

## The Soberton Bracelet

### Phoenician Penannular Gold and Copper Bracelet Currency of the Late Bronze Age as traded for Cornish Tin and Nigerian Slaves

There would have been no Bronze Age without tin which was then and still is now a rare and valuable commodity.

It has been claimed that tin was first mined in Europe around 2500 BC in the Erzgebirge, and that a knowledge of the use of tin in the creation of bronze and its extraction techniques spread from there to Brittany and Cornwall around 2000 BC and from north western Europe to north western Spain and Portugal around the same time (Penhallurick 1986, p. 93). Extraordinarily the only Bronze Age object from Central Europe whose tin has been scientifically provenanced is the Nebra sky disk, and its tin and gold, though not its copper, has been shown using tin isotopes to have come from Cornwall (Haustein, Gillis & Pernicka 2010). In addition, a rare find of a pure tin ingot in Scandinavia was provenanced to Cornwall (Ling et al. 2014). Available evidence, though very limited, thus points to Cornwall as the sole early source of tin in Central and Northern Europe.

John Maynard Keynes, the most famous economist of the twentieth century, observed in his *Treatise on Money* that coinage seemed to hold no charm for some societies of the ancient world:

*The stamping of pieces of metal with a trade mark was just a piece of local vanity, patriotism, or advertisement with no far-reaching importance. It is a practice which has never caught on in some important commercial areas.... The Semitic races, whose instincts are keenest for the essential qualities of money, have never paid much attention to the deceptive signatures of mints....*

One of the puzzles of monetary history is how the Bronze Age Phoenicians from the land of Canaan in the Levant conducted their international sea borne business without coinage and yet were clever enough to make their mark on history with the invention of an alphabet of 22 letters. Evidence of Phoenician coinage only appears during the middle of the fifth century BC by then coinage had been in use for 200 years by the traders of the Aegean Sea.

That Phoenicia was a substantial trader in precious metals in the 10<sup>th</sup> century BC is to be found in the bible:

*The First Book of Kings: At the end of twenty years, in which Solomon had built the two houses, the house of the Lord and the king's house, and Hiram, king of Tyre [a Phoenician city] had supplied Solomon with cedar and cypress timber and gold, as much as he desired.... Hiram had sent to the king one hundred and twenty talents of gold.... King Solomon built a fleet of ships.... And Hiram sent with the fleet his servants, together with the servants of Solomon; and they went to Ophir, and brought from there gold, to the amount of four hundred and twenty talents;... The prophet Zechariah says: "Tyre has built herself a rampart, and heaped up silver like dust, and gold like the dirt of the streets."*

The Late Bronze Age Phoenicians circa 1000 BC were famous as navigators and traders in distant lands bringing them into contact with peoples who would be satisfied with nothing less than weighing precious metals and verifying them for fineness on the spot. Such people would have been suspicious of coinage whose fineness and weight was certified by the seal of a government in a distant and unknown land and justly or unjustly, the Phoenicians were known to be sharp, aggressive, and sometimes unscrupulous as traders. Penannular bracelets in copper and gold remain in two countries in which they are believed to have traded: Britain for tin and Nigeria for slaves.

A simple early method requiring no precision equipment existed to determine the purity or fineness of gold. The object to be tested is balanced against pure gold using a simple suspended beam, the tester then submerges both the object to be tested and the now balanced equal weight of pure gold in water simultaneously. If the volumes are the same, the scale will remain in balance, meaning that their densities are the same and therefore the object must be of the same purity as the gold standard that it is being tested against. As gold is roughly twice as dense as silver the volume of the suspect object to be tested will have to be greater to allow the balance in thin air. When immersed this will show in an increase in volume which will increase the buoyancy resulting in imbalance and the pan holding the tested item will rise. If silver is added to that tray until the underwater balance is restored the amount of silver added allows the percentage of silver in the suspect item to be calculated against the standard being used.

Pure gold is too soft, easily scratched and malleable to be worn in pure form hence from historical times it has been annealed with silver in an approximate ratio of 15% silver to 85% gold therefore the addition of a further 15 % of silver by volume should balance the scales. Modern analysis can calculate the gold karat weight and the percentages of all other elements in the item. This information allows us to trace the source of the gold.

The Soberton Bracelet has recently been granted an export licence by the UK Reviewing Committee on the Export of Works of Art and Objects of Cultural Interest. It is now the only accurately sourced, documented and dated, over 100 gram Phoenician Penannular Currency bracelet in private hands outside the United Kingdom.

It was given this licence without consideration of a possible relationship to the Bronze Age mining of English tin that was to last for 3000 years.

I suggest that it along with the gold in all the other British penannular bracelets this was exchanged for tin by the Phoenicians and that these bracelets are in fact a form of Phoenician currency. Gold bracelets of this form as evidenced by their discovery throughout the British Isles were traded internally until buried as a store of value.

The questions to ask are: Was the exchange in west Country England in bracelet or bullion form; from where was the gold in the bracelet sourced; who cast the bracelet, is it Phoenician, Cornish or Irish; why has there been no effort on behalf of the relevant authorities in the UK to get to the bottom of this important matter given the resource of 92 gold bracelets in the British Museum?

Modern technology can be used to determine the source of the gold and possibly the country of manufacture. Only eight of the known penannular bracelets weigh more than 100 grams and if I am correct they are the tangible evidence of the foundation of a gold standard in monetary form as required to purchase a similar very high value commodity tin.

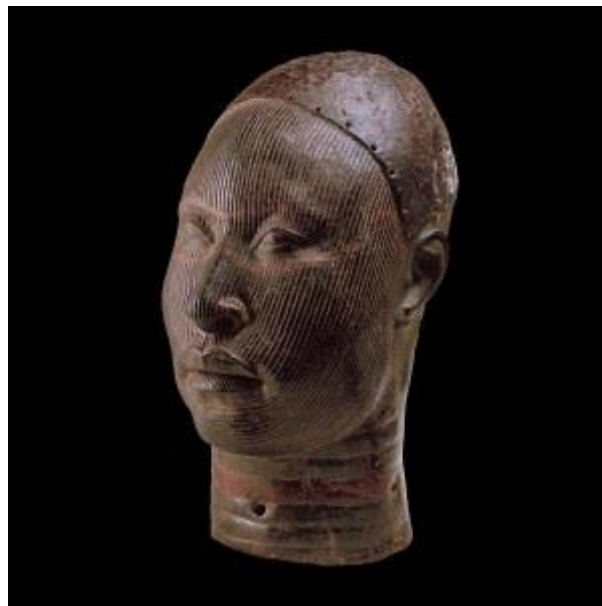
Logic suggests that the Soberton Penannular Bracelet is an extremely rare high value Bronze Age form of Phoenician currency, a currency which in copper served as the exchange medium for the purchase of low value African slaves and in gold for the purchase of Cornish and Devonian high value tin as evidenced by the survival of these penannular bracelets of identical form in two totally disparate places West Africa and Britain in considerable numbers.

A Lisbon commercial consortium of Portuguese explorers formed in 1469 started trading in sub-Saharan Africa for slaves before 1500. The consortium discovered as a source two African kingdoms; the Yoruba state of Ife and the kingdom of Benin, both located in modern day Nigeria noting that they used and would readily accept a form of copper penannular currency that matched their existing medium of exchange. Copper was the traditional "red gold" of Africa it was found in West Africa in small quantities from ancient times and therefore had a local much prized and readily understood value.



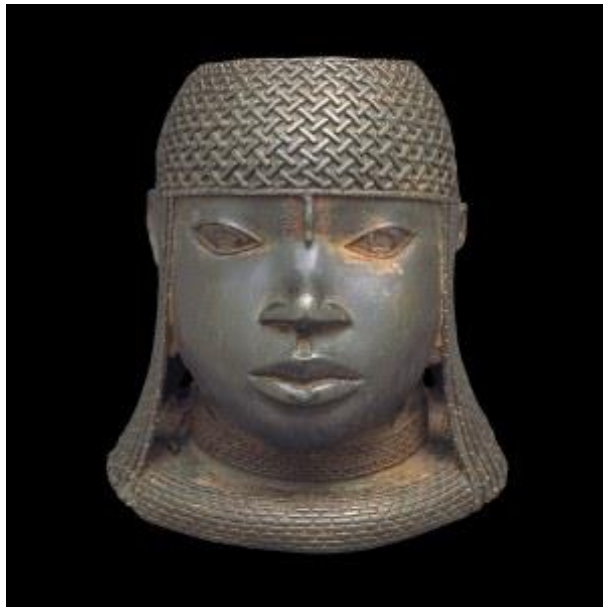
**Sub-Saharan West Africa, 1200-1700. (Sayre, 2013)**

It is believed that sometime around the 8<sup>th</sup> century the Ife people developed a culture on the bank of the Niger River in West Africa centred around highly naturalistic, sculptural, commemorative portraits of previous rulers in clay and stone and not long after, elegant copper based sculptures. The *Ife Head of a King* showcases some of these characteristics confirming the existence of a highly formed metal working tradition.



***Head of an Oni or King. Ife culture, Nigeria, ca. 13<sup>th</sup> century (Sayre, 2013)***

A separate culture the Benin thrived some 150 miles south of the Ife they also created metallic busts similar copper based construction.



**Head of an Oba, Nigeria; Edo, Court of Benin. ca. 1550. (Sayre, 2013)**

Their use of lost wax casting begs the question how and when they obtained this sophisticated technology the answer surely lies with the ancient and continuing trade in slaves with the then high technology countries to the North across the Sahara to the Mediterranean which leads us in the Bronze Age to the Phoenicians

#### **The Portuguese Slave Trade from 1500 and Bracelet money**



**A Benin Bronze (In fact probably cast copper). From his hair and lips this is a non-European slave trader holding a penannular currency bracelet and a wearing a torc similar to the torc and bracelets in the Milton Keynes Hoard. This panel I suggest predates the arrival of the Portuguese.**



**A later Benin Bronze of a Portuguese slave trader circa 1500 surrounded by manillas.**

Three thousand years ago the internal economy of Nigeria was constrained by the absence of coinage resulting in the simple barter of one commodity for another. The most important items bartered were the self-transportable high value local commodities of humans and cattle. The arrival of an outsider wishing to buy and importantly remove one or both of these commodities by purchase from this closed loop economy required the establishment of an item of exchange acceptable to both parties.

In the case of West Africa this took the form of the penannular bracelet which could be worn to prevent loss or theft as an outward symbol of wealth in soft malleable and to them rare and desirable copper. Without the technology of a hinge it had to be opened or closed when fitted or removed from a limb, this I suggest is the function and purpose of the penannular trumpets that give the bracelets their name the and the two thinner points incorporated in the design in that they facilitate an easier and more even bend on application of a bracelet to a limb.

The functionality of the design suggests the use of the human body as a portable safe or bank. To attach the bracelet the trumpets could be beaten together but this would hurt the soon to be rich and important wearer. More probably they were pulled apart sideways to provide an angled opening into which the hand or foot could be slid the trumpets were then pulled back in the opposite direction to close the loop. The trumpets being used to hold the pulling wire or fibre from slipping off the end of the bracelet during attachment. Gold was too valuable to be equated against the purchase of individual humans but ideal for purposes of exchange when acquiring an expensive metal such as tin however in this case the trumpets could be turned out or added by solder to give an exact weight for purposes of an exchange for a specific weight or more likely volume of tin.

Malleable soft copper manillas from the 16<sup>th</sup> century onwards were created by Europeans of varying sizes for slaves of different value: male, female, children, old or young. They were found to be immediately acceptable for purpose of exchange and continued so for another 500 years. This suggests that the penannular Phoenician form survived without change for 2,500 years, adjusted and worn as a indicator of wealth and position on either the hand or the foot by the ancient people of the Niger delta until the arrival of the Portuguese.

I am not sure that the weight played a part in penannular copper slave bracelets size was the principal factor which was judged visually or possibly in a Eureka moment by volume against a particular type of human transaction, a choice of size provided the power to strike a bargain.

I suggest that copper in penannular form was traded across the Sahara or by sea around the coast to Nigeria by Phoenicians from about 1200BC in the form now known as a Manilla in various sizes and weights as the accepted currency for the purchase of different value of slave. The early Portuguese explorers of the 1470s observed the Manilla being used as an acceptable currency all along the west African coast all party's having forgotten its Phoenician origin, for 2500 years. The Portuguese crown virtually immediately contracted with the Fugger and the Schetz banking families from Antwerp to produce these acceptable trumpet shaped penannular bracelets in copper to which the Portuguese gave the name "manilla," after the Latin manus (hand) or from monilia, plural of monile (necklace).

The principal slaving port in the 16<sup>th</sup> century was Calabar as named by the Spanish interestingly it has another name other name - Canaan the country in the Levant of the Phoenicians as noted in the bible.



**Portuguese Manillas (Tacois). Late Schetz Type(?), ca. 1524 with slightly flared ends, average 306gms, 103 x 87mm size, and gauge increasing from 12mm at center to 22mm at ends, giving a "flare ratio" of 1.86. Found in ship wrecks, and best studied from a 1524 wreck in Guetaria Bay, Spain.**

The following information has been obtained from Scott Semans internet site *World Coins*.

Records of a contract between the Portuguese government and Erasmus Schetz of Antwerp, who supplied the Portuguese factory at Mina with as many as 150,000 manillas per year, are widely quoted. The standard in 1529 was supposedly about 240m long, about 13m gauge, weighing 600 gram. However, no examples of torque-shaped bracelets in this weight range are known today, and a wreck dated to 1524 carried manillas of typical form but only slightly flared, averaging 306 grams. Do these heavy Schetz manillas even exist today, and if so, what do they look like? Duchateau, *Royal Art of Benin*, page 15 shows a plaque with a European holding two pieces with barely flared ends whose apparent size could match these specifications, while page 60 illustrates five pieces of conventional form, but without scale. Then, too, the Dutch participated in the trade. Did they get their manillas from nearby Antwerp as well, or did they use something different still?

Manillas from the 1524 wreck recently recovered from the Guetaria Bay off the Basque coast of Spain are described in detail in *Der Primitivgeldsammler* #26/1 p.9-12 (Manuel Artica). These brass manillas average 306gms, 103 x 87mm size, and gauge increasing from 12mm at center to 22mm at ends, giving a "flare ratio" of 1.86. The shape is thus more similar to the familiar French Popo manilla than the British, but even less pronounced in the flare. There was a falling out between the Portuguese and their supplier Schetz, with 1547 given as the date they switched their contracts to Cristoff Fugger. If correct, the Guetaria Bay finds would thus be Schetz products.

The new Fugger pieces were called tacoais with different standards, of 284gm (Mina) and 241 gm (Guinea), for the different trading areas.



#### **Brass British Manillas of different values made in Birmingham circa 1840**

Four types of manillas lighter than the Guetaria Bay specimens are known. Their average weights match the Fuggers' Guinea specifications with two specimens (281, 294 grams) in the Mina range. Possibly earliest is the least flared, #937 with a modest 1.96 flare ratio and average weight of 241gm. Opitz p.213 upper left is likely this type. Other types with visibly greater end flares (#939-941) range from 226 to 294 grams, though to date few specimens have been studied. The earliest British manillas have flare ratios approaching 3.0. The Portuguese called the Fugger manillas tacois. An African name for the more flared Guinea pieces, at least, is Mkporo. As the manilla shrank in size over the centuries, the Mkporo were promoted from everyday trade use to burial money and a standard of wealth.

Although Gold was the primary and abiding merchandise sought by the Portuguese, by the early 16th century they were participating in the slave trade for bearers to carry manillas to Africa's interior, and gradually Manillas became the principal money of this trade. By the end of the 1500s the Portuguese had been shouldered aside by the British, French, and Dutch, all of whom had labor-intensive plantations in the West Indies, and later by the Americans whose southern states were tied to a cotton economy. A typical voyage took manillas and utilitarian brass objects such as pans and basins to West Africa, then slaves to America, and cotton back to the mills of Europe.

Early in the 18th century Bristol, and then Birmingham, became the most significant European brass manufacturing cities. It is likely that most types of brass manillas were made there, including the "middle period" Nkobnkob-Onoudu whose weight apparently decreased over time, and the still lighter "late period" types such as Okpoho and those salvaged from the Duoro wreck of 1843. Among the late period types, specimen weights overlap type distinctions suggesting contemporary manufacture rather than a progression of types. The Popos, whose weight distribution places them at the transition point between Nkobnkob and Onoudu, were also made in Nantes, France, and possibly Birmingham as well. They are wider than the Birmingham types and have a gradual, rather than sudden, flare to the ends.

The Africans of each region had names for each variety of manilla, probably varying locally. They valued them differently, and were notoriously particular about the types they would accept. The price of a slave, expressed in manillas, varied considerably according to time, place, and the specific type of manilla offered. Internally, manillas were the first true general-purpose currency known in west Africa, being used for ordinary market purchases, bride price, payment of fines, compensation of diviners, and for the needs of the next world, as burial money. Cowrie shells, imported from Melanesia and valued at a small fraction of a manilla, were used for small purchases. In regions outside coastal west Africa and the Niger river a variety of other currencies, such as bracelets of more complex native design, iron units often derived from tools, copper rods, themselves often bent into bracelets, and the well-known Handa (Katanga cross) all served as special-purpose monies.



*African made trade manilla's shown closed and open*

As the slave trade wound down in the 19th century so did manilla production, which was already becoming unprofitable. By the 1890s their use in the export economy centered around the palm-oil trade. Although manillas were legal tender, they floated against British and French West African currencies and the palm-oil trading companies manipulated their value to advantage during the market season. Probably for this reason the British undertook a major recall dubbed "operation manilla" in 1948 to replace them with British West African currency at a rate of 3 Pence for the commonest type. The campaign was largely successful and over 32 million pieces were bought up and resold as scrap. The manilla, a lingering reminder of the slave trade, ceased to be legal tender in British West Africa on April 1, 1949.

In a subsequent article Scott Semans in his internet *World Coins* forum on *Bracelet Money* asks many questions posed by the above. Using Eugenia W. Herbert's *Red Gold of Africa* (U. Wisc. Press, 1984) and his experience as a leading coin dealer and authority in this field he writes:

*Herbert goes far beyond any of the usual numismatic writers in illuminating the manufacture, trade, and uses of Africa's primary pre-coinage monies, which were copper in the form of "ingots" (crosses) from Central Africa, drawn copper wire, and bracelets from centers in both Central and Western Africa, plus European imports. Her thesis is that while European gold lust led to the transformation of Africa's economy, gold was considered by the Africans as a metal of*



adornment and export, while "red gold" was always the primary metal of exchange and standard of value. Page references that follow are to Herbert.

Herbert's extensive research is more theoretical than object-oriented, and thus leaves largely unanswered the questions most important to a collector of these objects: the attribution of particular pieces by tribe, location, and time period, their range of variability in form and decoration, their special or general uses locally in trade or otherwise, and their wider diffusion in trade. More useful in this regard are three works on African art: André Blandin's *Afrique de l'ouest: Bronzes et autres alliages* (1988), and *Fer Noir d'Afrique de l'ouest* (1992), and Angela Fisher's *Africa Adorned* (1988), respectively abbreviated BA, BF, and F below. Another valuable source of attributions are the illustrated price lists of Paul Dillingham, (D) who missionaried in Africa in the 1960's with several later visits, and sold odd & curious monies from about 1968 to 1985. Seattle's art museum is home to the renowned Katherine White collection, formed ca. 1959 -79, whose attributed bracelets are referenced herein as SAM plus accession number.

A major problem today with attributions is that almost nobody from early Portuguese traders to 20th century academics has bothered to give careful descriptions of these objects, much less a sketch or photo. Museum curators would get a find spot for donated objects, though the donor could seldom be expected to know whether it was made there or simply found in use. Quiggin herself was an anthropologist and far more object-oriented than most, yet almost no specific pieces are attributable by her book. Herbert quotes no anthropologists, but has reviewed the archaeological literature up to 1984. Relatively little has been done in sub-Saharan Africa, and most known sites are unexcavated. Even when archaeologists do find "manillas", they are likely to give no description or sketch. Herbert notes that African bracelets are "consigned by the hundreds to oblivion in museum storage drawers" (p210) because they do not conform to Western ideas of fine jewelry - and, most likely, because their currency function is not generally appreciated. Johansson's *Nigerian Currencies*, (1967) & *Nigerian Primitive Currency Values "Supplement"* (1968) and Eyo's *Nigeria and the Evolution of Money* (1979) go into greater depth, but addresses only a limited number of types. Finally, some good work has been published in the *EUCOPRIMO* journal *Der Primitivgeldsammler* (PS) by Denk, Klussmeier, DeBoer, Koschatzky, and others, mainly on Central African types. Blandin's *Bronzes* is the one real bright spot in this otherwise obscure picture. An advanced collector, armed with photos of his own and museums' pieces and archival pictures of bracelets in use, Msr. Blandin has scoured museum catalogs and art literature and trekked through former French West Africa seeking both objects to purchase and informants. A supplement in his second book which deals with iron objects presents feedback from noted scholar Timothy Gerrard and others. My only lament is that the numerous types of Nigeria and Cameroun were not within the scope of his study.

Nomenclature is a major source of obscurity in most works. African money bracelets are variously referred to as manillas, bracelets, rings, bangles, etc. I have used "manilla" to refer only to European-made bracelets which I believe to be the medium to small sized brass pieces with crescent-shape, flared ends and uniform overall appearance. The rest I have called bracelets, without meaning to imply that they were wearable or worn on the arm. Some pieces were clearly intended to be worn as anklets, arm-bands, rings, nose-rings, or not worn at all. In preserving Herbert or another author's usage I have offset the word in quotes when used in another sense.

### **EARLY BRACELET MONEY**

So much for what is not known. At least one probable myth can be dispelled. Numismatic authors either state or imply that the use of bracelets as money in Africa began with European contact. This is almost certainly false. The basic qualities of money use are exchange, storage of wealth, and standard of value. Primitive money collectors, if not economists, are inclined to

*accept any one or of these as sufficient. As to standard of value prior to European sea contact, we have almost no information.*

*That bracelets served for both storage and display of wealth before European sea contact is quite clear. Early explorer and trader accounts almost always mentioned bracelets or bangles worn by the Africans. The observation made by Vasco DaGama, anchored in what was probably the Limpopo River in 1498 is typical: "In this land there seemed to us to be great quantities of copper which they wear on the legs, arms and twisted into their hair." (p109). Later anthropological investigations have established that the wearing of bracelets (rings, armbands, anklets, etc.) is generally a form of wealth display, particularly when the weight or size impedes movement. The distinction between monetary objects and ornament is a purely Western one.*

*That copper bracelets served early on as a medium of exchange is fairly clear from both archaeological finds and Arab traveler accounts. Although raw copper is rare in sub-Saharan West Africa, it was smelted as early as 2000 BC in Takkeda, Azelick and other sites in what is now upper Niger. Additionally, both Venice and Genoa conducted a thriving copper and brass export through Muslim intermediaries into sub-Saharan Africa from the 12th-16th centuries; bars, rods, and wire were traded. The Arab traveler Al Bakri noted that rings of copper functioned as currency at Silla in Takrur in 1068 AD. (p113). In 1354 the well-known traveler Ibn Battuta found copper being mined at Azelick, and cast into bars for trade with the south. In nearby Takkeda red copper rods or wire "...buy meat and firewood with the fine rods; they buy male and female slaves, millet, ghee, and wheat with the thick." (p195) Many bracelets found even today are nothing more than lengths of such rod bent to a crescent shape.*

*When objects of no obvious utilitarian value are found in graves, they are presumed to be adornment or money for use in the afterlife. When they are found stacked around the corpse rather than in likely wearing locations such as fingers, arms, etc. the presumption is for a monetary use. Archaeologists have found bronze discs and bracelets at Daima (pre-1000 AD), and in mounds in lower Senegal and the Saloum valley. Bracelets have "been unearthed at scattered sites such as Wassu (Gambia), Dallol Bossu (Niger), Dawu in northern Ghana, Imperi in Sierra Leone, Songon-Dagbe and Bokabo in Ivory Coast . . . the Kainji Reservoir area of the Lower Niger. Many of these finds may well be pre-1500 but they are just beginning to be dated. At Benin . . . the only copper objects that almost certainly antedate the arrival of the Portuguese are five heavy pennanular objects, fifty six bracelets and three finger rings...dated to about the thirteenth to fourteenth century AD. All were probably made by smithing rather than casting." (p.120). "It seems reasonable to suspect that peoples on the Gold Coast and at Benin, and perhaps those farther east as well, were eager to accept rings as both a money of account and an actual currency, in the early decades of European trade, precisely because their contacts with the north had already made rings thoroughly familiar." (p201)*

*The best documented archaeological find of bracelets seems to be those excavated at Igbo-Ukwu in eastern Nigeria. Typically, they are not illustrated in his reports, but Johansson (Fig.2) photographed five pieces which are typically crescent with flared ends, though somewhat thicker-gauge and twisted out of true. They were first announced as dating to the 9th century but later more reliably to the 15th or later. Denk concludes that they are lost-wax cast and of African origin. In any case, their dating does not permit conclusions as to whether this true manilla shape is European or African in origin.*

*In central Africa (Angola, Congo, Zimbabwe) copper was more plentiful than in west Africa. The rich mines of the Congo and Angola were being worked when the Portuguese arrived, looking for gold, and had probably been worked for centuries. Carbon-14 dating establishes mining near Katanga in the 4th century AD and associates Katangan mines in the 9-12th centuries with "an H-shaped copper ingot." "Further testimony to the importance of copper in intra-African trade and to the irrelevance of gold where there was no stimulus of foreign demand is offered by the case of Sanga and other sites of the Upemba rift in southeastern*

Zaire....Copper first appears toward the eighth century in the form of heavy bracelets or anklets and cylindrical beads...about the tenth century...it becomes so abundant as to be the defining characteristic...to about the fourteenth or fifteenth century." (p.111) Herbert distinguishes the central African "H" cross from the more familiar "X" or Katanga cross and speculates that pieces over about 2 kilos were mainly a raw material and a prestige currency. "If they were to have functioned as general purpose currency it could only have been through conversion into smaller units, most especially into the copper bangles found so abundantly not only at Ingombe Ilede (ca.1400 AD) but throughout Later Iron Age sites on the plateau....it was... standard practice in the nineteenth century to transform the bars and crosses from Katanga as well as the coils of brass wire from the coast into bracelets, to provide an all-purpose currency." (p187) Though even early European accounts of African customs may reflect European influence, there is evidence that the Portuguese, with their superior ships, took over a pre-existing trade in bracelets from the Congo to West Africa. In 1607 a Dutch trader described these Congo (Kingdom of Loango) bracelets of "beautiful red copper, weighing anywhere from 1.5 to 14 pounds" (p141).

### **BRACELET MAKING IN AFRICA**

There were two principal methods of manufacturing bracelet money which tend to differentiate the Central and the Western African products. The simpler but more laborious process of drawing wire was used in Central Africa. The earliest copper trade was in rough H-shaped ingots "about 15cm long," different from the more familiar Katanga cross. Many have been excavated at Great Zimbabwe (14th cent. AD) and Sanga (14-18th C.). To make a bracelet, an ingot (cross) would be beaten into a tubular shape. This involved alternating stages of pounding and heating, (annealing), necessary to keep the metal from becoming brittle. Pincers would then be used to pull the beaten rod through successively smaller holes in an iron drawplate until the desired thickness was achieved. A traveler in 1866 noted that the major use of drawn wire was the manufacture of bracelets. Such drawing plates have been dated to 1400 AD. "Given that fine wire drawing requires skill, it is not surprising that it tended to be the specialty of craftsmen within particular groups such as the Kamba, Chagga, and Kikuyu of Kenya; the Longo southwest of Lake Victoria; the Hutu smiths of Burundi; the Bemba north of the Chambezi River; the Nyamwezi and Yeke of Tanzania and Katanga; the Lemba of Zimbabwe and the Transvaal; and the Zulu of Natal. (p80).

Casting was probably the primary method used in West Africa through the Sudan. The earliest method was called open mould, or sand casting "The Kavati of Mayombe...cast copper bracelets in a mould made of damp sand which had been formed to the proper shape by means of a wooden model of the object to be cast."(p.83)

Cierge perdue (lost wax) casting was a later development, though probably predating Western contact. Herbert discusses the problems of dating the well-known larger cast brasses of Ife and Benin but notes that the method was limited to West Africa. "It extends across the Sudan from the Senegambia to Lake Chad and northern Cameroon and southward into the forest zone. It embraces..Mossi, Asante, Ife, Benin, Nupe, the kingdoms of the Niger Benue confluence, and the Bamenda grasslands...the Dan and Kpelle of Liberia, the Biafadas of Guinë-Bissau, the Senufo, Bambara, Baulë, Bobo, Libi, Ibo, Tiv and Hausa." (p.88) As evidence of pre-European lost wax casting Herbert notes that many designs seem to be Persian or Coptic.

Both drawn and cast bracelets were very often augmented by hand-chased or punched designs. Sometimes chasing was used to enhance a cast design. A tantalizing insight into such design elements is given by Herbert: "In the Lower Congo the 'anneau de chef' was distinguished from the bracelets worn by women by its masculine decorative motifs: rectangles with two diagonals and two medians, lozenges, small triangles, crosshatchings, and striations." (p266) I have not located any work that explains the significance of the designs found on bracelet money and other metal objects, or attributes them by tribal groups or place. Some art books say they are purely ornamental.

## THE MANILLA TRADE

The first Portuguese traders to venture down the west coast in the 1470's took the same goods already used in the Italian trans-Saharan trade: textiles, beads, and copper in the form of manillas, brass basins, kettles, pots, and rods, though after 1520 the manillas and basins became the standard copper trade goods from Gambia to the Gold Coast. Gold, ivory, and slaves were the main return cargoes. Quiggin, Johanssen and others note the huge tonnage of manillas listed in accounts by the Portuguese factors at their main trading sites during the period 1480-1550; Herbert estimates about 45 tons per year. By the 17th century the trade had passed largely to the Dutch. By this time a wide diversity of goods was demanded by the Africans and it was difficult for merchants to keep current on what was wanted in each trading center at a given time. Even among manillas, the demand was very particularized by shape and "ring." The traders' perplexity over the Africans' seeming arbitrariness on this matter reflects their ignorance of a developed exchange system in which they were just one of many participants. A series of technological improvements in the British brass industry in the 1690s gradually gave them the edge in the Africa brass trade during the next century. The term "Birmingham manilla" is applied to a number of crescent-shaped brass pieces with flared ends weighing under 300 grams (Johansson p.13-14), but most usually to an even smaller piece under 90 grams, though we have no hard evidence of British origin for all of these types.

The earliest manillas and basins were made for the Portuguese in Flanders, near where the copper was mined. One merchant, Erasmus Schetz, controlled copper extraction in Westphalia and calamine deposits (source of zinc) in Belgium. He also produced finished copper and brassware. "Schetz's brass manillas were considered the most beautiful in the world and served as the standard of perfection against which all others were measured." (p131) But the Portuguese crown went price-shopping. A 1548 royal contract with the Fugger agent in Antwerp specified that the manillas be of brass, not copper, and "well laureated and filed and of the metals suited to the said trade of Mina and Guinea, of such size and sorts and perfection as has always been the custom for the said trades and which correspond to the accustomed weight which is: the manillas of Mina, 160 in each 100 arrates (the Portuguese pound) just about, and with smooth and well-filed heads, which are called tacoais; and those of Guinea of 190 or 200 manillas in each 100 arrates...." (p128).

Traders' accounts are full of references to a certain number of manillas of this type or that buying a specified commodity at a given time - all useless now as we have no way of knowing what sort of manilla was meant. Ships' manifests and other records of the day usually refer simply to brass or copper without specifying its form, or they may enumerate either the number or total weight of "manillas," but never both. We know from the above account that the manillas traded by the Portuguese in the 16th century were heavier than those of the English in the 19th, and that manillas of different weights were made contemporaneously for trade into different ports.

Shown in Benin, *Royal Art of Africa*, by Armand Duchateau, on p.36 is a massive manilla of 25cm across and 4.5cm gauge, crudely cast with scoop-faceted sides, and well worn. Presently in the Museum für Volkerkunde in Vienna it could be the heaviest (no weight given) and earliest manilla known. However, p.15 shows a plaque with a European holding two pieces of very different form, crescent-shaped without flared ends, though apparently heavy if the proportions are correct, and p.60 shows another plaque representing five pieces of classic form. Another candidate for early manilla is this copper piece which weighs about 483gm and measures 94x80mm, 16mm gauge. In effect, we have no clear idea of what early Manillas looked like, though we have some clues as to their weight. The Portuguese manillas for trade into Elmina in 1529 weighed about .6 kilo (21.2oz), while the 1548 contracted pieces of 160 or 190/100 arates noted above would have been about .28 and .25 kilos (10 & 8.5 oz) respectively. I have two examples resembling Johansson's Mkpuro manilla which weigh .274 and .276k. Manillas carried on a 1645 Dutch expedition are said to have weighed 1.5 modern Dutch ounces, or

about .15k (5.3 oz.). Zay (1892) in writing of French Colonial monies, also noted a "Birmingham" manilla of .14-.15k used in the Ivory Coast and called "Igbí."

Regarding English manillas, Herbert quotes an earlier author on the secrecy practiced in that industry. Deliberate secrecy or simple unconcern, the net effect is that we have little to go on today. If Quiggin's fig.26 #3 & 4 do represent pieces exported from Birmingham in 1836 as implied, they appear to be one of the smaller types depicted in Johansson's chart. On p13-14 he illustrates and names 9 types of crescent manillas, presumably the fruits of his own research, as the names do not correspond to those he notes from other sources.

An 1865 article on Birmingham brass manufacturing describes two types of "brass ring" made for the Gold Coast, one 7/16" thick with a diameter of 3-1/4" which is also a fair description of the "Popo" if the ring is open-ended. Another was "of tubular bars, varying in size from 1-3/4 to 3-1/2 or 4 inches in internal diameter. Each weighed 2-1/2 to 4 ounces. These last were not soldered at the joint, so that they could easily be opened and fitted to the arm or leg of the wearer....None of these does he qualify as 'manillas,' which he discusses separately as 'a species of money...at one time produced in Birmingham by casting'....not brass but copper-lead hardened with arsenic." (p202) I have never seen a jointed or hinged bracelet as light as this, but nonetheless the description provides the only evidence for European-made bracelets in other than the familiar crescent shape. A 1949 article on the withdrawal of manillas in Nigeria describes the object as "an open bracelet in the form of a horseshoe with lozenge-shaped ends, measuring about 2-1/4 inches across and weighing about 3 ounces." (p201). This is clearly what collectors call the "Birmingham manilla," (not shown in Johansson) the smallest, and probably latest, of the mass-produced manillas, said to have been worth prior to withdrawal 3 English pence or 20-25 French centimes. It was easily available on the numismatic market until the 1970s.

My own conclusion from all of this is that European-made money bracelets (manillas) are limited to crescent-shaped pieces such as Johansson illustrates in his foldout chart, and their larger predecessors of similar shape, such as the Volkerkunde specimen. Bracelets of much fancier design may have been made for export as simple jewelry. It could be argued that the much heavier, broad, unornamented "King/Queen" pieces such as Johansson's Supplement cover, as well as the etched pieces on his Nigerian Currencies cover, Eyo p61, Opitz (2nd ed.) "King" and "Queen," and even Quiggin's fig.27 are earlier pieces of the Portuguese or Dutch period. Denk concludes that the King and Queen types are African-made because of the crude workmanship and the designs. It would, however, be simple to add etched designs to plain pieces supplied by the Europeans. Both the religious fanaticism of the Europeans and their commercial need to produce a fully acceptable product argue strongly against manillas with designs. Seventeenth century Benin brass plaques often depict Europeans with manillas of usual shape, though not necessarily to scale. (See cover PS 1986/2).

As a sidelight, it seems that not all the European-made bracelets were made in Europe. Herbert mentions that in the 1680s English traders had set up at Delagoa Bay on the Limpopo River and were manufacturing "copper bracelets" to trade inland!

### **THE USES OF BACELET MONEY**

By the 19th century, bracelets "were used to purchase food and palm wine, to compensate diviners, to satisfy court claims, to contract for a wife, and to be buried with." (p205) Herbert, Johansson, and others give numerous examples, repeating earlier sources' use of generalized terms such as manilla and bracelet. Since the form, weight, and composition of bracelet money clearly mattered to the participants in any transaction, we are left with almost no useful information on bracelets as an exchange medium, though the sheer volume of these now-opaque accounts verifies their widespread use.

By the end of the 19th century bracelets and manillas were giving way to western monies. The 1948-49 withdrawal was an attempt to end speculation by palm oil traders that was disrupting

*the economy. The Nigerian authorities bought up three types or classes of manilla, though the account in Johansson leaves many important points unclear. It is uncertain how much of the bracelet supply was affected by this withdrawal. In any case, this policy had to be modified to allow each person to retain 200 pieces for ritual use, specifically burial and brideprice. Johansson and others give examples of bracelet used as brideprice, and no doubt this use persists today in places.*

*Another long-lived monetary function of bracelets was their use for wealth-storage and display. Early accounts of bracelet wearing such as that of Vasco DaGama cited previously are commonplace. Europeans were often amazed at the incredible weight of metal carried on arms, legs, etc.. The famous Livingstone even noted a tribe where "those whose status did not entitle them to load their legs with rings imitated the walk of those who did." (p243). "Time and time again we have noted that much of the evidence of the use of copper in the more distant past comes from burials....As long as copper signified wealth, its very presence testified to the affluence of the deceased. "the quantities of copper rods, manillas, and basins inhumed with rich Kalabari and Ijo traders, and the same was true of important Tio men of affairs. The vast cemeteries of the Upemba Depression are replete with croisettes; throughout the Zimbabwe Plateau and Zambia, copper bangles are standard grave goods." (p271)*

*Of course, bracelets had non-monetary uses as well. Herbert's section on "Copper and Political Power" (p244) gives numerous examples of particular monies, including bracelets, being paid as tribute. The best-known examples of ritual or ceremonial use are the large "manillas" such as the King/Queen, which were part of the "seclusion" or dying-rite ceremonies of a royal person, and may have been tabu for ordinary exchange. The section "Copper and Ritual Power" (p254) catalogs amuletic and curative uses for bracelets, and other sections detail their use as a badge of office, a mark of status or availability for marriage. One striking example involving symbolic use of brass as a mark of high status is "the Ekpe of Old Calabar and the Cross River. In the mid-nineteenth century...had eleven grades, the next to the highest being the 'brass' or okpoko (that is, manilla). At this stage, the initiate's body was daubed all over with a yellow dye to simulate brass. Brass ekpe was responsible for law enforcement, an especially important function in an area where so many different peoples were drawn together by commerce. The 'sacred yellow band' of ekpe was attached to property sealed by the society...." (p254). Fisher and Blandin show a class of amuletic bracelets with animal figures being used by diviners in the Ivory Coast.*

*Bracelet money was rarely the only currency in use, being supplemented by cowries, cloth, beads, ingots and shapes of iron and other metals, even coins and bills. Travelers, traders, and early anthropologists are more impressed by the unusual than the commonplace, and Quiggin's object-oriented cataloguing of money forms belies the widespread importance of Africa's main money objects: crosses, rods, and bracelets, with cowries providing a subsidiary currency in many places.*

*Herbert emphasizes that African societies valued copper and brass particularly for their color, as well as their more obvious qualities as metals. "Virtually all descriptions agree that copper and brass were kept highly polished, even that used by ordinary mortals, whether Quota reliquaries, and Ibo bracelets, Ogoni edan, or Benin Bronzes." (p280) The pieces I have handled are often found polished or partly retined, some types more than others, providing a clue (along with wearability itself) as to which were used in wealth display.*

*As with so many other pre-Western currencies, we are far from having the full story on African bracelet money, even though it is quite varied, widespread, and in some cases, European-made. In this sense it is much like trade beads, studied more as art than as economic objects.*

With the advent of the Bronze Age new formats were required to assess, value, buy and sell precious metals for high value projects. With the advance in metallurgy and the use of controlled alloys some form of scales and weights must have been required for this was a turning point in the history of humans creating a need and hence the desire to control commodities like copper, tin, silver and gold.

A fundamental problem relates to the question of how to compare value for individual commodities. One hypothesis is that value is created through exchange.

In a society where a common measure of value which we would call money was absent, an exchange can only be achieved by barter. There was always some common measure of value in early societies where shells or furs assumed such functions.

**Metals required considerable change Metals required** Their low volume and portability, their storability and preservability with no maintenance costs made them excellent candidates for providing a comparative measure of value. It was a revolutionary step in human development, to attempt to assess the weight ratios and rarity of metals to each other.

This is especially apparent for regions like Western France or Southern England where we have attestations of scale beams, but so far (nearly) none of weights.

Coils and rings of silver are known from several hoards of the third and second millennium BC in Syro-Mesopotamia. Some are finished objects, others are scraps. In many cases the scrap silver, fragments of ingots or lumps are only briefly mentioned in published reports. They are assumed to have been used as a pre-coinage currency building mainly on textual references and very limited data from the objects.

Hence these hoards are literally treasures of information enabling us to both expand and nuance our understanding of the Near Eastern and Eastern Mediterranean economy in regard to pre-coinage currencies and the origin of money.

As in the Near East, coils made of gold and silver are known from various graves and hoards in the Early Bronze Age. These are called neckpieces, torques, or needles. However, they are often irregularly twisted, which makes their current interpretation as adornment rather unrealistic. Preliminary data indicate that they could correspond to multiples of a certain mass-unit, but more data is needed.

It is evident that Phoenicians as traders purchased tin as a commodity unlike the Romans who invaded Britain in part to control this most important source of a particularly rare metal.

What would Cornish tin miners take in exchange for their precious tin the answer can only be gold. The technology for creating bronze the invention of the Phoenicians that created the demand for tin would have been passed on at this time into Celtic Britain.

The Irish may have been the principal British metal smiths at this time working in smelted gold for the Cornish tin miners and hence used by them to execute the new bronze technology smelting copper and tin to create bronze weapons for the Phoenicians they themselves having a small gold smelting and casting industry contained within the island.

To make the gold workable it was in turn smelted with silver

During the transition from the Copper to the Bronze Age the use of weights and measures emerged; this use developed significantly and precise value regimes were established. How did this affect the conduct of trade, its integration and the dynamics of local economies? What social consequences did this bring about?

So far, finds of potential weights are generally not identified, or are either ignored or insufficiently published. Often the material seems to be regarded as too difficult to extract data from. Therefore, weights and measures do not yet play any significant role in major syntheses on various cultures and regions of the Bronze Age World. Their potential use for a direct evaluation of Bronze Age economics is most often missed.

In the 18th century, historians discovered a language connection between Phoenicia and the Irish -Celts. In the 18th century. A sample is given by Thomas Moore in his, *History of Ireland*, showing the connection between these languages.

In 1772, General Charles Vallancey, published his famous work, *Essay On The Antiquity Of The Irish Language, Being A Collation Of The Irish With The Phoenician Punic Language*. In his opening remarks he states, "On a collation of the Irish with the Celtic, Punic, and Phoenician languages, the strongest affinity, (nay a perfect Identity in very many Words) will appear; it may therefore be deemed a Punic-Celtic compound." Vallancey continues, "from the Canaanite proceeded the Phoenician, from the Phoenician, Carthaginian, or Punic was derived the Aeolian, Dorian and Etruscan, and from these was formed the Latin... Of the Roman Saxon capital letters, the Irish use but three, all the others bear a very great resemblance to the primitive Canaanite and Phoenician." (p. 2-3) Modern language scholars have confirmed that there is a definite connection between the Celtic and Canaanite Phoenician." Leading 18th and 19th century scholars, Lord Rosse, and Sir William Betham, also wrote on this subject.

The division of time into a seven-day week was practiced by the Irish Celts, identical to the Phoenicians from whom the Israelites learned the practice and used it after coming to Canaan. In Egypt, the week was made up of ten days and the Israelites had to follow the ten day week following their Egyptian masters. The Romans had an eight day week.

Since it is true that Canaanite Phoenicians migrated to Europe in large numbers in ancient times, there must be religious and cultural ties, and in fact, such connections abound. Dr. Thomas Moore's, *History of Ireland* (p. 40), relates:

"That most common of all Celtic monuments, the Cromlech... is to be found not only in most parts of Europe, but also in Asia," including eastern Mediterranean Stonehenge, Avebury, and many other early Celtic sites were designed in a circular pattern. There is no record that preserves the order in which the pillars or stelae of the temple of Byblos were organized.

There are many other examples, however, of customs linking the Celtic Druids specifically with Phoenicia. English historian, William Borlase, in his *"Antiquities Of Cornwall,"* (1754) presented many pages of such evidence: Druids worshipped but one God and allowed no graven images, identical to the Phoenicians, and in contradistinction with almost all other ancient religions.

The early name of southwestern England was "Dumnoni," or "Danmoni," as shown by a portion of a map in Celtic scholar, John Rhys' book, *"Early Celtic Britain."* This comprises today the British counties of Cornwall and Devon. Highly respected historian William Camden remarked concerning Cornwall: "That region, which according to the geographers, is the first of all Britain, and... was in ancient times inhabited by those Britons, whom Solinas called, Dunmonii, Ptolomy (called) Damnonii, or (as we find in some other copies), moretruly Danmonii derived from the tin mines of the area. The British call it Moina" (*Britannia*, p. 183). This compound word is therefore composed of "moina," a tin mine, and "DM" or 'DN which stands for money, blood or lord for the people who mined the tin. So this most ancient region of England is properly called "DNMN," meaning, "THE BLOOD OF MONEY = TIN" or the "LORD OF MONEY = TIN."

Celtic scholar, John Rhys, gives strong evidences of Canaanite Phoenician colonization of the British isles in ancient times. " Dr. Rhys discusses a region "just in the vicinity of St. David's or Mynyw, called in the Welsh Chronicle MONI IUDEORUM, which contains an allusion probably to the same people." (*ibid.*, p. 226) Rhys says that some scholars suggest this word, Iudeorum or Judeorum, may relate to the "Jutes," a Germanic tribe in Northern Europe, but that he believes such a view incorrect. Instead, Rhys indicates that it identifies Canaanites Phoenicians, "...lastly we seem to have a trace of the same form in the Welsh Chronicle, sometimes called *Annales Cambriae*, when it calls Menevia or St. David's MoniIudeorum.

there is a simple method which requires no precision equipment: balance the crown against pure gold on a scale in the air, and then submerge both the crown and the gold in water simultaneously. If the volumes are the same, the scale remains in balance, meaning that their



densities are the same and therefore the crown must be pure gold. But if the volume of the crown is greater, increased buoyancy results in imbalance. Greater volume of the crown means its density is less than that of the gold, and therefore the crown could not be pure gold.<sup>[6]</sup>

The British Museum website classifies and illustrates all of their 92 gold, Late Bronze Age, 1100 BC – 750 BC, bracelets.:  
[https://www.britishmuseum.org/research/collection\\_online/search.aspx?searchText=3.8.\\*&bibliography=7772](https://www.britishmuseum.org/research/collection_online/search.aspx?searchText=3.8.*&bibliography=7772)

These 92 objects provide an opportunity for visual assessment and comparison in matters of quality size and weight.

Every example discovered is important in this rarefied field from which no written word, coinage, religion or inhabited buildings survive.

This the largest and most complete collection of these ancient rare objects, they are indicative of the luxury wealth and civilization of Bronze age Britain. The island nation's already had style and through hybrid vigour were to rule the world when after 2500 years the blood of the Celts, Romans, Angles, Saxons, Vikings and Normans had suitably intermingled.

Those that concern us here are of high carat gold of penannular form, defined as having trumpet shaped integral terminals cast as one with solid flat ends. The British Museum divides them up into groups:

*They have been classified on the basis of their body thickness (e.g. thin, solid, hollow or flat); the shape of body section (e.g. rectangular to circular, oval, octagonal, lozenge or D- or C-shaped); the expansion and direction of their terminals (e.g. unexpanded, slightly expanded, expanded, outwardly expanded, inwards coiled or back coiled/reverse); the terminal section shape (sub-squared, sub-rectangular, rectangular, sub-circular, circular, semi-circular, semi-oval, oval, conical, octagonal or spherical) and terminal thickness (from solid to plain, concave or hollow).*

Those that are of interest to us have to be over 100 grams in weight, cast as one in the solid with waisted bodies of oval to circular section, of simple iconic graded shape and hence highly desirable.

WG 10 illustrated below is iconic in its shape but does not qualify as the penannular trumpet terminals are added and open.



penannular bracelet; Late Bronze Age; 900BC-750BC; Pollen Shore. British Museum WG.10

- **Museum number**

OA.10880

- **Description**

Gold penannular bracelet with solid body of rounded cross-section. The expanded terminals are conical shaped and concave.

- **Culture/period**
- Late Bronze Age ?
- **Date**
- 1000BC-750BC (circa)
- **Findspot**
- Found/Acquired: Ireland ?
- (Europe, British Isles, Ireland)
- **Materials**
- gold ?
- **Technique**
- cast ?
- **Dimensions**
- Diameter: 67.75 millimetres
- Thickness: 5.93 millimetres (body centre)
- Thickness: 3.99 millimetres (body end)
- Diameter: 9.74 millimetres (terminal)
- Thickness: 0.82 millimetres (terminal)
- Weight: 51.3 grammes
- **Bibliography**
- Murgia et al 2014 3.8.18.5 ?
- **Location**
- Not on display
- **Acquisition name**
- Purchased from: Harry Osborn Cureton (?) ?
- **Acquisition date**
- 1834 (after)
- **Acquisition notes**
- Acquisition details unconfirmed. It is possible that OA.10880 (formerly AF.14) and OA.10879 (formerly AF.4) are the objects listed in the Donations Register for February 1835, 63-4.
- **Department**
- Britain, Europe and Prehistory
- **Registration number**
- OA.10880
- **Additional IDs**
- AF14 (Incorrectly labelled)



- **Museum number**

WG.15

- **Description**

Gold penannular bracelet with thin body of rounded cross-section. The slightly expanded terminals are circular and plain.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1100BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Gaerwen, Found about 2 feet below the surface. (Gaerwen hoard)
- (Europe, United Kingdom, Wales, Gwynedd, Anglesey, Gaerwen)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 63.1 millimetres
- Thickness: 3.15 millimetres (body centre)
- Thickness: 4.07 millimetres (body end)
- Diameter: 6.39 millimetres (terminal)
- Weight: 27 grammes

- **Curator's comments**

The bracelet is part of a hoard stated to be found in 1852 at Gaerwen.

Seemingly the Gaerwen hoard was acquired shortly after discovery by an itinerant dealer. It is stated that the hoard consisted of 11 'lock-rings' and 11 penannular bracelets. Two 'lock-rings' and two bracelets are in the British Museum (WG 15, 16, 17, 18). The whereabouts of the other pieces is not known.

- **Acquisition name**

- Donated by: John Pierpont Morgan ?
- Previous owner/ex-collection: Rev William Greenwell ?
- **Acquisition date**

1909



- 
- **Museum number**  
1849,0627.1
- **Description**  
Gold penannular bracelet with solid body of rounded cross-section. The bracelet is unevenly curved. The expanded terminals are conical shaped and have slightly concave ends, potentially created using a punch or hammer.
- **Culture/period**
- Late Bronze Age ?
- **Date**
- 1100BC-750BC (circa)
- **Findspot**
- Excavated/Findspot: Beaumaris, Found with 1849 0627 2 in a field near Beaumaris. (Beaumaris hoard)
- (Europe, United Kingdom, Wales, Gwynedd, Anglesey, Beaumaris)
- **Materials**
- gold ?
- **Technique**
- cast ?
- **Dimensions**
- Diameter: 68.39 millimetres
- Thickness: 5.47 millimetres
- Diameter: 9.36 millimetres (terminal)
- Weight: 66.6 grammes
- **Acquisition name**
- Purchased from: S Dew ?
- **Acquisition date**  
1849



- **Museum number**

1937,0505.1

- **Description**

Gold penannular bracelet. The solid body is rounded in cross-section and plain in the inner circumference. The ends are expanded to form plain and circular sectioned terminals.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: West Beach

- (Europe, United Kingdom, England, West Sussex, Selsey, West Beach)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 66.34 millimetres

- Width: 6.09 millimetres (body centre)

- Width: 6.79 millimetres (body end)

- Thickness: 4.45 millimetres (body centre)

- Thickness: 6.52 millimetres (body end)

- Diameter: 12.22 millimetres (terminal)

- Weight: 78.4 grammes

- **Acquisition name**

- From: A C Robinson

- Treasure Trove: HM Treasury ?

- **Acquisition date**

1937



- **Museum number**

1893,1017.1

- **Description**

Gold penannular bracelet. The solid body has a D-shaped cross-section. The ends are slightly expanded to form solid, plain and oval in section terminals.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Wanlass

- (Europe, United Kingdom, England, North Yorkshire, Wanlass)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 75.58 millimetres

- Width: 9.78 millimetres (body centre)

- Width: 10.94 millimetres (body end)

- Thickness: 4.91 millimetres (body centre)

- Thickness: 7.04 millimetres (body end)

- Diameter: 13.88 millimetres (terminal maximum)

- Diameter: 11.05 millimetres (terminal minimum)

- Weight: 124.2 grams

- **Acquisition name**

- Purchased from: George Bohn ?

- **Acquisition date**

1893



- **Museum number**

1824,K/Armillia.19

- **Description**

Gold penannular bracelet. The body is flat and with rounded cross-section. The ends are slightly expanded to form plain, circular in section terminals. The bracelet is unevenly curved.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Beachy Head
- (Europe,United Kingdom,England,East Sussex,Eastbourne,Beachy Head)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 55.49 millimetres
- Width: 4.71 millimetres
- Thickness: 2.45 millimetres
- Diameter: 7.72 millimetres (terminal)
- Weight: 28.1 grammes

- **Acquisition name**

- Bequeathed by: Richard Payne Knight ?

- **Acquisition date**

1824



- **Museum number**

1871,0401.4

- **Description**

Gold penannular bracelet with a rounded cross-section. The terminals are slightly expanded, solid and circular.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Aghinagh  
○ (Europe, Republic of Ireland, County Cork, Aghinagh)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 76.09 millimetres (body)
- Thickness: 5.66 millimetres (body centre)
- Thickness: 5.89 millimetres (body end)
- Diameter: 8.53 millimetres (terminal)
- Weight: 63.4 grammes

- **Acquisition name**

- Purchased from: Sir Thomas Tobin

- **Acquisition date**

1871





- **Museum number**

2002,0701.3

- **Description**

Gold penannular bracelet. The solid body has an oval cross-section. The slightly expanded terminals are circular in section and plain.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1150BC-800BC (circa)

- **Findspot**

- Excavated/Findspot: Monkston Park (Milton Keynes hoard)

- (Europe, United Kingdom, England, Buckinghamshire, Milton Keynes, Monkston Park)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 84.02 millimetres

- Width: 14.64 millimetres (body centre)

- Width: 15.55 millimetres (body end)

- Thickness: 10.82 millimetres (body centre)

- Thickness: 13.3 millimetres (body end)

- Diameter: 19.53 millimetres (terminal)

- Weight: 382.4 grammes

- **Curator's comments**

The bracelet is part of the Milton Keynes hoard and was found in a ceramic vessel.

- **Condition**

The bracelet shows traces of hammer dimples and few stress fractures are discernable.

- **Acquisition name**

- Acquired through the Treasure Act: Department for Culture, Media and Sport ?

- With contribution from: British Museum Friends ?
- With contribution from: National Heritage Memorial Fund ?
- With contribution from: The Art Fund (as NACF) ?
- From: Gordon Heritage (finder) ?
- From: Michael Rutland (finder) ?
- **Acquisition date**

2002

- **Acquisition notes**

Metal detector find, 7th September 2000



- **Museum number**

2002,0701.4

- **Description**

Gold penannular bracelet. The solid body has an oval cross-section. The slightly expanded terminals are circular in section and plain.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1150BC-800BC (circa)

- **Findspot**

- Excavated/Findspot: Monkston Park (Milton Keynes hoard)
- (Europe, United Kingdom, England, Buckinghamshire, Milton Keynes, Monkston Park)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 81.15 millimetres
- Width: 14.14 millimetres (body centre)
- Width: 16.67 millimetres (body end)
- Thickness: 11 millimetres (body centre)

- Thickness: 14.35 millimetres (body end)
- Diameter: 20.22 millimetres (terminal)
- Weight: 407.9 grams

- **Curator's comments**

The bracelet is part of the Milton Keynes hoard and was found in a ceramic vessel.

- **Condition**

The bracelet shows traces of hammer dimples and few stress fractures are discernable.

- **Acquisition name**

- Acquired through the Treasure Act: Department for Culture, Media and Sport ?
- With contribution from: British Museum Friends ?
- With contribution from: National Heritage Memorial Fund ?
- With contribution from: The Art Fund (as NACF) ?
- From: Gordon Heritage (finder) ?
- From: Michael Rutland (finder) ?

- **Acquisition date**

2002

- **Acquisition notes**

Metal detector find, 7th September 2000

- T69 (Treasure number)



- **Museum number**

1965,1010.1

- **Description**

Gold penannular bracelet. The solid body is round in section. The expanded terminals are conical shaped and concave.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Walderslade, The two gold bracelets (1965,1010.1 and 2) were found on a site lying between nos. 34 and 35 Swingate Close, Walderslade, Kent. (Walderslade hoard)
- (Europe,United Kingdom,England,Kent,Chatham,Walderslade)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 81.32 millimetres
- Width: 16.65 millimetres (body centre)
- Width: 8.83 millimetres (body end)
- Thickness: 12.22 millimetres (body centre)
- Thickness: 8.98 millimetres (body end)
- Diameter: 20.93 millimetres (terminal)
- Thickness: 1.14 millimetres (terminal)
- Weight: 260.5 grammes

- **Curator's comments**

The two gold bracelets (1965,1010.1 and 2) were discovered on 29 July 1965 at a depth of 2 ft. during building operations.

- With contribution from: Christy Fund ?
- Treasure Trove: HM Treasury ?

- **Acquisition date**

1965

- **Acquisition notes**

At a inquest held at Chatham on 6 August the bracelets were declared Treasure Trove and, being of great archaeological interest, were acquired for the National Collection with the aid of a grant from the Christy Fund.

- **Department**

Britain, Europe and Prehistory

- **Registration number**

1965,1010.1

- **Additional IDs**

- T24 (Treasure number)



- **Museum number**  
1849,0301.5
- **Description**  
Gold penannular bracelet with a thin rounded body and solid expanded conical shaped terminals.
- **Culture/period**
  - Late Bronze Age ?
- **Date**
  - 1000BC-750BC (circa)
- **Findspot**
  - Excavated/Findspot: Limerick (near)
  - (Europe, Republic of Ireland, Limerick (county), Limerick (city))
- **Materials**
  - gold ?
- **Technique**
  - cast ?
- **Dimensions**
  - Diameter: 55.56 millimetres
  - Thickness: 3.15 millimetres
  - Diameter: 6.61 millimetres (terminal)
  - Weight: 17.6 grammes
  - Purchased from: William Anthony ?
- **Acquisition date**  
1849
- **Acquisition notes**  
Anthony purchased these two gold bracelets from Mr William Perry of Clonmel.
- **Department**  
Britain, Europe and Prehistory
- **Registration number**  
1849,0301.5



- **Museum number**

1849,0301.4

- **Description**

Gold penannular bracelet with rounded thin body of circular section. The expanded terminals are conical shaped and concave.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Limerick (near)
- (Europe, Republic of Ireland, Limerick (county), Limerick (city))

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 54.49 millimetres
- Thickness: 2.64 millimetres (body centre)
- Thickness: 2.49 millimetres (body end)
- Diameter: 54.49 millimetres (terminal)
- Weight: 14.2 grammes

- **Acquisition name**

- Purchased from: William Anthony ?

- **Acquisition date**

1849

- **Department**

Britain, Europe and Prehistory

- **Registration number**

1849,0301.4



- **Museum number**

1840,0928.2

- **Description**

Gold penannular bracelet with rounded body. The expanded terminals are conical shaped and concave.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Gortnalicky (Gortnalicky hoard)
- (Europe,British Isles,Ireland,Republic of Ireland,County Cork,Gortnalicky)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 68.19 millimetres
- Thickness: 5.5 millimetres (body centre)
- Thickness: 5.12 millimetres (body end)
- Diameter: 14.51 millimetres (terminal)
- Weight: 54.8 grammes

- **Curator's comments**

Eogan (1994, 151) lists the findspot as Gortnalicky, County Cork but does not supply supporting evidence for this claim. However, Cahill (2006, 241-244) demonstrates that the bracelets 1840, 0928.1-2 can be identified as the pair from Gortnalicky, Co. Cork, by reference to the drawing in Windele and a Betham drawing. The imperial weights taken at the time and the metric weights taken for this catalogue are also identical.

- **Acquisition name**

- Purchased from: Sir William Betham ?

- **Acquisition date**

1840

- **Department**

Britain, Europe and Prehistory

- **Registration number**

1840,0928.2



- **Museum number**

1840,0928.1

- **Description**

Gold penannular bracelet with solid body of lozenge shaped cross-section. The expanded terminals are conical shaped and concave.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Gortnalicky (Gortnalicky hoard)

- (Europe,British Isles,Ireland,Republic of Ireland,County Cork,Gortnalicky)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 64.2 millimetres

- Width: 8.13 millimetres (body centre)

- Width: 5.44 millimetres (body end)

- Thickness: 5.16 millimetres (body centre)

- Thickness: 4.84 millimetres (body end)

- Diameter: 19.4 millimetres (terminal)

- Thickness: 0.64 millimetres (terminal)

- Weight: 64.7 grammes

- **Curator's comments**

Eogan (1994, 51) lists the findspot as Gortnalicky, County Cork but does not supply and supporting evidence for this claim. According to Cahill (2006, 241-244), the bracelets n. 1840, 0928.1-2 can be identified as the pair from Gortnalicky, Co. Cork, by reference to the drawing in Windele and a Betham drawing. The imperial weights taken at the time and the metric weights taken for this catalogue are also identical.

- **Acquisition name**

- Purchased from: Sir William Betham ?

- **Acquisition date**



1840

- **Department**

Britain, Europe and Prehistory

- **Registration number**

1840,0928.1



- **Museum number**

1857,0627.3

- **Description**

Gold penannular bracelet. The solid body has a circular section. The expanded terminals are plain, one is circular and one is oval.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1150BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Mooghaun North (Newmarket on Fergus hoard)
- (Europe,British Isles,Ireland,Republic of Ireland,Clare (Ireland),Mooghaun North)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 68 millimetres
- Width: 5.99 millimetres
- Thickness: 6 millimetres
- Diameter: 9.97 millimetres (terminal)
- Weight: 66 grammes

- **Curator's comments**

The hoard was discovered on low ground in the area between Lock Ataska and Mooghaun Loch. It has been stated that the area was under water prior the modern cutting of a deep drain from Mooghaun Lake. Accounts of the precise place of discovery vary, but it appears that the ornaments were packed into a cavity. The bracelet is part of the largest hoard of gold objects

found in Ireland near Newmarket on Fergus. The discovery of the hoard was made in March 1854 by labourers working on the construction of the Limerick to Ennis railway. The find was dispersed at the time of the discovery and a large proportion was melted down. For that reason the total contents of the hoard can never be established but 146 pieces survived to be presented at a meeting of the Royal Irish Academy on June 26th 1854 weighing 174 oz 11dwt 7 gr or nearly 5kg.

More

- **Acquisition name**

- Purchased from: William Willoughby Cole, 3rd Earl of Enniskillen ?

- **Acquisition date**

1857

- **Department**

Britain, Europe and Prehistory

- **Registration number**

1857,0627.3



- **Museum number**

1857,0627.2

- **Description**

Gold penannular bracelet. The solid body has an oval section and it is unevenly curved. The solid expanded terminals are circular and plain.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1150BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Mooghaun North (Newmarket on Fergus hoard)
- (Europe,British Isles,Ireland,Republic of Ireland,Clare (Ireland),Mooghaun North)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 75.39 millimetres
- Width: 9.5 millimetres
- Thickness: 8.47 millimetres
- Diameter: 13.91 millimetres (terminal)
- Weight: 158 grammes

- **Curator's comments**

The hoard was discovered on low ground in the area between Lock Ataska and Mooghaun Loch. It has been stated that the area was under water prior the modern cutting of a deep drain from Mooghaun Lake. Accounts of the precise place of discovery vary, but it appears that the ornaments were packed into a cavity. The bracelet is part of the largest hoard of gold objects found in Ireland near Newmarket on Fergus. The discovery of the hoard was made in March 1854 by labourers working on the construction of the Limerick to Ennis railway.

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- **Acquisition name**

- Purchased from: William Willoughby Cole, 3rd Earl of Enniskillen ?

- **Acquisition date**

1857

- **Department**

Britain, Europe and Prehistory

- **Registration number**

1857,0627.2



- **Museum number**

1857,0627.1

- **Description**

Gold penannular bracelet. The solid body has a circular section. The expanded conical-shaped terminals are circular and concave.

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1150BC-750BC (circa)
- **Findspot**
- Excavated/Findspot: Mooghaun North (Newmarket on Fergus hoard)
- (Europe,British Isles,Ireland,Republic of Ireland,Clare (Ireland),Mooghaun North)

- **Materials**

- gold ?

- **Technique**

- cast ?

- **Dimensions**

- Diameter: 85.14 Missing value
- Width: 10.22 millimetres
- Thickness: 10.07 millimetres
- Diameter: 21.68 millimetres (terminal)
- Weight: 239 Missing value

- **Curator's comments**

The hoard was discovered on low ground in the area between Lock Ataska and Mooghaun Loch. It has been stated that the area was under water prior the modern cutting of a deep drain from Mooghaun Lake. Accounts of the precise place of discovery vary, but it appears that the ornaments were packed into a cavity.The bracelet is part of the largest hoard of gold objects found in Ireland near Newmarket on Fergus. The discovery of the hoard was made in March 1854 by labourers working on the construction of the Limerick to Ennis railway.

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- **Acquisition name**

- Purchased from: William Willoughby Cole, 3rd Earl of Enniskillen ?

- **Acquisition date**

1857



- Large image
- More views (5)

- **Museum number**

1849,0301.3

- **Description**

Gold penannular bracelet with rounded body and hollow tubular section. The expanded terminals are conical shaped and hollow. The ends and the terminals are decorated with a fine geometric incised pattern. The decoration of the ends and of the outer part of the terminals consists of a series of triangles filled with oblique lines. The inner edge of the terminals is decorated with a band of straight intersecting lines. Part of the two terminals could have been lost as both have rims that are slightly concave. A join runs parallel along the inner body of the bracelet forming the hollow tubular section.

More

- **Culture/period**

- Late Bronze Age ?

- **Date**

- 1000BC-750BC (circa)

- **Findspot**

- Excavated/Findspot: Brahilish
- (Europe, Republic of Ireland, County Cork, Brahilish)

- **Materials**

- gold ?

- **Technique**

- incised ?

- **Dimensions**

- Diameter: 89.36 millimetres
- Width: 17.03 millimetres (body centre)
- Width: 9.29 millimetres (body end)
- Thickness: 14.29 millimetres (body centre)
- Thickness: 9.52 millimetres (body end)
- Weight: 101.7 grammes

- **Curator's comments**

Mr Windele notes in one of his volumes of miscellanea (RIA MS 12 17, 155-6) that the finder's name was Owen Sullivan (referred to as Eugene Sullivan by Roger Downing) and that the find-place was the site of an ancient fort, the article having been found under the root of a hawthorn. There are four ringforts in the townland of Brahalish noted in the Archaeological Inventory of County Cork (Power et al. 1992, 143-4, nos 1223-6). The original documents talk of the findspot being Brahalish, Four Mile Water (Cahill 1994, 67-69)

- **Acquisition name**

- Purchased from: William Anthony ?

- **Acquisition date**

1849



- Large image
- More views (6)

The final clue in this puzzle may remain hidden in our DNA

Many people in the UK feel a strong sense of regional identity, and it now appears that there may be a scientific basis to this feeling, according to a landmark new study into the genetic makeup of the British Isles.



An international team, led by researchers from the University of Oxford, UCL and the Murdoch Childrens Research Institute in Australia, used DNA samples collected from more than 2,000 people to create the first fine-scale genetic map of any country in the world. Their findings, published in *Nature*, show that prior to the mass migrations of the 20th century there was a striking pattern of rich but subtle genetic variation across the UK, with distinct groups of genetically similar individuals clustered together geographically.

By comparing this information with DNA samples from over 6,000 Europeans, the team was also able to identify clear traces of the population movements into the UK over the past 10,000 years. Their work confirmed, and in many cases shed further light on, known historical migration patterns.

**Key findings**

- There was not a single "Celtic" genetic group. In fact the Celtic parts of the UK (Scotland, Northern Ireland, Wales and Cornwall) are among the most different from each other

genetically. For example, the Cornish are much more similar genetically to other English groups than they are to the Welsh or the Scots.

- Individuals sampled from Cornwall form separate genetic groups to those in Devon, with a division almost exactly along the modern county boundary.

*To tease out the subtle genetic differences between UK regions we had to use sophisticated statistical methods that model how our genomes are made up of stretches of DNA, passed down the generations from our ancestors.*

Dr Garrett Hellenthal

- The majority of eastern, central and southern England is made up of a single, relatively homogeneous, genetic group with a significant DNA contribution from Anglo-Saxon migrations (10-40% of total ancestry). This settles a historical controversy in showing that the Anglo-Saxons intermarried with, rather than replaced, the existing populations.
- The population in Orkney emerged as the most genetically distinct, with 25% of DNA coming from Norwegian ancestors. This shows clearly that the Norse Viking invasion (9th century) did not simply replace the indigenous Orkney population.
- The Welsh appear more similar to the earliest settlers of Britain after the last ice age than do other people in the UK.
- There is no obvious genetic signature of the Danish Vikings, who controlled large parts of England ("The Danelaw") from the 9th century.
- There is genetic evidence of the effect of the Landsker line - the boundary between English-speaking people in south-west Pembrokeshire (sometimes known as "Little England beyond Wales") and the Welsh speakers in the rest of Wales, which persisted for almost a millennium.
- The analyses suggest there was a substantial migration across the channel after the original post-ice-age settlers, but before Roman times. DNA from these migrants spread across England, Scotland, and Northern Ireland, but had little impact in Wales.
- Many of the genetic clusters show similar locations to the tribal groupings and kingdoms around end of the 6th century, after the settlement of the Anglo-Saxons, suggesting these tribes and kingdoms may have maintained a regional identity for many centuries.

The Wellcome Trust-funded People of the British Isles study analysed the DNA of 2,039 people from rural areas of the UK, whose four grandparents were all born within 80km of each other. Because a quarter of our genome comes from each of our grandparents, the researchers were effectively sampling DNA from these ancestors, allowing a snapshot of UK genetics in the late 19th Century. They also analysed data from 6,209 individuals from 10 (modern) European countries.

To uncover the extremely subtle genetic differences among these individuals the researchers used cutting-edge statistical techniques, developed by four of the team members. They applied these methods, called fineSTRUCTURE and GLOBETROTTER, to analyse DNA differences at over 500,000 positions within the genome. They then separated the samples into genetically similar individuals, without knowing where in the UK the samples came from. By plotting each person onto a map of the British Isles, using the centre point of their grandparents' birth places, they were able to see how this distribution correlated with their genetic groupings.

The researchers were then able to "zoom in" to examine the genetic patterns in the UK at levels of increasing resolution. At the broadest scale, the population in Orkney (islands to the north of Scotland) emerged as the most genetically distinct. At the next level, Wales forms a distinct genetic group, followed by a further division between north and south Wales. Then the north of England, Scotland, and Northern Ireland collectively separate from southern England, before Cornwall forms a separate cluster. Scotland and Northern Ireland then separate from northern England. The study eventually focused at the level where the UK was divided into 17 genetically distinct clusters of people.

Dr Garrett Hellenthal, co-lead author of the study at UCL, said: "To tease out the subtle genetic differences between UK regions we had to use sophisticated statistical methods that model how our genomes are made up of stretches of DNA, passed down the generations from our ancestors."

Dr Michael Dunn, Head of Genetics & Molecular Sciences at the Wellcome Trust, said: "These researchers have been able to use modern genetic techniques to provide answers to the centuries' old question - where we come from. Beyond the fascinating insights into our history, this information could prove very useful from a health perspective, as building a picture of population genetics at this scale may in future help us to design better genetic studies to investigate disease."