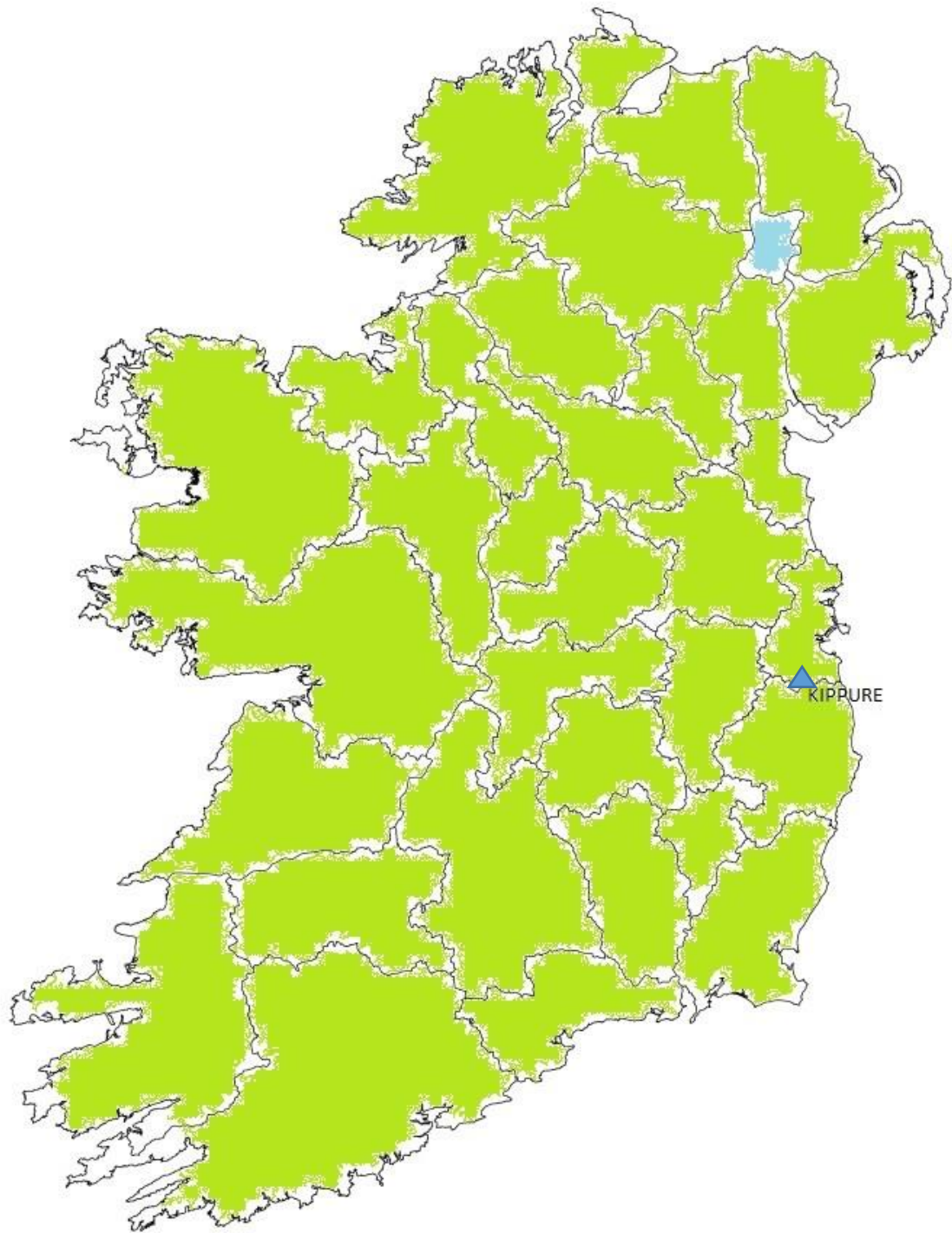


Kippure Mountain – geology, resources and social history



By

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Abbreviations

ESB	Electricity Supply Board
FCA	Fórsa Cosanta Áitiúil
GPO	General Post Office
HCPP	House of Commons Parliamentary Papers
KVA	Kilo (Volt X Amps)
OD	Ordnance Datum
OPW	Office of Public Works
OSI	Ordnance Survey of Ireland
<i>PRIA</i>	<i>Proceedings of the Royal Irish Academy</i>
RTÉ	Raidió Teilifís Éireann
TD	Teachtaí Dála

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Abstract

This thesis explores the geology, resources and social history of Kippure Mountain. The formation of Kippure's granite and turf enabled the mountain to become part of Ireland's natural, built and cultural heritage. The granite was vital for building the roads which gave access to the mountain. The harvested turf supplied both the domestic and the commercial needs of Dubliners during a memorable time in Irish history. Kippure became a mountain of national interest when it was chosen as the site for Ireland's first television transmitter.

Introduction

Kippure Mountain straddles the Dublin/Wicklow border. The Irish Grid reference is 0116 154. The name Kippure translates as *Cipiúr* in Irish, meaning Yew stock.¹ Although many Dubliners claim it as the highest mountain in that county, its lofty 757m peak sits firmly within the Wicklow boundary. Kippure is located in the sub-townland of East Kippure which is in the townland of Kippure, civil parish of Kilbride and barony of Talbotstown Lower. The border was decided when Wicklow was formally shired in 1606, four hundred years after the invading Anglo-Normans had created the neighbouring counties of Dublin, Kildare, Carlow and Wexford.²

The Wicklow mountains, including their northern extension into Dublin, are the most extensive area of continuous upland in Ireland.³ Geologically, they represent the impact of one or more tectonic episodes, some four hundred million years ago, which resulted in the creation of a batholith or great bulge of igneous rock: granite.⁴ Granite is exposed at the surface across much of the mountains including Kippure. Glaciation left a legacy of several corrie lakes in Wicklow, two of which are found on Kippure's east side, Upper and Lower Lough Bray.

Kippure abounds in natural resources. Two of Dublin's most important rivers, the Liffey and the Dodder, rise near Kippure. The source of the Liffey is only six kilometres from that of the Dodder, so they begin and end together, though widely separated along their routes.⁵ Kippure's turf was heavily harvested during the Emergency (the state of emergency which existed in Ireland during the Second World War) to supply Dublin with fuel. Both the army and government-employed labourers cut turf during the mid-1940s. However, there was already an

¹ www.logainm.ie/en/1165765 (accessed 28 Oct. 2016).

² Arnold Horner, 'The Wicklow and Dublin mountains two hundred years ago – a brief context' in Richard Griffith's *Wicklow and Dublin Mountains in 1812* (Dublin, 2004), pp 1-6, at p. 3.

³ Horner, 'The Wicklow and Dublin mountains', p. 1.

⁴ *Ibid.*

⁵ W.D. Handcock, *The history and antiquities of Tallaght* (Dublin, 1877), p. 111.

established tradition of turf-cutting amongst locals for generations. A bog road was built in the 1940s on the border of Dublin and Wicklow to allow access for turf cutters. Locally known as Moat Road, a handful of local turf cutters continue to take advantage of this access, but it is more widely used by hillwalkers nowadays as a route to Kippure's summit.

Standing on Kippure one can see the valley of Glenasmole leading towards the expanse of Dublin city. On a clear day, the view extends as far as the Mourne mountains to the north, Dublin Bay to the east, the extinct volcanic mountain Sugarloaf to the south and across the mountains towards Blessington to the west. Kippure Mountain is accessible via the Wicklow Military Road, which was built in the early 1800s from Rathfarnham to Aghavannagh, giving access for the first time deep into the mountainous heart of Wicklow.

The mountain is conspicuous due to the television transmitter which was erected there in 1961, being clearly visible from parts of Meath, Dublin, Louth and Kildare. Kippure mountain was crucial to the first Ordnance Survey as the triangulation for most of Wicklow was made from observations from its summit.⁶ Kippure has no visible remains of prehistoric activity unlike its neighbouring mountains, Seefin, Seahan and Seefingan, which have evidence of Neolithic passage tombs but it is possible due care was not taken to preserve the archaeology that may have existed.

The history of Kippure encompasses millennia of geological changes, the availability of life sustaining natural resources, as well as the more recent impact of human activity. In modern times the story of Kippure has been shaped by the harvesting of its turf, the construction of access roads, the erection of the transmitter and the provision of security during times of political upheaval. The people who kindly shared their recollections, along with invaluable

⁶ Patrick Power, 'A survey: some Wicklow maps, 1500-1888' in Ken Hannigan and William Nolan (eds), *Wicklow history and society* (Dublin, 1994), pp 723-60, at p. 748.

resources such as books, maps, reports, newspapers, photographs and other archival documents combine to define a mountain that has added to Ireland's rich history.

The first chapter explores the geological formation of the mountain to give an understanding of how granite was created and explain the natural process of the formation of turf. The variety of indigenous fauna and flora is detailed, as is the importance of the two rivers that rise on Kippure. The second chapter details the turf-cutting process and how Kippure's turf helped provide Dublin with fuel during the Emergency. Harvesting this turf would not have been possible were it not for the accessibility that the Military and Moat roads gave to the mountain. It was during the building of these roads that Kippure's granite proved to be an important natural resource. The third chapter examines the advantages of Kippure's height and location. An OSI trig point was placed on the summit in the 1820s to aid the mapping of Ireland, in addition, it was the chosen site for Ireland's first television mast which made national headlines on two occasions albeit for very different reasons. The possibility of the previous existence of a prehistoric cairn on Kippure is also discussed in this chapter.

Chapter 1: Geology and topography of Kippure Mountain

The Leinster mountain chain extends south-westwards from near the southern shores of Dublin bay for a distance of over one hundred kilometres to Mount Brandon in Co. Kilkenny.⁷ This elevated mountain tract naturally divides the coastal district of east Wicklow from the upland communities of north-west Wicklow while at the same time uniting communities on the Dublin/Wicklow mountain border.⁸ The highest point is Lugnaquilla in south Wicklow at 900m while Kippure is the highest point in north Wicklow at over 700m. During the Silurian period, some 443-417 million years ago, molten rock (magma) from 30-40 kilometres deep in the Earth's crust welled up to leave its mark as the spectacular granite uplands of Donegal and Wicklow.⁹ The Leinster granite occurs as a north-east to south-west oriented outcrop in the centre of the region and gives rise to gently undulating, high-level moorland and rounded mountain summits.¹⁰

The next natural event to shape the Wicklow mountains was the Ice Age and the effects of glacial erosion. Ice sheets, thousands of metres thick, stretched from the North Pole to Europe covering much of Ireland, creating an Ice Age or glacial period in Ireland. Glaciers are usually formed on high ground and then move downhill creating a valley in the landscape picking up rocks and soil as they move. Several independent lines of evidence, including stone counts and striae, as well as till pebble orientation data, indicate that the Irish Sea ice-sheet generally advanced south-westwards across Dublin from a major centre of dispersion to the north of Ailsa Craig in the Firth of Clyde, Scotland. Erratics (rocks which differ from other rocks in the area) dating from this event occur to a maximum elevation of 610 OD on the northern flank of

⁷ Gordon L. Davies, 'The age and origin of the Leinster mountain chain: a study of the evolution of south-eastern Ireland from the Upper Palaeozoic to the later Tertiary' in *PRIA*, LXI (1960/1), pp 79-107, at p. 79.

⁸ Geraldine Stout, 'Wicklow's prehistoric landscape' in Ken Hannigan and William Nolan (eds), *Wicklow history and society* (Dublin, 1994), pp 1-40, at p. 2.

⁹ J.P. Mallory, *The origins of the Irish* (London, 2015), p. 20.

¹⁰ Peter G. Hoare, 'The patterns of glaciation of county Dublin' in *PRIA*, LXXV (1975), pp 207-24, at p. 209.

Kippure.¹¹ The evidence of glacial erosion is widespread in many mountain areas. Over-deepened rock hollows, some of them water-filled, represent corrie lakes. Lough Bray, Upper and Lower, on Kippure's east side (Fig. 1.1), are excellent examples of these glacial lakes.



Fig. 1.1 Upper and Lower Lough Bray.

As the temperatures continued to rise after the Ice Age, conditions became ideal for blanket bogs to form on mountainous areas such as Kippure, around 4,000 years ago. Heavy rainfall caused minerals to be leached from the soil, forming an impermeable layer in the soil known as an iron pan. Water could not soak through this layer, so the soil above the iron pan became

¹¹ Hoare, 'The patterns of glaciation of County Dublin', pp 211-12.

waterlogged and peat began to form.¹² Peat is made up of partially decomposed remains of dead plant material, which accumulated on top of each other over thousands of years. The plant material consisted of mosses, grasses and heathers. The lack of oxygen prevented the complete breakdown of this material, resulting in the formation of peat. The type of bog on and around Kippure is known as mountain blanket bog, as it is found in areas above 200m in altitude, where rainfall occurs over 175 days a year, making Kippure an ideal site.¹³ A combination of the effects of glaciation, weathering of the granite mountain tops (called onion-weathering), and the soft look of the heather covered peat give Kippure and the surrounding mountains a rounded topography.¹⁴

Kippure has a diverse variety of fauna and flora. Finds of unique specimens of plants and insects have been regularly recorded. *Andromeda Polifolia*, common name bog-rosemary, and the course grass, *Scirpus Caspitosus*, are abundant due to the wetness of the ground.¹⁵ Stanley W. Kemp records the capture of three beetles in Co. Dublin that are additions to the Irish list, one of which was *Hydroporus longicornis* Sharp found on Kippure mountain in 1902. Apart from this record, confirmed by a specimen seen by William A.F. Balfour-Browne, there are no other records within Ireland.¹⁶ A variety of heathers are found in the different vegetation zones, such as ling and bell heather, cross-leaved heath, cranberry, crowberry and cowberry. Other prolific flora on the bog-lands include lichens, sedges such as the bog cottons, grasses such as purple moor-grass and colourful flowers such as Bog Asphodel and Heath Milkwort.¹⁷ Sika deer were introduced to the Powerscourt Estate in Co. Wicklow in 1859. They soon started to

¹² www.wicklowmountainsnationalpark.ie/images/downloads/Blanket%20Bog.pdf (accessed 8 Nov. 2016).

¹³ Ibid.

¹⁴ Horner, 'The Wicklow and Dublin mountains two hundred years ago – a brief context', pp 1-6, at p. 1.

¹⁵ R.L. Praeger, 'Dublin plants' in *The Irish Naturalist*, xiii, 2 (1904), p. 42.

¹⁶ I. Ribera and G.N. Foster, 'Hydroporus longicornis Sharp (Coleoptera: Dytiscidae) Rediscovered in Ireland' in *The Irish Naturalists' Journal*, xxiii, 12 (1991), p. 507.

¹⁷ www.wicklowmountainsnationalpark.ie/images/downloads/Blanket%20Bog.pdf (accessed 8 Nov. 2016).

breed with the closely related native Red deer.¹⁸ They can be seen regularly on the slopes of Kippure in large herds. Mammals such as hare, badger and fox are plentiful but are more elusive. The Wicklow National Park website gives a wealth of detail on a large selection of insects, birds and mammals that live in the mountain and lake area of the park. The stunning summer display of bog cotton (Fig. 1.2) gives rise to the area being called the Featherbed.¹⁹



Fig. 1.2 A beautiful display of bog cotton on the Featherbed

(<https://emacl.wordpress.com/tag/wicklow-mountains/> accessed 29 Dec. 2016).



Fig. 1.3 The source of the Liffey shown bottom right

(<http://maps.osi.ie/publicviewer/#V2,713327,713664,7,7> accessed 22 April 2017).

¹⁸ www.wicklowmountainsnationalpark.ie/nature/mammals (accessed 14 Jan. 2017).

¹⁹ Michael Fewer, *Wicklow Military Road* (Dublin, 2007), p. 91.

It is interesting that the two rivers that rise on Kippure, aided by many streams and brooks, emerge and become such a vital resource for Dublin. The Liffey is one of two rivers that rise at Kippure (Fig. 1.3). The Liffey (*An Life*) was previously known by the historical name of *Ruirtheach*.²⁰ The Liffey rises on the south side of Kippure, at about 530m above sea-level, and is joined in the upper part of its course by the Lugnalee, Ballylow and Ballydonnell Brooks, all descending as consequent streams from the north-west slope of the ‘Caledonian’ granite range of Leinster.²¹ The water is brown, coloured by the humic acids leaching out of the peat. It flows over a stony bed with patches of sparkling gravel formed from shiny crystals of mica and quartz, liberated from the granite by rain water.²² Just outside Blessington, the Liffey is joined by King’s River where it continues its journey into Kildare. The Liffey proved invaluable as dams were built to create hydroelectric stations at Poulaphouca, Golden Falls and Leixlip. In 1936, the Liffey Reservoir Bill was passed which allowed the dam at Poulaphouca flood the local area to form an artificial lake for the dual purpose of creating electricity and to meet the growing demands for water in Dublin.²³ The 5,500 acres flooded was the largest landmass ever lost to a single development of any kind in this country.²⁴ This changed the lives of many people in the general Blessington/Poulaphouca areas as their homes and farms were lost leading to an opportunity for a new life for some but utter devastation for others.

The landlord Moore of Kilbride held the Liffey lands north of Blessington up through Cloghleagh almost to the peak of Kippure and to the marches of Powerscourt. The map (Fig. 1.4) shows how Kippure was divided by the Powerscourt and Moore estates in the nineteenth century.

²⁰ www.logainm.ie/en/1166309?s=river+liffey.

²¹ Grenville A.J. Cole, ‘The problem of the Liffey valley’ in *PRIA. Section B: Biological, Geological, and Chemical Science*, xxx (1912/13), pp 8-19, at p. 8.

²² Elizabeth Healy, Christopher Moriarty and Gerard O’Flaherty, *The book of the Liffey from source to sea* (Dublin, 1988), p. 15.

²³ www.irishstatutebook.ie/eli/1936/act/54/enacted/en/html (accessed 14 Jan. 2017).

²⁴ Christiaan Corlett (ed.), *Beneath the Poulaphuca reservoir* (Dublin, 2008), p. 35.

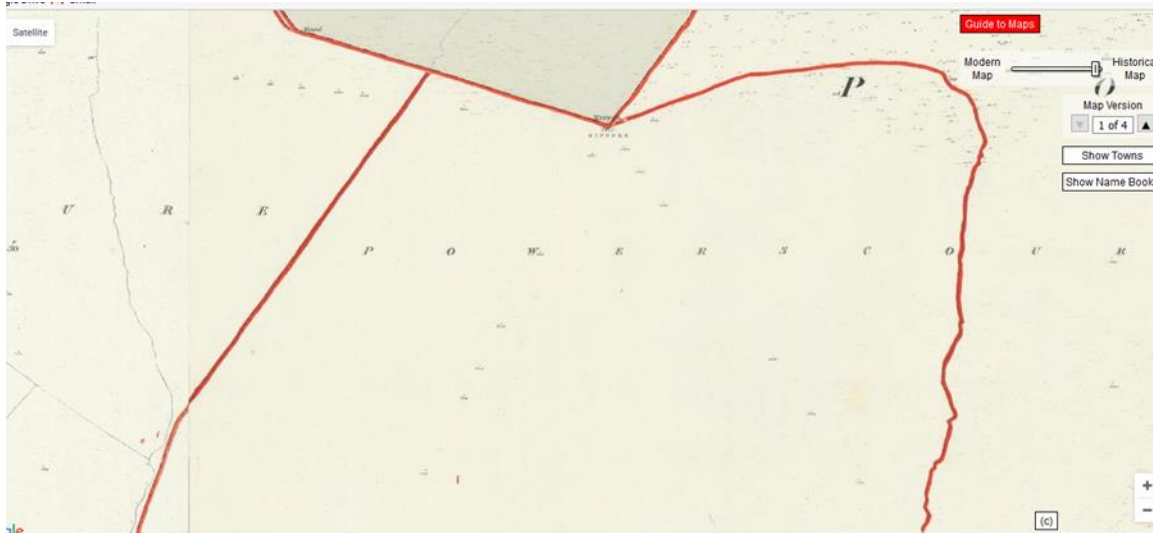


Fig. 1.4 Estate map of Kippure with the red line on the left showing the boundary between Moore and Powerscourt (www.askaboutireland.ie/griffith-valuation/ accessed 1 Nov. 2016).

Moore of Kilbride held 8,664 acres in 1838 which was very considerable but compared to the likes of the Fitzwilliams, Meaths and Powerscourts of Wicklow he was a long way down the list of important landed gentry.²⁵ Much of his land was upland and of poor quality. Moore increased his landholdings in the 1830s with a foothold in Kippure House, on the north bank of the Liffey near Kilbride, also building a Church of Ireland church and school house in Cloughleagh. He also attempted to reclaim the upland bog wilderness which is marked by deserted stone houses within tidy farms, parcelled in parallel stone-walled fields which run up the sloping ground below Seefin mountain.²⁶

The course of the Dodder (*An Dothra*), rising close to the Liffey, but on the north side of Kippure, remains far more direct, and the contrast between the two rivers has been pointed out often.²⁷ High up the mountain the Tromanallison (Allisons Brook) is joined by Moreens Brook,

²⁵ William Nolan, 'Land and landscape in County Wicklow, c.1840' in Ken Hannigan and William Nolan (eds), *Wicklow history and society* (Dublin, 1994), pp 649-92, at p. 658.

²⁶ Nolan, 'Land and landscape in County Wicklow, c.1840', p. 661.

²⁷ Cole, 'The problem of the Liffey valley', p. 8.

before meeting the Cot and Slade brooks. Together they enter the picturesque Glenasmole valley as the Dodder river (Fig. 1.5).



Fig. 1.5 Kippure Mountain and the brooks that join to form the Dodder

(<http://maps.osi.ie/publicviewer/#V2,711956,718770,7,9> accessed 1 Nov. 2016).

Glenasmole consists of two valleys: the broader, higher valley on the mountains has been shaped by both upland and lowland glaciations, whereas the narrower and deeper valley, now occupied by the two reservoirs constructed in the 1880s, was cut by the Dodder out of glacial debris.²⁸ The Dodder crosses successive veins of granite, mica schist, shale and dolomite before reaching limestone in Tallaght.²⁹ The reservoirs were built with the dual purpose of supplying Rathmines with drinking water and ensuring a constant supply of water to the many mills along the Dodder. Further down the river, the Dodder regularly had burst its banks leaving behind damaged bridges and flooded plains but the reservoir controlled this problem.³⁰ Because the Dodder water originated on the peat-covered slopes of Kippure it was considered more

²⁸ William Nolan, 'Society and settlement in the valley of Glenasmole, c.1750-1900' in F.H.A. Aalen and Kevin Whelan (eds), *Dublin city and county: from prehistory to present* (Dublin, 1992), pp 181-228, at p. 181.

²⁹ *Ibid.*

³⁰ Patrick Healy, *Glenasmole roads* (Dublin, 2006), pp 10-12.

appropriate for industrial purposes, and an elaborate artificial channel was constructed to divert it past the upper clean water reservoir to the lower one.³¹ The streams coming off the surrounding granite hills supplied clean drinking water into the upper lake. Fig. 1.6 shows the reservoir with Kippure looming in the background. A landlord called Charles Cobbe once owned the poor uplands of Glenasmole which was part of the civil parish of Tallaght, in the barony of Uppercross.



Fig. 1.6 Bohernabreena reservoir

(www.flickr.com/photos/darraghb/sets/72157605381264873?view=sm accessed 6 Nov. 2016.)

It is likely that Kippure was once forested as analysis of a pollen sample taken from the nearby mountain, Seefin, showed evidence for a forest cover of pine and elm.³² Mitchell and Ryan record that pine stumps were found buried under Kippure's bog at 730m.³³ Some of the pine

³¹ Nolan, 'Society and settlement', p. 182.

³² Stout, 'Wicklow's prehistoric landscape', p. 7.

³³ Frank Mitchell and Michael Ryan, *Reading the Irish landscape* (Dublin, 2007), p. 207.

stumps, located below peat on a mineral soil, were estimated to be 4,200 years old.³⁴ Giraldus Cambrensis described Ireland at the close of the twelfth century as a land full of woods, bogs and lakes but during the Anglo-Norman colonisation deforestation was so widespread that by the sixteenth century the counties of the Pale were almost treeless.³⁵ According to poems translated by the Ossianic Society, Glenasmole and the surrounding mountains were covered in forestry and were the hunting grounds of the *Fianna* led by *Fionn Mac Cumhaill* who had many adventures in the area.³⁶ The names of the mountains Seefin and Ballymorefinn attest to this connection with other tales such as *The chase of Loch Lein* and *The battle of Gabhra* referring to adventures in Glenasmole and the surrounding forested mountains.³⁷ Today, there are no pine, elm or yew trees visible just heathers and grasses, which gives Price valid grounds to argue that the name, Kippure, should be interpreted as *ciop mhór* meaning ‘great place of mountainy grass’.³⁸

³⁴ Mary Kelly Quinn, ‘The evolution of forestry in County Wicklow from prehistory to present’ in Ken Hannigan and William Nolan (eds), *Wicklow history and society* (Dublin, 1994), pp 823-54, at p. 824.

³⁵ K.W. Nicholls, *Gaelic and Gaelicized Ireland in the Middle Ages* (Dublin, 2003), p. 5.

³⁶ Peter Quinn, *Bohernabreena* (Dublin, 2015), p. 27.

³⁷ Gerry Smyth, *Space and the Irish cultural imagination* (Basingstoke, 2001), p. 104.

³⁸ Liam Price, *Place-names of Co. Wicklow* (Dublin, 1945), p. 276.

Chapter 2: Harvesting turf and access to Kippure

From the fourteenth century, the cutting, saving and transporting of turf formed part of the seasonal work levied on tenants by landowners in those areas with bog-lands on the estates.³⁹ Due to widespread deforestation, turf became an invaluable fuel for both domestic and commercial purposes. Except for a few years in the 1980s, when tractor-operated machines were used to cut turf by the Powerscourt estate, the blanket bogs of Kippure and surrounding areas were cut by hand.⁴⁰ The tool that was required is called a *slane* (also spelled *slean*). The work was very physical and entailed long working days. As turf is made up of eighty per cent water, good weather for drying is essential.

On the western side of Kippure, the people of Blessington and Kilbride had turf-cutting rights on the mountain. As it was a long distance to travel, the workers started out at dawn, to get the skinning (removal of the top grassy layer until reaching turf), cutting, and using a two-grained fork, spread the turf too, usually with help of as many family members as possible.⁴¹ When it was dry enough to stand, the turf was footed (six or eight pieces of turf were stood up and leaned against each other). The final step was to pile it into big stacks, called clamps, as near as possible to a road where it was eventually loaded on a pony and drey or a lorry to be transported home. Residents of Glenasmole also cut their own turf. Unlike the people of Blessington they used a four-grained fork to spread the turf as it proved to cause fewer breakages of the freshly cut turf.⁴² The tools of a manual turf-cutter, the *slane*, fork, spade and shovel, are shown in Fig. 2.1. The Glenasmole people had access to the bogs of Castlekelly, Featherbed and Kippure, depending on the location of their house, as their turbary rights were part of the deeds of their home. Although the right to cut turf naturally passed from generation

³⁹ Muiris O'Sullivan and Liam Downey, 'Turf-harvesting' in *Archaeology Ireland*, xxx, 1 (2016), pp 30-3, at p. 30.

⁴⁰ www.wicklowmountainnationalpark.ie/images/downloads/Blanket%20Bog.pdf (accessed 10 Feb. 2017).

⁴¹ Liffey Valley Heritage Study, *Memories of the Liffey Valley* (Naas, 1992).

⁴² Interview with Gearóid Worth, 19 Dec. 2016.