁰ Reg. of St. Bees, Harl. MSS. No. 434, ch. 223.

¹¹ *Mon. Angl.* vi. 556; *Lancs. Pipe R.* 359.

⁹ Farrer, *Lancs. Pipe R.*, 337 *et pass.*

¹¹ *Ibid.* 758.

¹³ *Mon. Angl.* vi. 613.

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In 1180 he became in respect of the barony of Kendal the tenant of Theobald de Valoignes, who had received the barony of Westmorland from the crown through the influence of his son-in-law, Ranulf de Glanvill.¹ He died in 1184, and was buried in the presbytery at Furness. Robert of Torigni describes him as 'magnæ honestatis et possessionis vir.'² He married Helewise, said to be daughter of Robert de Stutevill, of Lazenby, co. Cumberland,³ by whom he had an only daughter Helewise,⁴ afterwards in the charge of William Marshall, to whom Henry II. gave her with her inheritance.⁵ Not being, however, a great enough lady to become the wife of the king's marshal, although his dear friend,⁶ she was given to Gilbert, son of Roger fitz Reinfred,⁷ an elder brother of the half-blood to Reinfred fitz Roger and Ralph de la Bruere.⁸ She was of tender age at her father's death, for the marriage was not consummated until after the accession of Richard, who confirmed the grant of her marriage at Rouen on 20 July, 1189.⁹ William de Lancaster's widow married secondly, Hugh de Morevill of Burgh-upon-Sands, who died 3 John.¹⁰ From the issue of this marriage descended the family of Multon, one of whom, Lambert de Multon, held Upper Rawcliffe in 1242-3 of the baron of Kendal.¹¹ Helewise afterwards fined with John not to marry against her will. Between 1216 and 1222 she held lands in this county and in Cumberland worth £30 per annum.¹² She was living in September, 1226.¹³

Gilbert fitz Reinfred, who succeeded to the barony *jure uxoris*, was steward to Henry II.¹⁴ and Richard I. He was constantly in the retinue of Henry whilst in France between 1180 and 1189.¹⁵ In 1185 he acted as a

¹ Hodgson Hinde, *Cumb. and Westmld. Pipe R.* xlvii-ii.

² *Chron. of Steph. Hen. II. and Rich. I.* (Rolls Ser.), iv. 309.

³ Dodsworth's MS. ii. 8 (?); *Cockersand Chartul.* Chetham Soc. (New Ser.), xxxix. 279, 305.

⁴ He had at least one bastard son, Gilbert de Lancaster, who attested a number of his father's charters (*Coucher of Furness*, 346; *Farrer, Lancs. Pipe R.* 402, 440-3), was living in 1208 (*Lanc. Fines*, i. 33), and was probably father of Gilbert de Lancaster, constable of Kendal in 1246 (*Coucher of Furness*, 350), who held Hartsop in Patterdale of Roger de Lancaster by knight's service (*Lancs. Inq.* i. 167, Westmld. Feet of F. file 4, No. 21). He was ancestor of the Lancasters of Sockbridge and father of Roger, whose name stands near the head of the pedigree of this family in the *Visitation of Cumb. and Westmld.* (Foster, 75). Gilbert de Lancaster was of Sockbridge in 1318 (*Cal. Pat. R.* 1317-21, 291), in which year the manors of Sockbridge and Hartsop, a messuage, 1 carucate of land, and 3,000 acres of pasture in Strickland Kettle were settled upon Gilbert and Alice his wife and their issue, with remainder to John, son of Gilbert de Lancaster (*Cal. Pat. R.* 1476-85, 286).

⁵ Meyer, *Guillaume le Maréchal*, ii. p. 264.

⁶ *Ibid.* i. v. 7317.

⁷ *Ibid.* ii. 338; *Farrer, Lancs. Pipe R.* 395. One of his charters with an equestrian seal appendant is preserved at Lowther Castle.

⁸ *Cockersand Chartul.* (Chetham Soc.), 976-7 in *notis*; *Hoveden* (Rolls Ser.), iii. 153. Roger fitz Reinfred, father of Gilbert, witnessed a feoffment executed in 1169 before the barons of the Exchequer (Eyton, *Itin. of Hen. III.* 130), and is mentioned in 1176 as a justice itinerant (*ibid.* 199), in which capacity he acted regularly in the king's court during Henry's reign (*ibid. pass.*). Fines were levied before him as late as 1198. He was a witness to the king's will (Foss, *Judges of England*, 1870, 267). He served the office of sheriff of Sussex from Michaelmas, 1176, to Easter, 1187, and of Berks from Michaelmas, 1186, to Michaelmas, 1187 (*Dep. Keeper's 31st Rep.* 263, 347). He is said to have married (first) Rohaise (or Hawise), daughter and heir of William de Romare and widow of Gilbert de Gant, who died in 1156 (Foss, 267; Dugdale, *Baronage*, i. 400), by whom he had issue Gilbert. He married (secondly) Alice, sister of Ralph le Breton, and by her had Reinfred and Ralph, usually styled 'de la Bruere,' who was heir to his brother Reinfred. *Abbrev. Plac.* (Rec. Com.), 486, 82b.

⁹ *Hoveden* (Rolls Ser.), iii. 7; *Benedict* (Rolls Ser.), ii. 73.

¹⁰ *Rot. de Oblat.* (Rec. Com.), 54, 88, 184.

¹¹ *Testa de Nevill* (Rec. Com.), 398.

¹² *Ibid.* 401.

¹³ *Close R.* (Rec. Com.), ii. 155b.

¹⁴ Dugdale, *Baronage*, 421b.

¹⁵ He attested Henry's charters to Holy Trinity of Caen, dated at Caen in 1180; to Walter the Usher, dated at Chinon in 1181; to Henry de Marreys, dated at Gorrion in Maine circa 1183; to Croxden Abbey, dated at Lyons-la-Forêt circa 1184; to Witham Priory, dated at Marlborough in 1186; to the abbey of St. Peter at Preaux, dated at Caen in 1187; and as 'Dapifer' he attested the same king's charter to Swainby Abbey in Lincolnshire, dated at Chinon in 1189, a day or two before the king's death. Eyton, *Itin. of Hen. II., pass.*; Round, *Cal. of Docs. France, pass.*

justice of the king's court.¹ In April, 1190, Richard I. acquitted him from payment of neatgeld in respect of his Kendal and Westmorland possessions, and confirmed to him his forest of Westmorland, Kendal, and Furness, with 6 librates of land in Kendal, to hold as freely as Nigel de Albini, or William fitz Gilbert de Lancaster, had held that forest.² He was excommunicated in 1191 by Longchamp with many others, including his father and brother Reinfred.³ In 1194 he was summoned to answer the monks of Furness in the king's court in a plea that he had taken from them 1,009 wether sheep with their wool, and 88 lambs.⁴ This matter was no doubt connected with the old dispute about the division of Furness Fells, and, like the former dispute, was settled by an agreement made in the king's court, in February, 1196, confirming the previous agreement made before Henry II., and containing in addition a clause by which Gilbert and Helewise released to the monks all right of venison and hawks in the monks' part of the fells, and all claim to lands in Newby, near Clapham; the monks on their part granting to them Ulverston with all its belongings for the yearly rent of 10s.⁵ He was appointed, in 1197, with Richard Briwere, receiver of the issues of the bishopric of Durham whilst in the king's hand.⁶ He and his wife Helewise confirmed many grants of land made by their predecessors, including the grants of churches and lands in Ewecross wapentake, and in Lonsdale, Kendal, Westmorland, and Cumberland, made by Ivo Taillebois to St. Mary's Abbey in York.⁷ To Cokersand Abbey they gave the church of Garstang, and confirmed all other gifts made to that house within their fee.⁸

After John's accession Gilbert obtained, in 1200, a confirmation of the royal grants made to him, and a new grant of gallows and pit in his Lancashire fief.⁹ The year following he gave 30 marks in respect of his one knight's fee in Lancashire and two fees in Westmorland in lieu of performing military service.¹⁰ In April, 1205, he was appointed sheriff of the honour and county of Lancaster, which office he retained until the end of John's reign,¹¹ and in 1209 was also appointed sheriff of Yorkshire, which office he held for three years.¹² In May, 1213, he was one of the twelve barons whom the king named in his letter to the primate and episcopate as pledged to support the king's declaration for the defence of the Church and its property.¹³ In March, 1215, he was one of the delegates sent by the king to negotiate with Lewelyn and Madoc, princes of Wales,¹⁴ and the same year had the king's writ authorizing payment of his expenses in munitioning castles and raising forces on his behalf.¹⁵ But before the end of the year he was won over to the party of the barons against the king, who seized his land in Dunnington, co. Berks, on 16 November, in revenge for his defection.¹⁶ A fortnight later Gilbert's son and heir, William de Lancaster, was captured at the fall of Rochester Castle, and, the lives of the defenders being

¹ Eyton, *Itin. of Hen. II.* 261.

² *Hoveden* (Rolls Ser.), iii. 153.

³ *Fret of F.* Pipe R. Soc. vol. xvii. 101-4.

⁴ *Gauf. de Coldingham*, Surtees Soc. ix. 16; Hodgson Hinde, *Cumb. and Westmld. Pipe R.* 197.

⁵ *Mon. Angl.* iii. 566.

⁶ *Cokersand Chariul.* (Chetham Soc.), 56, 278-9.

⁷ *Rot. de Oblat.* (Rec. Com.), 67; Farrer, *Lancs. Pipe R.* 107.

⁸ *Rot. de Oblat.* (Rec. Com.), 167.

⁹ *Dep. Keeper's 31st Rep.* 363.

¹⁰ *Ibid.* 131b.

² Farrer, *Lancs. Pipe R.* 396-9.

⁴ *Cur. Reg. R. No. 1, m. 1 d.*

¹¹ *Pat. R.* (Rec. Com.), i. 53b.

¹² *Pat. R.* (Rec. Com.), i. 98-9, 114b.

¹⁵ *Close R.* (Rec. Com.), i. 193.

¹⁶ *Ibid.* 237.

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spared, was committed with his companions to Corfe Castle.¹ A few days later the king sent a messenger to confer with Gilbert touching his submission and his son's redemption,² and on 4 January, 1216, Gilbert had letters of safe-conduct, the king being then in the north parts.³ On 22 January he obtained the king's pardon for his confederacy with the rebel barons, and secured the redemption of his son and his knights, Ralph de Aincurt and Lambert de Bussey, by finding ten hostages from among the young sons and daughters representing the heirs of his principal vassals, by delivering up his castles of Morhull in Warton and Kirkby Kendal, and by consenting to pay a fine of 12,000 marks,⁴ binding himself to observe these conditions by a remarkable charter in which he also pledged himself to faithfully serve the king and his heirs by Queen Isabella all the days of his life.⁵ The following June he had letters of safe-conduct to negotiate about his son's pardon and release, similar letters being granted to his bailiffs to gather the money required for this purpose,⁶ his son's release being shortly afterwards effected at the instance of the earl of Chester⁷ by a ransom of £1,850.⁸ Upon Henry's accession⁹ he made his peace with the young sovereign and was commissioned in 1217 to escort the king of Man to do homage to Henry at Solway, Carlisle, or Lancaster;¹⁰ a commission which was renewed the year following.¹¹ He died early in 1220, when his son William de Lancaster III.,¹² giving £100 for relief of his barony, had livery of his possessions on 16 June.¹³ Gilbert's debts to the crown at his death included 12,000 marks for his pardon, and £436 arrears of old accounts belonging to the time when he was sheriff or receiver of the king's moneys.¹⁴ Immediately after succeeding to his barony, William paid £1,950 to Peter de Mauley in payment of the sum due for his redemption and towards his father's debts.¹⁵ During his lifetime these debts were only reduced to £6,228, the repayment being made by agreement at the rate of only £40 per annum.¹⁶ He appears to have been engaged in the king's service early in life, having attended John in his expedition to Picardy in 1214.¹⁷ On 3 February, 1221, he was summoned to the siege of Cockermouth Castle with other north county magnates.¹⁸ In 1225 he received a peremptory command to observe the terms of the forest charter by disafforesting the lands which his predecessors had put into the forest since the coronation of Henry II., and so to act towards his

¹ *Matth. Paris* (Rolls Ser.), ii. 165-6; *Flores Historiarum* (Rolls Ser.), iii. 335; Dugdale, *Baronage*, i. 422.

² *Pat. R.* (Rec. Com.), i. 160b.

³ *Ibid.* 162b.

⁴ *Rot. de Finibus* (Rec. Com.), 570-1.

⁵ *Chart. R.* (Rec. Com.), 221b.

⁶ *Pat. R.* (Rec. Com.), i. 187b.

⁷ *Close R.* (Rec. Com.), i. 335b; Rymer, *Foedera*, N. Ed. i. (1), 146.

⁸ *Close R.* (Rec. Com.), i. 481b. On 19 May, 1222, three of Gilbert's hostages—Norman son of Henry de Redman, Richard son of Roger de Kirkby, and the son of William de Windsore—were still detained by Philip Mark in Nottingham Castle, who had wrongfully seized them whilst on their way home. *Ibid.* 497b.

⁹ *Close R.* (Rec. Com.), i. 373b.

¹⁰ *Close R.* 1216-25, 150.

¹¹ *Ibid.* 166.

¹² William de Lancaster's arms were: 'D'argent a deux barre de goules ung quartier de goules, et ung leopard en la quartier d'or.' Armytage, *Glover's Rolle of Armes*, No. 49.

¹³ *Pipe R.* 5 Hen. III. Lanc. m. 4 d. *Excerpta e Rot. Fin.* (Rec. Com.), i. 47-8. His relief as a knight would have amounted to no more than £15, as a baron he made the best terms he could. See *Hist. of English Law*, i. 260.

¹⁴ *Pipe R.* 6 Hen. III. Lanc. m. 5 d.

¹⁵ *Pipe R.* 5 Hen. III. Somers. and Dors. See Dugdale, *Baronage*, i. 422b.

¹⁶ *Pipe R.* 20 Hen. III. Lanc. m. 7 d.

¹⁷ *Close R.* 1227-31, 175.

¹⁸ *Close R.* (Rec. Com.), i. 474b. He was with the king at Bedford, 18 Aug. 1224. *Pat. R.* 1216-25, 465.

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tenants as the king had acted towards his magnates.¹ In 1226 he was appointed a justice itinerant in Cumberland,² and again in 1228 to do justice at Appleby upon those appealed by one John Scot, an approver.³ On 10 March, 1226, he received a military summons to go to Winchester, prepared with his two knights to go abroad in the king's service,⁴ and in 1230 had letters of protection whilst over sea,⁵ pleas pending with Robert de Kyme touching 15 librates of land in Ulverston, and with William de Arundel touching the bounds between Firbank and Hay, near Kirkby Kendal, being put in respite.⁶ He was one of the witnesses to the great charter of liberties executed by Henry at Westminster on 28 January, 1237.⁷ From Michaelmas 1233 to the same feast in 1246 he was sheriff of Lancaster,⁸ and in 1241 had the custody of the honour committed to his trust.⁹ He was one of the persons appointed for the assize of arms in the county in 1242,¹⁰ in which year he was summoned to perform military service in France,¹¹ and in 1244 against the Scots.¹² He married Agnes de Brus, and by deed dated at Kirkby Kendal a few days before his death granted, for the health of his soul and that of Agnes his wife, to the monks of Furness lands in Ulverston called Scathwaite and Egton, two boats on Windermere and two on Coniston water, one upon each mere for the carriage of timber and other necessaries, and another with 20 nets for fishing, and bequeathed his body for burial in the presbytery of Furness, near the tomb of his grandfather, William de Lancaster II.¹³ To the canons of Conishead he gave his fishery of Leven, meadow land near Elterwater, and land between Ulverston and Conishead adjoining the estate of Gascow which his grandfather had given to the canons of that house,¹⁴ to whom he also gave the advowson of the hospital of St. Leonard at Kirkby Kendal.¹⁵ Upon his deathbed he bequeathed to the abbot of Cockersand, with his heart, 4 oxgangs of land in Garstang, and at the same time made numerous feoffments to his friends and retainers, the validity of which seems to have been afterwards called in question. He died on 28 November, 1246,¹⁶ without issue, Agnes his wife surviving him, who had for assignment of her dower the manors of Garstang, Ashton, Scotforth, Stodday, and Carnforth, in this county, and Grasmere, Langdale, Crosthwaite, and Lyth in Westmorland.¹⁷ His barony and possessions were divided between his nephews, Peter de Brus, son of Peter, by Helewise, his eldest sister; and Walter de Lindsay, son of William, by Alice, his second sister; the third sister, Sarot, wife of Alan de Multon, dying without issue.¹⁸ Peter de Brus had the castle of Kirkby Kendal assigned to him for his chief seat, and Walter de Lindsay had Moreholme Castle in Warton,¹⁹ but afterwards a new partition was made, the nature of which is indicated by the inquests taken after the death of Walter de Lindsay in

¹ *Close R.* (Rec. Com.), i. 575.

² *Ibid.* ii. 151b.

³ *Pat. R.* 1225-32, 218.

⁴ *Close R.* (Rec. Com.), ii. 151.

⁵ *Pat. R.* 1225-32, 360.

⁶ *Close R.* 1227-31, 347, 349.

⁷ *Annal. Mon.* (Rolls Ser.), i. 104; Cott. MSS. Vesp. F. xiii. Art. 3, fol. 5b.

⁸ *Dep. Keeper's 31st Rep.* 301.

⁹ *Pat. R.* 25 Hen. III. m. 7.

¹⁰ *Close R.* 26 Hen. III. pt. 2, m. 10 d.

¹¹ *Ibid.* pt. 3, m. 3 d.

¹² *Rep. on Dig. of Peer*, App. iii. 10.

¹³ *Coucher of Furness*, Chetham Soc. (New Ser.), xi. 348, 350.

¹⁴ *Dep. Keeper's 36 Rep.* 194; *Mon. Angl.* vi. 556b.

¹⁵ *Lancs. Inq. Rec. Soc.* xlviii. 168.

¹⁶ *Ibid.* 167.

¹⁷ *Close R.* 31 Hen. III. m. 11.

¹⁸ *Mon. Angl.* iii. 553. A similar genealogy in the *Cockersand Chaturl.* (Chetham Soc.), pp. 305-6, gives an erroneous account of the descent of William de Lancaster's heirs.

¹⁹ *Excerpta e Rot. Fin.* (Rec. Com.), ii. 7.

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1271, of his son William in 1282,¹ and of Peter de Brus in 1272.² The subsequent descent of this barony, and its ultimate division into the Marquis, Lumley, and Richmond fees,³ does not belong to the history of this county, but will be pertinent to the history of the neighbouring county of Westmorland.

Roger de Lancaster,⁴ bastard brother of William de Lancaster III., had large estates in Barton, Patterdale, Morland, and Witherslack, parcel of the barony of Kendal, and in this county had half the manor of Ulverston by his brother's grant, to hold of the abbot of Furness.⁵ In 1255 he had a warrant to the keeper of the forest of Lancaster for 2 harts and 8 hinds which the king had given him, probably for stocking his park at Witherslack.⁶ In 1267 he obtained the custody of the heir of Henry de Croft of Dalton in Kendal, with his lands, for £60 a year.⁷ His wife was Philippa, the eldest of the four daughters and co-heirs of Hugh de Bolebeck (died 1262), who, as son of Margery, eldest sister and co-heir of Richard de Munfichet (died 1267) was entitled to the third part of the barony of Munfichet, including the manors of Stansted Mountfichet, Great Holland, Tolleshunt Tregoz, East Ham and West Ham, co. Essex, and Barrington, co. Cambridge.⁸ In 1265 and 1266 Roger was sheriff of Lancaster; in 1271 keeper of Inglewood Forest.⁹ In 1275 he obtained the king's confirmation of the grant from Margaret de Brus, daughter and co-heir of Peter de Brus by his wife Helewise de Lancaster, of the forest of Rydal and of her pourparty of Ambleside and Loughrigg.¹⁰ In 1276 certain encroachments which he had made upon land belonging to Furness were the subject of an agreement with the monks of that house.¹¹ In 1280 he obtained a charter for a market and fair at Ulverston,¹² and four years later granted to the burgesses of that town a charter of liberties similar to those enjoyed by Kirkby Kendal.¹³ He died before 18 April, 1291, when John his son, who was probably a minor at his father's death, did homage and had livery of his inheritance.¹⁴

John de Lancaster of Rydal¹⁵ was summoned to Parliament as a baron from 1297 to 1301,¹⁶ and in the former year was also summoned to protect the Scotch marches, in which service he seems to have been constantly employed during the three following years.¹⁷ He was one of the signatories to the barons' letter to the pope in 1300.¹⁸ In 1306 he had licence to alienate in mortmain the advowson of the church of Barton, co. Westmorland, to the

¹ *Laucs. Ing. Rec. Soc.* xlviii. 235, 253.

² *Yorks. Ing. Yorks. Rec. Soc.* xii. 147-8.

³ See Nicholson and Burn, *Hist. of Cumb. and Westmld.* i. 29-63.

⁴ Roger de Lancaster's arms were, 'Argent two bars gules, on a canton of the second a lion passant guardant or.' *Armytage, 'Charles' Role of Armes,'* No. 264.

⁵ *Coucher of Furness*, Chetham Soc. (New Ser.), xi. 328-9, 347.

⁶ *Close R.* 39 Hen. III. m. 3.

⁷ *Ibid.* 51 Hen. III. m. 6 d.

⁸ *Ibid.* 52 Hen. III. m. 8; *Cal. Ing. p.m.* i. 150, 217; *Cal. Gen.* i. 224; *Feud. Aids*, ii. 149, etc.

⁹ *Close R.* 55 Hen. III. m. 3.

¹⁰ *Chart. R.* 3 Edw. I. m. 4, No. 11.

¹¹ *Coucher of Furness*, Chetham Soc. 384.

¹² *Coucher of Furness*, Chetham Soc. 425.

¹³ *Chart. R.* 8 Edw. I. m. 4, No. 28.

¹⁴ *Fine R.* 19 Edw. I. m. 12.

¹⁵ 'Sire Johan de Lancastre' bore arms—'de argent, a ij barres e un quarter de goules; en le quarter un lupard de or.' *Nicolas, Roll of Arms*, p. 12.

¹⁶ *Cokayne, Complete Peerage*, vol. iii.

¹⁷ *Cal. Pat. R.* 1292-1301, pass.

¹⁸ *Rep. on Dignity of a Peer*, App. 1, 126; *The Ancestor*, vii. 256, where an illustration of his seal is given, No. 35.

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prior and convent of Warter.¹ Having settled his estates,² he died without issue in 1334, when the barony became extinct.³ A short time previous to his death he sold his half part of Ulverston to John de Harrington.⁴ He appears to have had an elder brother of the half blood, Robert de Lancaster, who in 1282, during the lifetime of his father, held the manors of Barton and Witherslack of William de Lindsay.⁵ John de Lancaster and Annora his wife had licence in 1320 to settle the manor of Rydal and a messuage in Barton upon John, son of this Robert de Lancaster of Howgill, and his heirs, reserving to themselves life estates⁶ and after their lives, a life estate to Roger, brother of the first-named John. After Annora's death John de Lancaster of Howgill succeeded to the manor of Rydal, which continued in his line until the failure of male issue, when it passed by marriage to Thomas Fleming, kt., ancestor of the present possessor.⁷

THE BARONY OF NEWTON IN MAKERFIELD⁸

This liberty is almost conterminous with the Domesday hundred of Newton. During the twelfth century it was charged in the 'corpus comitatus,' or sheriff's charge, at the assized rent of £8 16s. 4d., increased to £11 11s. 4d. in the year 1201.⁹ When Robert Banastre received it from Henry II. these lands appear to have been subject to the yearly payment of the former sum. When delivered to his son by the crown in 1204 the tenure was partly by knight's service and partly in socage.

The name of Banastre appears to be a corrupted form of the Italian 'balastro' (Lat. *Balistarius*), one who manipulates the 'balestra,' or machine for hurling stones against a fortification.¹⁰ From Balestro the name became changed to Banastre by the same process by which baluster (the handrail of a staircase) has taken the now accepted form of banister.¹¹ In the court of the earls of Chester the Balestro, or Banastre, appears to have been an official of great importance. The late Mr. Langton deduced the name from old French, 'Banaste' (Lat. *Banasta*), a basket or creel, such as may be slung in

¹ *Cal. Pat. R.* 1313-7, 523.

² In 1319-20 John de Lancaster settled his Northumbrian estates upon William de Herle and his heirs (*Cal. Pat. R.* 1317-21, 389, 431), his Essex estates upon Robert de Vere, earl of Oxford (*ibid.* 437); his manor of Barington, co. Cambridge, upon John de Wauton (*ibid.* 509, but see 1324-7, p. 333 and 1327-30, p. 389); and a messuage in Barton upon Ranulf de Dacre (*ibid.* 513); reserving in each case a life estate for himself, Annora his wife, and after their decease for his brother Roger de Lancaster.

³ Cokayne, *Comp. Peerage*, v. 3.

⁴ *Coucher of Furness*, Chetham Soc. 481.

⁵ *Lancs. Ing. Rec. Soc.* xlviii. 256.

⁶ *Cal. Pat. R.* 1317-21, 523; *Close R.* 1333-7, 270. John son of Robert de Lancaster of Hologill was pardoned for the death of John de Helton on 1314. *Cal. Pat. R.* 1313-7, 177.

⁷ Foster, *Visit. of Cum. and Westmld.* 46.

⁸ The reputed barony, fee, or liberty of Newton in Makerfield, comprises the several townships of Newton, Golborne, Lowton, Kenyon, Haydock, Croft, Southworth, Middleton, Arbury, Houghton, Fernhead, Poulton, Woolston, Hulme, Winwick, Ashton, Pemberton, Orrell, Billinge, Winstanley, Wigan, Ince, Hindley, and Abram.

⁹ Farrer, *Lancs. Pipe R.* 131, 249; *Lancs. Inquests*, Rec. Soc. xlviii. 79.

¹⁰ See Ducange's *Glossary*, ed. Henschel, i. 537c.

¹¹ 'Banister,' the handrail of a staircase, has for centuries been accepted as a proper word, although a corruption of the older word 'baluster.' See *New Eng. Dict.* s.v. banister. Variants of this name may be seen in that of Helpe Balistarius, the Domesday tenant in chief in Lincolnshire, whose descendant, Helpe Balista, occurs in the Lincolnshire Pipe Roll of Hen. II.; also in Roger Banesta (possibly a brother of Richard Banastre), who attests a charter between 1121 and 1129 of Ranulf Meschin, earl of Chester, to the abbey of St. Evroul, in the diocese of Lisieux (*Cal. of Docs. France*, 222). Adam Banastre, kt., is mentioned in a record of circa 1320 as 'Adam Ballaster'; Gale, *Reg. Honor. de Richmond*, App. 72.

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pairs across the back or over a pack-saddle, hence the heraldic emblem known as the water bouget. He further adduces in support of this derivation the appearance of the water bouget in the early arms of the Banastres.¹ If we may believe the statement of a notable petition, made by one of the subjects of this notice in 1278, the family of Banastre descended from Robert de Roelent (Rhuddlan), who held a large fee, described in Domesday as including half the castle, burgh, and manor of Rhuddlan, and some thirty-three berewicks in Englefeld, now part of co. Flint.² If so, the descent was probably through a daughter of Robert de Roelent. Richard Banastre, the first of this family upon record, occurs among the attestants of a charter of Richard, earl of Chester, and the Countess Ermentrude, his mother, confirming to the monks of Abingdon the grant of 'Wudemundeslai' made by Drogo de Andely. The first three witnesses of this charter are William fitz Nigel (the constable), Hugh fitz Norman (the steward), and Richard Balasta. The date is stated to be *circa* May, 1106.³ In another charter, reciting William Malbanc's gifts to the abbey of St. Werburgh, of Chester, Banastre's name appears next after that of the countess in the testing clause.⁴ About 1115 he attests an important charter of Richard de Belmeis, bishop of London, then viceroy of Salop, touching the claim of Wenlock Priory to St. Milburg's land in Shropshire, he being the second lay witness.⁵ Between 1120 and 1128 he is a prominent witness to Ranulf Meschin's charter of confirmation to St. Werburgh.⁶ In the history of Shropshire, Mr. Eyton adduces evidence to show that Richard Banastre was probably lord of Munslow and Aston Munslow in that county.⁷ His successor, both in Cheshire and Shropshire, was Thurstan Banastre, probably his son. In proof of his dignity, as one of the earl's chief barons, we find his name standing as the third witness, following William, earl of Lincoln, and William de Percy, of the charter by which Ranulf Gernons, fourth earl of Chester of his line, acknowledges and appoints Eustace fitz John to be his hereditary constable.⁸ This charter probably passed in the earl's palatinate court between 1149 and 1154. Of about the same, or perhaps rather earlier, date is the charter of Earl Ranulf releasing to the monks of Shrewsbury his toll in the city and county of Chester. This was given at Shrewsbury and is tested by Ralph, abbot (of Shrewsbury?), Robert, the earl's steward, and 'Thurstan Bannestre.'⁹ Evidence is wanting to enable us with absolute certainty to connect other contemporary members of this family with Thurstan Banastre, but Robert Banastre, the first of the Lancashire family of that name, and Alard Banastre, sheriff of Oxfordshire from Easter, 1170, to Michaelmas, 1175, may have been younger sons of this Thurstan. No doubt exists as to the ultimate successors of Thurstan in his Cheshire, Lancashire, and Shropshire estates. These were two sisters, Maud, the younger, wife of Henry II.'s steward, William de Hastings¹⁰ (occurs 1159-1168, dead, 1182), whom she married in or before 1168, and Margery or Margaret, the elder, wife of Richard fitz Roger,¹¹ thegn of Woodplumpton, in this county,

¹ *Chetham Soc.* xcvi. 19.

² *Dom. Bk.* (Rec. Com.), i. 269.

³ 'Testimonio . . . Ricardi Balaste,' Ormerod, *Hist. of Ches.* ed. Helsby, i. 16.

⁴ *Mon. Angl.* ii. 386.

⁵ Eyton, *Hist. of Shrops.* iii. 233.

⁶ *Mon. Angl.* ii. 387b; Ormerod, *Hist. of Ches.* ed. Helsby, i. 19.

⁷ *Hist. of Shrops.* v. 131.

⁸ Ormerod, *Hist. of Ches.* i. 52.

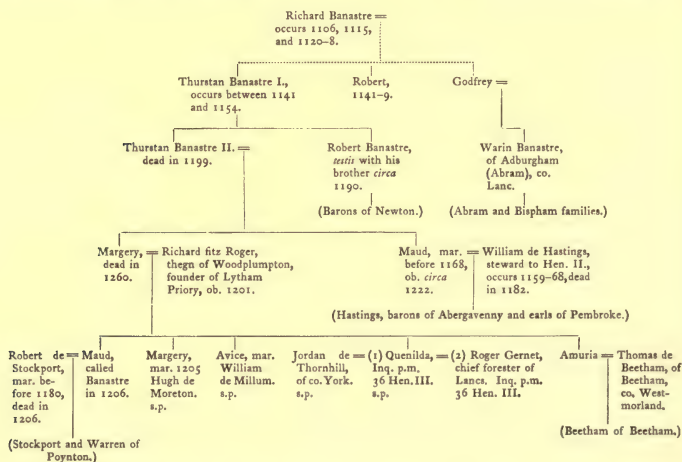
⁹ Chartul. of Salop Abbey, No. 312, from a MS. copy penes W. Farrer.

¹⁰ Eyton, *Itin. of Hen. II.* pass.

¹¹ Eyton, *Hist. of Shropshire*, v. 135. She gave lands in Appleby, co. Leic., to the nuns of Pollesworth. *Mon. Angl.* ii. 363.

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and the founder of Lytham Priory, whom she married before 1176. Margery's husband is mentioned in the Pipe Roll of 1180, as owing a fine of £100 for the recovery of his Lancashire lands, which had been seized by the crown because he had given his eldest daughter and heir in marriage to Robert de Stockport without the king's licence.¹ He died in 1201, and his wife was deceased in 1206.² Although the sisters Margery and Maud were daughters of Thurstan Banastre,³ it is probable that they were grandchildren of the Thurstan who occurs between 1141 and 1154, and daughters of Thurstan II.,⁴ seeing that Maud, the younger, was married before 1168 and survived until 1222.⁵ In 1219 she was still a widow and had lands in Kirmington, co. Lincoln, worth ten marks per annum.⁶ In the division of their father's estates, which was not effected without recourse to the king's court,⁷ the Shropshire estates of Munslow and Aston fell to the share of Maud, in whose descendants, the barons of Abergavenny and earls of Pembroke, these manors descended.⁸ To Margery and her heirs fell the manor of Appley, in Leicestershire, with the church, the manor of Kirkby in this county, held of the constables of Chester, together with Simonswood appurtenant to it, and the manor of Aughton, of which the family of Waleys, or Walsh (Walensis), were undertenants⁹; but so far as can be ascertained the Cheshire estates descended in the line of Robert, younger brother of Thurstan Banastre II. The skeleton pedigree given below illustrates these descents :—



¹ Farrer, *Lancs. Pipe R.* 32, 43; *Rot. de Oblatis* (Rec. Com.), 116.

² *Ibid.* 352.

³ *Ibid.* 213.

⁴ The younger Thurstan attests between 1189 and 1194 the grant by John, count of Mortain, to Geoffrey Arbalaster, of the manors of Preesall and Hackensall. Farrer, *Lancs. Pipe R.* 431.

⁵ *Excerpta e Rot. Fin.* (Rec. Com.), i. 87.

⁶ *Testa de Nevill* (Rec. Com.), 348.

⁷ *Rot. Cur. Reg.* (Rec. Com.), i. 227, 301, 359.

⁸ Eyton, *Hist. of Shropshire*, v. 133 et seqq. It is possible that the manor of Haselor, in Warwickshire, also descended to Hastings from Banastre.

⁹ *Lancs. Fines*, Rec. Soc. xxxix. 63.

We now return to Robert Banastre, the younger brother of Thurstan II. In a petition presented in Parliament in the sixth year of Edward I., 1278, the great-grandson of this Robert declared—

that his ancestor Robert Banastre, came to England with the Conqueror and had the manor of Prestatyn 'in Englefeld' (co. Flint) and other lands¹ which the petitioner still holds of conquest by the Conqueror (du Cunquestre par le Cunqueror), which the said Robert held for a long time. Who died possessed of that land, leaving his son Robert Banastre, who during the time of King Richard built a tower at Prestatyn which still remains. In whose time Owen Gwynedd, lord of Wales, made war in the land whilst the king was over the sea, and having taken the king's castle of Rhuddlan, drove all the king's subjects out of the land. Thus Robert, the son of Robert Banastre, lost his land in Wales and brought all his people from Prestatyn, and from thence into Lancashire, where they are still called Le Westroys.² At his death Robert left three sons, Richard, Warin, and Thurstan, and during all his time Llewelyn, the elder, made war. When Thurstan died he left one son named Robert, aged but one year at his father's death, being twenty years in ward, who when he came of age, lived but three years before he died, leaving one son, Robert, the petitioner, who was in ward nineteen years. He prays the king for an inquest to be held by Englishmen, to declare his right to the manor of Prestatyn, because the king has twice before commanded inquest to be made by Englishmen and Welshmen jointly assembled, but the Welsh refused to attend, declaring it to be contrary to their franchises, unless all the people of the district be at the inquest, whereby Robert suffers delay to his great loss, and prays the king for remedy, if it pleases him.³

By inquest held in accordance with the king's writ dated 24 October, 1279, it was found that King Richard gave the manor of Prestatyn to Robert Banastre, the petitioner's grandfather (*sic*), to hold by his service in fee and inheritance, that Robert thereafter held the manor in peace by the space of 3½ years, within which time he built a tower which remained in part to that day, and thereupon Owen Gwynedd, Prince of Wales, drove him out of the manor and threw down his tower there.⁴

Whilst the petition and inquest contain some genealogical and chronological inaccuracies, they no doubt in the main record the true fact that Prestatyn was granted by Henry II. to Robert Banastre, possibly for his good services in the war of 1165, when he, with Randle de Belines and William de Curcy, was commissioned to munition and defend the castles of Basingwerk, Rhuddlan, and Prestatyn.⁵ Between 1154 and 1157 the king confirmed various grants to the abbey of Basingwerk, including land called Kethlenedei given by Robert Banastre.⁶ The grantor of these lands was no doubt that Robert who takes an important place in the attestation clause of several of the charters of Ranulf, third earl of Chester of his line, which belong to the period 1141-9,⁷ but he belongs rather to the generation of Thurstan I., whilst the grantee of Prestatyn was a younger brother of Thurstan II. About the year 1165 the vills of Walton-le-Dale, Mellor, Eccleshill, Little Harwood, Over and Nether Darwen, all within the hundred of Blackburn and honour of Clitheroe, were granted by Henry de Lacy, lord of Pontefract and Clitheroe, to Robert Banastre to hold by the service of one knight's fee.⁸ Soon after Robert's expulsion from Prestatyn with his Welshmen or Westreys as they

¹ This no doubt refers to Robert de Rhuddlan named above, amongst whose lands Prestatyn was included.

² This happened in the year 1167.

³ *R. of Parl.* (Rec. Com.), i. 2a.

⁴ *Lancs. Inquests* (Rec. Soc.), xlviii. 242.

⁵ *Pipe R. Soc.* ix. 67.

⁶ *Mon. Angl.* v. 263. A charter of Ranulf Gernons, earl of Chester, to the monks of Lancaster which passed at Lancaster in or about 1149 is attested by Robert Banastre (Farrer, *Lancs. Pipe R.* 296). This Robert may have been a younger brother of the elder Thurstan.

⁷ *Ches. Sheepf.* iv. 114, from the Chartul. of St. Werburgh. Farrer, *Lancs. Pipe R.* 296.

⁸ Kuerden MS. Chetham Lib. Fol. vol. 248, No. 268.

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were called, and doubtless in compensation for the loss of Prestatyn, he obtained a grant from the crown of lands within the lordship of Makerfield, including the demesne lands of Newton and the rectory manor of Wigan with the advowson of the church. The absence in the Lancashire Pipe Rolls of any reference to this grant before the time of John seems to suggest a doubt whether Robert Banastre's tenure was more than that of farmer or bailiff. One of the tenants of this lordship at the date of the great inquest of service taken in 1212 was Robert de Adburgham, who is described as holding 4 oxgangs of land in Adburgham, now Abram, by the gift of King Henry in fee farm by rendering 4s. yearly.¹ Now the original grantee of this land from Henry II. was undoubtedly Warin, son of Godfrey Banastre, father of Richard de Adburgham and of Henry de Bispham, and donor of one oxgang of his demesne land in Abram to the canons of Cockersand. By his charter, to which Thurstan Banastre and Robert, brother of Thurstan—note the relationship—and Richard, the grantor's son, are attestants, he confirmed the grant of land in Abram, called Ockelshaw, made by his nephew William de Ockelshaw to the same canons for the health of the soul of King Henry, and of the soul of Warin Banastre.² These grants were made about 1190, and supply the only contemporary evidence that we have found of the settlement of the Banastres in Makerfield before the end of the twelfth century and of the probable nature of their tenure.

To the circumstances related above is to be traced the settlement in the county of numerous families of Welshmen, who soon exchanged their native patronymics for territorial names. Certain letters close of Henry III., directed to the sheriff in the year 1229, afford evidence of the very considerable numbers of these settlers, then and long after known as 'Banastre's Welshmen.' In accordance with a precept to tallage the demesne manors, and manors formerly in the demesne of the county, the sheriff had assessed these men to a tallage of 20 marks, against which they had protested, as being entirely contrary to the custom under which they and their predecessors had enjoyed immunity from tallage. The demand was put in respite, and nothing more heard of it.³

Robert Banastre probably died during Richard's reign, leaving three sons, Richard, Warin, and Thurstan, all probably under age.⁴ Richard, the eldest, died during his minority without issue. In 1201 Adam de Lowton and Thomas de Goldborne answered for the scutage of one knight's fee, by which service Newton, Lowton, Kenyon, Arbury, and half of Golborne were held.⁵ Upon attaining his majority Warin, the second son, in 1204 proffered 400 marks, payable within four years, to have the land of Makerfield, and was put in seisin shortly before Michaelmas that year.⁶ A grant of land in Walton, apparently made by this Warin to one Alved, has a seal appendant, bearing

¹ *Testa de Nevill* (Rec. Com.), 406.

² *Cockersand Chartul.* Chetham Soc. 660-1.

³ *Cal. of Close R.* 1227-31, 159.

⁴ Warin and Thurstan attested Theobald Walter's grant to the canons of Cockersand of the Hay of Pilling, between 1194 and 1199. *Cockersand Chartul.* 375.

⁵ *Rot. de Oblatis* (Rec. Com.), 167. The great extent of 1322-3 specifically states that the manor of Newton, with Lowton, Kenyon and Arbury, and half of Golborne, was held by the service of one knight, and the render of 10s. at Midsummer for the castle-guard and 3s. 4d. (for sake fee), and the remainder of the lordship or barony, including Wigan with the advowson of the church and half of Golborne, by fealty in socage without any other service. *Dodsworth MSS.* cxxxi. 33.

⁶ *Rot. de Oblatis* (Rec. Com.), 207.

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either two water bags suspended in netting, or a pair of wickerwork panniers.¹ Before 3 April following, Warin was dead, and Sarah his widow had obtained a small annuity for her living from an ungenerous sovereign.² A few days later the king exercised his right of presentation to the church of Wigan, in his gift by reason of Warin's death.³ In 1213, Thurstan, the third son, having attained his full age, proffered by the hand of Geoffrey, dean of Whalley, 60 marks for an inquiry touching his right to Makerfield, which by inheritance ought to descend to him from Robert Banastre, his father, and Warin, his brother, and pending a favourable verdict proffered 500 marks for seisin.⁴ A month later he was put in possession.⁵ In addition to lands holden of the honour of Clitheroe,⁶ he held Standish and Langtree of the honour of Penwortham, as mesne tenant.⁷ To Cockersand Abbey he gave half the vill of Arbury.⁸ He died in 1219, leaving a son, Robert, and other children all of tender age. Philip de Orreby, justice of Chester, having given 50 marks for the wardship of the heir with his marriage, had livery of the inheritance.⁹ The widow, Cecilia, at the king's request, married Richard de Monhaut.¹⁰ One of the few recorded acts of Robert was the grant to his brother Thurstan, of lands in Newton in Wirral, by charter sealed with three chevrons.¹¹ This manor long descended in the family of Venables of Kinderton, who held it of Banastre of Bank, in this county, a younger line of some importance, said to be descended from Thurstan Banastre, the grantee.¹² Robert Banastre married Clementia, whom conjecture assigns as daughter to Philip de Orreby, by reason of the fact that this Robert was the first to use for arms three chevrons, a charge said to have been used by the family of Orreby.¹³ She survived her husband, but died before 1258.¹⁴ The petition of 1278 already quoted records the death of this Robert within three years after attaining manhood's estate, that is to say, in 1241 or 1242. He left issue two sons, John, who died before the end of February, 1242, and Robert, who was a minor at his brother's death. He possessed in 1242 in demesne half a knight's fee in Makerfield, held of the earl of Ferrers,¹⁵ and the fourth part of a knight's fee in Shevington, Charnock Richard, and Welch Whittle,¹⁶ held of the fee of Penwortham, in addition to his fee in Walton-in-le-Dale, held of the honour of Clitheroe, which latter had been granted during his minority to the prior of Penwortham at the rent of £15 12s. 11d. per annum.¹⁷ He was a ward nineteen years,¹⁸ and therefore did not come of age until 1260 at

¹ *Chetham Soc.* xcvi. 20, where a woodcut representation is given.

² *Close R.* (Rec. Com.), i. 26.

³ *Rot. de Finibus* (Rec. Com.), 488; *Writ d.* 10 Sept.

⁴ *Chart. R.* (Rec. Com.), 147b.

⁵ *Ibid.* 497.

⁶ A release for 15 marks by Maud and Hawise, daughters of Emery de Berneville, to Thurstan Banastre, of their right in Walton, is attested by Adam Banastre and William, his brother. *Add. MSS.* No. 32,106. No. 453.

⁷ *Testa de Nevill* (Rec. Com.), 403.

⁸ *Cockersand Chertul.* Chetham Soc. 674.

⁹ *Excerpta e Rot. Fin.* (Rec. Com.), i. 35.

¹⁰ *Close R.* (Rec. Com.), i. 565b; cf. *Testa de Nevill* (Rec. Com.), 372.

¹¹ *Harl. MS.* No. 2074, f. 55.

¹² Ormerod, *Hist. of Ches.* ed. Helsby, ii. 499.

¹³ Ormerod's *Hist. of Ches.* ed. Helsby, iii. 548, note b. Nicolas's *Roll of Arms* records the coat borne temp. Edw. II. by 'Sire William Banastre' (of Bretherton) as 'de goules a iiii cheverons de argent' (p. 89).

¹⁴ *Add. MSS.* No. 32,106, No. 537.

¹⁵ *Close R.* 17 Hen. III. m. 4. Knights' fees formerly of Ranulf, earl of Chester, which were assigned to William de Ferrers in right of his wife.




¹⁶ *Testa de Nevill* (Rec. Com.), 397.

¹⁷ *Excerpta e Rot. Fin.* (Rec. Com.), i. 370.

¹⁸ See the petition of 1278, above.

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the earliest. He was thus only five years old in 1246,¹ when he manumitted two of his natives of Poulton, near Warrington,² a liberty extended to other natives of Ashton and Newton, in Makerfield, in 1256.³ He obtained on 13 January, 1257, a charter of free warren in his demesne lands of Walton-in-le-Dale, Newton-(in)-Makerfield, and Woolston, near Warrington,⁴ and in December of the same year a weekly market on Tuesday, and an annual fair on the eve, the feast, and the morrow of St. German the bishop, at his manor of Newton.⁵ In November, 1268, he was appealing Richard de Holand and eight others in the king's court for the destruction of his fish pond at Newton, and for carrying away and imprisoning his wife and sons.⁶ He was commissioned in 1279 with two others to inquire of those in the county having land to the value of £20 yearly who had not taken up knight's service.⁷ The same year he was commissioned to inquire of trespasses done in the forests of Lancaster.⁸ In 1280 he was one of the justices appointed for the gaol delivery at Lancaster.⁹ We have dealt at length with the petition which he presented in Parliament in 1278 for the recovery of the manor of Prestatyn, lost by his great-grandfather a hundred years before. He failed to obtain a re-grant of this estate, but there is some evidence that in lieu thereof the king gave him the manor of Little Mollington, co. Chester, afterwards known as Mollington Banastre, to hold by the service of a fourth part of a knight's fee.¹⁰ In 1284, whilst Richard was prior of St. Oswald's of Nostell, Robert Banastre obtained licence for a chantry in his manor of Rokeden in Newton, in return for which he endowed the church of Winwick with a yearly rent of 12*d.* for lights for the altar of St. Mary the Virgin.¹¹ To Cocksand Abbey he confirmed all grants of land made by his tenants in Makerfield, but reserved 'Infangenthev et Utefangenthev' over the tenants of those lands, as pertaining to him by reason of his barony.¹² To the monks of Stanlaw he gave ten acres of land adjoining the chapel of the Low in Walton, and estovers in his wood there.¹³ He married Alice, daughter and heir

¹ The arms of Robert Banastre are recorded as Argent, 3 chevrons gules; Greenstreet, 'Harleian Roll of Arms,' *Genealogist*, N. S. vol. 3, p. 120. One of his earliest charters granting lands in Woolston to Robert de Samsbury, and attested by William le Botiller, Richard le Botiller, Richard Phyton, then seneschal of Makerfield, and others, is sealed with a seal bearing a water bouget and the legend S' ROBERTI BANASTRE. (Ibid. 403. *Chetham Soc.* xcvi. 21.) This latter seal was evidently used by the grantor immediately after attaining possession of his inheritance, and may possibly have been an old seal of his father's. Another charter, attested by Richard Fitun, then seneschal of Makerfield, who died before May, 1246 (*Lancs. Inquests*, Rec. Soc. xlviii. 161), grants lands in Newton, between Receruding and Kocshaevet, to Paulin, son of Richard de Neuton. (Raines' *Lancs.* MSS. xxxviii. 113.) Another charter, granting to Philip, the clerk, of Chester, a ridding in Walton is attested by Adam de Blakeburn, Henry de Whalley, Adam de Houghton, Thurstan de Holand, Adam de Holand, Hugh de Haydock, Gilbert de Suthworth, William de Sonky, Hugh de Hyndeleghe, Gilbert de Haydock, Jordan de Kenyan, Richard de Golburne, and Robert de Lauton. (Ibid. 121.) Most of these were his tenants in Makerfield. His usual sealings are made with a small circular seal of green wax bearing 3 chevrons upon a small triangular shield with two long sides, surrounded by the legend S' ROBE: BANASTRE . In some of his seals a rather larger shield appears between 2 water bougets with the legends —SIG: ROBERTI DE BANASTR' , or S' ROBERTI BANASTER . This seal is exemplified by Chris. Towneley from the de Houghton charters in Add. MSS. No. 32,106, ch. 520. All his later sealings were made with the 3 chevrons.

² *Lancs. Fines* (Rec. Soc.), xxxix. 100.

⁴ *Cal. Chart. R.* i. 458.

⁵ *Chart. R.* No. 53, 42 Hen. III. m. 5.

⁷ *Cal. Pat. R.* 1272-81, 342.

⁸ *Ibid.* 450; *Cal. Close R.* 1279-88, 395.

¹⁰ *Ches. Inq.* 41 Edw. III. No. 3.

¹² 'Prout ad me pertinnet racione baronie mee occasione hujusmodi latrocinii ubi sacrabel sequitur.'

Cocksand Chartul. Chetham Soc. 643.

¹³ *Coucher of Whalley*, Chetham Soc. 113-6.

³ *Ibid.* 125.

⁶ *Cur. Reg. R.* No. 186, m. 24*d.*

⁸ *Ibid.* 406.

¹¹ *Chartul. of Nostel*, Cott. MS. Vesp. E. xix. f. 179.

of Gilbert Woodcock, who had lands in Cuerden by the feoffment of Roger, son of Henry de Cuerden.¹ She survived her husband,² whose death occurred in 1291.³ He had issue one son, James, who predeceased his father, and a daughter Clemence,⁴ who had Mollington Banastre in marriage with William de Lea, of Lea, near Preston, whose son Henry de Lea, kt., was beheaded in 1315 for participation in the rising which Adam Banastre, kt., led against Thomas, earl of Lancaster;⁵ and a daughter Sibil, married to Richard de Hoghton, of Hoghton, kt. James Banastre married Elena, daughter of William the butler, of Warrington, and had issue an only daughter Alesia, who was contracted in marriage to John, son of John de Byron, kt. John de Byron, the father, was guardian of Alesia and of a portion of her inheritance in 1292, at which time she is described as being under age and the wife of the younger John de Byron, in the record of a plea at Lancaster, in which she and her husband had been summoned to prove their warrant to hold a market and fair in Newton and to have free warren there and in Makerfield, Woolston, and Walton-in-le-Dale.⁶ Before November, 1295, young John Byron was dead without issue, and the earl of Lancaster had granted the marriage of his widow to his friend John de Langton for 250 marks.⁷ The grantee was probably John de Langton, Keeper of the Rolls to Edward I., appointed chancellor in 1292, and bishop of Chichester in 1305.⁸ If so he married the heiress to his younger brother, also named John, before the end of 1297, when John de Langton and Alesia his wife were found to hold a knight's fee in Newton of Edmund, earl of Lancaster.⁹ Early in 1301 John de Langton, brother of the chancellor, at the latter's instance, obtained a grant of a weekly market, two fairs yearly, and free warren in Newton in Makerfield and also in Walton-in-le-Dale.¹⁰ His wife, who was living in 1310, predeceased him.¹¹ As John de Langton, kt., he had frequent letters of protection from Edward II. whilst in his service.¹² He was living in 1328, but died before July, 1333.¹³ In 1325 he was in the retinue of the earl of Warrene in Guyenne, and the year previous was summoned from co. Leicester to attend a great council at Westminster.¹⁴

His son Robert de Langton, chr., was one of the commissioners of array in this county in 1335 to raise troops in the county and lead them to the marches of Scotland.¹⁵ In 1341 he had a licence to crenellate his mansion of Newton in Makerfield.¹⁶ In 1344 he was one of the commissioners of array for the raising of 500 archers in the county for service in Scotland.¹⁷ Upon

¹ Dr. Kuerden's MSS. See Ormerod, *Hist. of Ches.* ed. Helsby, ii. 574.

² *Coucher of Whalley*, Chetham Soc. 117.

³ He was living on 3 Feb. 1291, when lands in Walton-in-le-Dale were released to him (Add. MSS. 32,106, f. 150b). In Michaelmas term, 1291, Alesia, the relict of Robert Banastre, was claiming dower against a large number of the tenants of Alesia, wife of John, son of John de Byron, of lands in Hindley, Walton, and Cuerden, and against Ellen, the relict of James Banastre. Alesia de Byron's lands were partly in the custody of her father-in-law, John de Byron, and partly of Edmund, the king's brother. (De Banc. R. No. 91, m. 157.)

⁴ Add. MSS. No. 32,106, ch. 338.

⁵ Dodsworth's MS. cxlii. f. 37.

⁶ Dodsworth MS. cliii. 136.

⁷ *Lanc. Inq. Rec. Soc.* xlviii. 298.

⁸ *Cal. Close R.* 1307-13, 257.

⁹ *Cal. Close R.* 1327-30, 336; 1333-7, 121. In 1332 he sealed a letter of attorney with his paternal coat *Vair*. *Chetham Soc.* (Old Ser.), xcvi. 23. Seal of [? Ralph] de Langton, Argent, 3 chevrons gules.

¹⁰ Roll of Lancs. arms, *temp.* Edw. III. *penes* W. Farrer. See *Hist. Soc. Lancs. and Ches.* (New Ser.), i. p. 154.

¹¹ Gascon R. 18 Edw. II. m. 11 d.; Palgrave, *Parl. Writs*, i. 640.

¹² *Rot. Scot.* (Rec. Com.), i. 321b.

¹³ *Cal. Pat. R.* 1340-5, 304.

¹⁴ *Rot. Scot.* (Rec. Com.), i. 649a.

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the collection of the aid granted in 1346 he was returned as holding of Henry, earl of Lancaster, one knight's fee in Walton-in-le-Dale, and one knight's fee in Newton in Makerfield, Lowton, Kenyon, Arbury, and the moiety of Golborne.¹ He died in 1361, his eldest son John having predeceased him, leaving issue Ralph, who was found heir to his grandfather in January, 1362, being then aged twenty-one years and upwards.² During his grandfather's lifetime the manors of Newton and Walton had been settled upon his father, whilst the third part of the manor of Langton, co. Leicester, the manor of Hindley, and half the manor of Golborne were settled upon Robert, younger brother of John de Langton.³ Ralph de Langton, kt., was a witness in the Scrope and Grosvenor case in 1386. In 1391 he settled lands upon his son and heir, Henry, in marriage with Agnes, daughter of John de Davenport,⁴ and five years later, in conjunction with his wife Joan, daughter of William de Radcliffe of the Tower, settled lands on his three younger sons, Nicholas, Thomas, and Geoffrey.⁵ He died 7 April, 1406, leaving Henry his son aged 40 years.⁶ Henry Langton paid £8 for relief of his lands in January, 1407,⁷ and died in 1419, Ralph his son and heir being then aged twenty-three years.⁸ Ralph Langton, chr., married Alice, whose parentage is unknown, and died in 1431, leaving issue an only son, Henry, then aged twelve years,⁹ in ward of Thomas Longley, bishop of Durham, and others, who were returned the same year as holding half the manor of Newton; Alice, relict of Ralph Langton, chr., and Agnes, relict of Henry Langton, each holding a fourth part of the manor in dower.¹⁰ Henry Langton, esq., died in 1471, and two years later his son Richard was found to be of full age.¹¹ Richard Langton, kt., was made a knight banneret by Lord Stanley at Hutton Field in 1482, on the return of the army from Scotland.¹² He married Isabel, daughter of Thomas Gerard of Bryn, kt., and died in 1500, leaving issue Ralph, aged twenty-six years, who had been married to Joan, daughter of Christopher Southworth of Samlesbury, during his father's lifetime. Thomas Langton, styled baron of Newton, great grandson of Ralph, was made a Knight of the Bath at the coronation of James I. In 1589 he was concerned in a fatal affray at Lea Hall, when eighty of his tenants and servants engaged with thirty tenants and servants of the owner of that place, Richard Hoghton of Hoghton Tower, esq., in an attempt to recover cattle seized by Mr. Hoghton, and as a result of other mutual provocations. Mr. Hoghton was unfortunately slain, and although no jury could be empanelled to try the indictment preferred against Sir Thomas and his accomplices for murder, the latter was in the end constrained to alienate his manor of Walton-in-le-Dale to the murdered man's representatives for the sake of peace; in whose descendant it remains vested at this day.¹³ Sir Thomas died without issue in 1604, when his inheritance by virtue of a settlement made in 1594, passed to his cousin Richard Fleetwood, afterwards created a bart., of Colwick, co. Stafford,

¹ *Feudal Aids*, iii. 85, 91. This aid was collected in 1355. ² Inq. p.m. 36 Edw. III. pt. 1, No. 116.

³ *Chetham Soc.* (Old Ser.), xcvi. 23-4; *Lancs. Fines*, Rec. Soc. xlv. 194. From the younger Robert descended the family of Langton of the Lowe in Hindley.

⁴ Add. MSS. No. 32,106, ch. 620.

⁵ *Ibid.* ch. 571.

⁶ Inq. p.m. Towneley MS. D.D. No. 1,501 penes W. Farrer. The inquest is fully abstracted in *Dep. Keeper's 33rd Rep.* App. p. 6.

⁷ Add. MSS. ch. 32,106, ch. 840.

⁸ *Inq. p. m.* Chetham Soc. xcv. 137.

⁹ *Ibid.* xcix. 31.

¹⁰ *Feudal Aids*, iii. 194.

¹¹ *Inq. p. m.* Chetham Soc. xcix. 93.

¹² Metcalfe, *Book of Kts.* 7.

¹³ Whitaker, *Hist. of Whalley*, ed. 1876, ii. 334.

FEUDAL BARONAGE

grandson of John Fleetwood of Penwortham, and of Joan, eldest daughter of the first Thomas Langton, kt.¹ Thomas Fleetwood, bart., son and heir of Richard Fleetwood, the first baronet of Colwick, sold the reputed barony of Newton with the members in 1660 to Richard Legh of Lyme, esq., for a consideration of £3,500, having previously alienated to the same purchaser other portions of his estates in the years 1655-6-7.² From Mr. Legh the reputed barony has descended to his present representative, Thomas Wodehouse Legh, second Baron Newton (cr. 1892), who is the twenty-fourth reputed baron of Newton-in-Makerfield in succession from Robert Banastre, the first grantee.

¹ *Chester Soc.* xcix. 93-100; *ibid.* li. (Old Ser.), 246-255. A pedigree of the Langton family will be found in Baines, *Hist. of Lancs.* ed. Croston, iv. 382-3; and of Legh of Lyme and Golborne, 384-90.

² MS. Abstr. of title, *penes* W. Farrer.



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