

**Description of different varieties of skulls and of human remains referable to the tenth century, obtained during recent excavations of a large sepulchral mound near Donnybrook, Co. Dublin / by William Frazer.**

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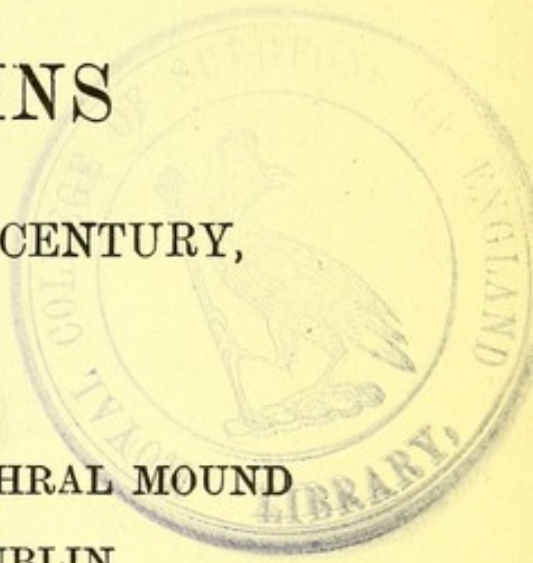


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DESCRIPTION  
OF  
DIFFERENT VARIETIES OF SKULLS  
AND OF  
HUMAN REMAINS  
REFERABLE TO THE TENTH CENTURY,  
OBTAINED DURING RECENT  
EXCAVATIONS OF A LARGE SEPULCHRAL MOUND  
NEAR DONNYBROOK, Co. DUBLIN.



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By WILLIAM FRAZER, F.R.C.S.I., M.R.I.A.

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NO. 100

BY

WILLIAM BRIDGMAN

CHICAGO, ILLINOIS

1932

DESCRIPTION\*  
OF  
SKULLS AND HUMAN REMAINS,  
*&c. &c.*

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A QUANTITY of human remains were discovered in the vicinity of the celebrated village of Donnybrook early in the month of October, 1879. With these there were mixed the bones of some of our usual domestic animals, which were identified as belonging to a cow of small size, a young calf, sheep and pig bones, and the lower jaw-bones of a large dog, probably a wolf-dog, certainly not a wolf. They were obtained on the grounds that are marked in the Ordnance maps as "Mount Errol," lying to the south of the recently-formed Aylesbury Road, on the field that adjoins Seafeld Terrace. An old roadway that is now disused and closed up led along one side of the field, and from this a well-known foot-path went towards Merrion.

The discovery was made owing to necessary excavations for building purposes, and I am indebted to the owner, Mr. Thos. Wardrop, for the ample opportunities I enjoyed for investigating all the circumstances under which this remarkable find was discovered.

In the centre of a grass-covered field, underneath a slightly elevated mound of circular form, lay a great mul-

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\* Read before the Surgical Society of Ireland.

titude of human skeletons—in fact, several cart-loads were removed and re-interred within Donnybrook churchyard. They lay piled over each other, so far as could be ascertained, over the whole extent in three superimposed layers closely packed together, the lowermost stratum rested upon the surface of the original tough yellow clay soil ; into this some of the bones had sunk slightly, becoming imbedded in it, but there was no indication of grave or any excavation for purposes of interment, properly so-called. In the course of time, as decay advanced, these three layers of human bodies had become reduced to a stratum not exceeding sixteen inches in depth ; over this had been placed as a covering about twelve inches thick of clay, and in fresh sections it was easy to distinguish this layer from the undisturbed original soil ; above all was resting eight inches or so of firm grass sod, that appeared never to have been disturbed or ploughed. I ascertained by measurement that the entire of these slain bodies, with few exceptions, were resting within a circle of fifty feet in diameter, and the total transverse width of the tumulus or clay mound did not much exceed one hundred feet ; within this limited space were gathered into a heap possibly upwards of five hundred human skeletons.

The attention of the workmen in Mr. Wardrop's employment was first attracted by their discovering one complete human skeleton placed almost due north and south, its head being to the northwards. This was found outside of and a few feet distant from the great gathering of bodies. It was described to me as having bones of very large size, and at its sides were lying a double-edged iron sword and the rusted head of an iron spear, which were preserved and given to me. At the feet of this man there were found two other skeletons of persons of smaller size, probably women, but all these bones got mixed up with other remains, soon afterwards discovered, and could not therefore be identified. With the sword and spear, I got a skull also given to me that had a sword cut on the frontal bone, and I believe this to be the skull of the first-mentioned body.

The sword is an iron weapon with broad double-edged blade, having a plain transverse iron hilt and pommel. It corresponds in every respect with the shape of the sword which was used by Scandinavians, Danes, or Viking invaders. Examples of such swords are preserved in the Scandinavian museums. The King of Denmark presented one of them to the Royal Irish Academy, and they also

turn up occasionally in different parts of Ireland, and are to be found in different museums here. But this special weapon possesses features of peculiar interest, for its hilt and pommel are both richly decorated with an inlaid pattern, worked into the steel, of gold and silver ornamentation ; it is thus unique in so far that no other similarly ornamented weapon has been, up to this time, ever found in Ireland, and it corresponds with the celebrated swords we read of in Northern legends, that were borne only by Danish commanders of high rank or distinction. The iron spear-head, likewise, is a recognised Danish form of this weapon, and it still displays on its rusted surface portions of human bone adhering to the rust. More recently three iron arrow-heads were picked up close to the same spot, and also a rude dagger-blade of iron. In the course of the excavations two bronze pins were procured ; one had an ornamented top, the other was of the well-known Irish type, with a ring at its upper part. A simple bronze ring was also found upon the finger of a female skeleton, and two iron rings of larger size were also obtained ; one of these was taken off from the upper part of the humerus of a girl, which it encircled.

In the classic work upon "British Crania," published by Thurnam and Davis, we have a discovery of much interest recorded that was made at Larne, in the North of Ireland, about November, 1840. In this case a skeleton was obtained buried in a similar manner to the one I have described. The body had been superficially interred without grave or excavation, and covered with soil ; at its side lay a spear and sword exactly resembling those I have described, but the sword had no trace of ornamentation. A bronze pin with a ring at its upper part was also found. These were all described by Mr. J. Huband Smith in the Proceedings of the Royal Irish Academy, and the weapons were subsequently further examined and identified by Prof. Retzius as undoubted examples of Norse weapons, and the skull as that of a Norseman. The distinguished Danish antiquary, Mr. J. J. A. Worsaae, likewise claimed the sword and spear as distinctive of Scandinavian arms, and he referred the Larne interment to the period of one of those piratical incursions made by the Robber Vikings to Ireland about the 11th century. In fact, he ascribed it to the period of a battle fought between the Irish and the Orkney Jarl Einar in the early part of that century.

When the excavations advanced southwards into the mound as already mentioned, we ascertained that a great number of human skeletons were contained within it. It included the bones of men and women and children of every age, from the unborn infant to advanced senility, evidenced by finding toothless jaws with absorbed alveolar tissue. Having one day gathered for the purpose all the adult sacral bones that had turned up for some hours of digging, they were examined carefully and measured, and it was found they represented both sexes in nearly equal proportion. The discovery of such quantities of female bones, and of those of children and aged persons, at once showed this must have been a massacre, and not a battle. All the other circumstances observed corroborate this view. Professor McAlister obtained two foetal femora still resting undisturbed within the cavity of a female os innominatum. This was clearly the remains of a foetus in utero. I got other bones representing early pregnancies, and have preserved the lower jaw bone and half of the os frontis of an infant at about the seventh month of intra-uterine development, as also the lower jaw of a recently born child.

There were numerous remains of young children, aged from one to nine years ; their lower jaws presented every stage of infantile dentition ; and from this onwards to youth and perfect maturity, until the last molars are found completely developed, a large series were gathered together. The teeth, as a rule, are found to be unusually strong and healthy. But toothache was not altogether unknown, and sufficient examples of diseased fangs, and even a perforation of the jaw bone from abscess at the root of a tooth, could be recognised. The worn-down condition of the grinding surfaces of these teeth was most remarkable ; they show an amount of attrition altogether unknown at present in the British Isles ; of course this is best seen in mature jaws, and during advancing life. Excessive attrition is common to all races that use food requiring a considerable degree of mastication ; thus it occurs both in those who employ corn ground in hand-querns, in which it becomes mixed with more or less of the sand from the mill ; and it has likewise been noticed in tribes that live upon fish diet almost exclusively, as in the neighbourhood of Vancouver's Island. There were further, as I have stated, several jaw bones that had belonged to persons of considerably advanced age, where

the teeth had almost or altogether fallen out, and in which the bony alveolar tissue was absorbed, and had disappeared both in lower and upper jaws.

Many of the bodies lay heaped together as if thrown on top of each other in promiscuous groups; but as the excavations were extended towards the east side, Dr. McAlister and I found two rows of bodies lying side by side, placed east and west, on the surface of the soil, the feet of one layer resting upon the shoulders of the preceding skeletons, and several of these skeletons were ascertained to be headless. The heads of some others lay at an appreciable distance from the rest of the bodies, and about this part of the excavation we likewise got groups of human heads\*collected together, quite separated from their bodies, and put into heaps. Four such groups were uncovered, all arranged along a line north and south, and not far distant from each other. I carefully examined all the heads contained in the last discovered group, which consisted of eight crania. They belonged to persons of advanced age, for the sutures were in process of progressive obliteration, and they had all been injured by perforating fractures of the skull of peculiar character as if caused by some sharp-pointed weapon. After the heads were cut off they must have received rough usage, for all the face bones were broken, so that I could not secure one perfect skull out of the entire. One of the lower jaw bones had also been fractured. I found in another skull not in this group that the nose and part of the upper jaw bone had been cut off.

Amongst the bones which I obtained there are some that appear worth describing, either for their size, or because they present evidences of diseased conditions. The vertebræ and some of the bones of a man were dug up who must have, when living, been of exceptional size. The vertebræ are wider—not thicker—than those preserved in the Anatomical Museum of the Dublin University, belonging to the famous Irish giant, O'Brien, so their possessor was probably a person of great bulk.

Platycnemic tibiæ were also found to be very numerous. Tibiæ of this character are ascertained to be of frequent occurrence in French and English graveyards, referable to dates from the fourth to the tenth century. Their presence and frequency in the Donnybrook find affords us strong additional corroboration as to the early date to which they must be referred. Platycnemic tibiæ were



first observed in the family buried at Cro-Magnon in Perigord, referred to the ancient Stone Period, or that when the reindeer roamed over the forests of Southern Europe. From this time they are noticed extending through the ages when polished stone weapons were employed; and out of 200 tibiæ collected near Paris in cemeteries belonging to dates anterior to the tenth century, 5.25 per cent. were of this platycnemic form.

There were some good specimens obtained of bones affected with chronic rheumatic arthritis. The polished eburnation of the head of a femur, its peculiar shape and osseous growths, afford unmistakable proof that its former possessor suffered from this painful affection, so well described and illustrated by the late Robert Adams. The number of bones thus affected showed that this disease was not uncommon.

There is also a remarkable specimen of depression observed upon the upper portion of the outer surface of a frontal bone. This appears to have resulted from long-continued pressure caused by the growth of some external tumour, most probably a congenital wen of considerable size, or at least one that must have become developed early in the individual's life.

The results noticed of an old fracture of both the tibia and fibula at the upper third are well worth describing. The oblique direction of the fracture is seen, and an enormous mass of callus has united the fractured bones into one, obliterating the interosseous space. The upper end of the tibia is expanded and hollow, and was, it is probable, the seat of a local necrosis.

Two sacral bones of females were picked up, both of which are very crooked, one half being less developed than the opposite, and the coccygeal termination, instead of being in the medial line is at the side. These appear due to some injury sustained in early life.

Portions of the skull of an idiot were likewise obtained; they possess an unusual amount of interest. The frontal bone shows the cranium to have been that of a young person. The orbital openings are placed on a different level, the right orbit being considerably more elevated than the left. The bone itself is imperfectly developed, the entire right half being smaller than the left, and a similar condition is recognisable in the occipital bone. A face such as this individual must have possessed is delineated in Dr. Robert Smith's work on "Fractures and

Dislocations." It is described as an example of the rare congenital dislocation of the lower jaw, and on looking at his plate and comparing it with the frontal bone now shown it is impossible not to be struck with their identity of aspect. The subject is so fully worked out by Dr. Smith that it is unnecessary to do more than to refer to his accurate description. He considered this malformation so rare that in addition to his own case he records only one other example briefly noticed by M. Guerin. The case which Dr. Smith published was that of an idiot who died in the lunatic asylum at Island Bridge; the details are consequently most perfect. I regret to say that neither the lower jaw nor any bones of the face are forthcoming of my specimen which I picked out of a mixed heap of bones thrown together, so that although there is every probability of its being an example of the very rare congenital luxation of the lower jaw, we have only the frontal and occipital bones preserved and a portion of the parietal.

Another idiotic skull, that of a microcephalus, is in perfect preservation. It has a fairly elevated forehead, is of neat rounded shape, but the upper jaw is decidedly prognathous, the lower jaw being small and of moderate development; it resembles in miniature in every respect the class of skull which I consider of Celtic or Irish type, and of which I possess several fully developed examples from this find, but it measures in circumference only 438 millimetres. The arrest of its development has not been caused by synostosis, for the sutures are unclosed and perfect, and the age of its possessor is easily calculated, as the third molars are still in process of becoming developed. M. Broca refers to this class of demi-microcephales all non-deformed skulls of males that possess a horizontal circumference of less than 480 millimetres, and of females those under 475 millimetres. If belonging to Europeans they should possess an internal capacity below 1,150 cubic centimetres. This condition of general or partial arrest of cerebral development will commence during the stage of intra-uterine existence, and it therefore constitutes an important anatomical variety of idiocy. The well-known Hottentot Venus, of which I am able to exhibit a portrait drawn to scale, who was exhibited as a show in different parts of Europe several years ago, and whose skeleton is preserved in a Parisian museum, was an example of this idiotic demi-microcephale. Similar

skulls are occasionally to be noticed in all our large asylums for the insane and for idiots; and the Aztec children, so-called, who were shown here a few years since were specimens of microcephalic idiots with dwarfed bodies.

One portion of a skull of unusual thickness was obtained. In some parts it is almost one-third of an inch thick, measuring 15 millimetres exactly. This appears to be a natural and healthy bone, the thickening being caused by no disease whatever.

In considering the shapes of the skulls obtained that belonged to adults for classing them, I have selected out of a large number three specimens which will illustrate the three great divisions of crania which are usually described. Of these No. 44 will represent a dolichocephalic skull, No. 21 an intermediate mesaticephalic form, and No. 22 is brachycephalic.

These classifications, which depend on the relation or ratio that the antero-posterior diameter will bear to the transverse measurement of the skull at its widest part, is calculated by the formula  $\frac{\text{Trans. diam.} \times 100}{\text{an. post. diam.}}$ , but such calculations are facilitated by the excellent tables of Prof. Flower, published in the last catalogue of the Museum of the Royal College of Surgeons of England. The index varies from

750 and under for dolichocephali,  
750 to 800 for mesaticephali,  
800 and upwards for brachycephali.

Now the cranium No. 44 affords us an index so low as 704. This is an exceptionally low result, for the skull of the average Australian savage reaches 71.49, and even the Hottentot amounts to 72.42.

No. 21, the mesaticephalic skull, is found to possess when measured an index of 754; this corresponds with the skulls of the Dolmen builders, and that of the Ancient Egyptians. It also corresponds exactly with the index ascribed by Messrs. Thurnam and Davis to the ancient Irish skull. From several considerations I am led to believe this is a typical Celtic or Irish cranium.

But on examining the skull which I first obtained, No. 22, and which, I believe, was that interred with the sword and spear, having the deep sword cut in its frontal bone, the index rises to 833; this is, therefore, a good specimen of a dolichocephalic skull, and it corresponds in

its measurements with the skulls belonging to the Croat, different German tribes, and the Finlander. I believe its original possessor was one of the mixed people, who originally came from the shores of the Baltic, and whom we know in Irish History as Pirate or Black Danes.

So far as the general facies is concerned, I think we may safely recognise two different and distinct types. One of these is straight faced or orthognathous ; the other possesses a projecting upper jaw, which produces a prognathous appearance. There is no difficulty in distinguishing well-marked specimens of both forms, but some appear with intermediate features.

The skull marked 19 is an example of the orthognathous face,

22 is intermediate,  
21 is prognathous.

The little microcephalic skull, as I have already stated, is likewise prognathous. The degree of forward projection of the upper jaw in any skull is ascertained by obtaining the alveolar index, the formula for which is  $\frac{\text{basialveolar length} \times 100}{\text{basilar nasal measure}}$ . Whenever the ascertained index ranges

below 980, the face must be classed as orthognathous. An index ranging from 980 to 1,030 is mesognathous, and all above 1,030 fall into the class of prognathous individuals.

When these typical skulls are arranged beside each other, it is easy to see the great and striking differences they present in form, and in the aspect of their faces.

In presenting this brief survey of the leading features of the Donnybrook discoveries, it appears unnecessary to enter more minutely into particular descriptions. I think we can amongst these skulls recognise some which fall under the Scandinavian type of Thurnam and Davis, and that, therefore, will correspond with numerous examples of people still existing in our own land ; in Scotland, and in the maritime districts of the East of England, where Danish settlers planted their numerous colonies. To quote the words of these accurate observers : "The skull is small and regular, has a long slender elevated aquiline nose, closely corresponding with such as prevails in the northern counties of England where Scandinavian blood predominates. A narrow, long, orthognathous face, an upright square forehead, yet neither decidedly broad nor high, having a frontal suture, a long oval outline in the vertical aspect, with distinct parietal tubers, a globose

tumidness in the supra-occipital region, and a large foramen magnum."

The lower jaw belonging to this class of skull is distinguished by its massive structure, square outline, and strong everted angles. The lines for muscular attachment are always prominently developed; the chin square-shaped, projecting, and forming a predominating feature, whilst the glossal tubercles are unusually developed, becoming in some even long bony growths.

The second variety of skull is smaller, of mesaticephalic form, and of neat outline, but it presents a prominent prognathous upper jaw, which gives it a very peculiar and distinctive appearance. The nose is short, wide, and often turned up, with depressed bridge. The lower jaw is softer in outline, less massive, rounded, and does not possess the harsh shape and strong markings of the Scandinavian type; the chin is little, if at all, prominent, and the appearance of the face is such as we have numerous examples of still in the south and west of Ireland, especially in inland districts, where the Celt has remained free from intermixture with Danish blood. I believe this form of skull represents a race that inhabited this country from a much earlier date than our Danish colonists.

No such discovery of the remains of races inhabiting Ireland about the 10th or 11th century has been as yet unearthed, and all the circumstances point to about this period as being the time in which they were buried; they, therefore, possess special ethnological interest. They cannot be the remains of persons slain in battle, for young and old, infants and women, idiots and cripples, were alike victims of the slaughter, and that they were also stripped and plundered is shown by the almost total absence of objects of personal ornament or even dress in any form. History, so far as we can ascertain, affords us no record of this exact transaction, but Irish and English annals tell us of similar destructive raids made along all the seaboard of the British Isles from the 8th to the 11th century, by bands of plundering Black Danes or pirates, and whilst we possess tolerably accurate records of such events as then took place in the north and south of this island during these troublous times, unfortunately, all traces of the local events that occurred in the province of Leinster, and especially about Dublin, appear to have perished altogether.

*Additional Notes.*—Since writing the above account I have read over the paper which was published by the late Sir William Wilde, and laid before the King and Queen's College of Physicians in the year 1844, upon the "Ethnology of the Ancient Irish Races." Sir William regarded the question from a considerably earlier period in our history, for his observations relate almost without exception to those forms of crania which are obtained from barrows, tumuli, and kistvaens, all primitive varieties of interment employed by races in Ireland in distant ages, far antecedent to the date at which the Donnybrook mound was formed. The conclusions at which he arrived may be compared, with much interest, along with those that appear justified by our examinations of the Donnybrook remains. Thus he has directed special notice to two different varieties of crania, both belonging to, and distinctive of, our early Irish races, whilst he further figured and described as referable to a much later period in time, the crania of Danish and Scandinavian origin, the latter being similar to those which I have obtained possessing Danish characteristics.

Now of the two primitive Irish races which he designates as Firbolg and Celt, he has given typical figures. One of these, the Firbolg cranium, will, in all probability, correspond with the remarkable dolichocephalic skull that I have described. These "long-headed, black-visaged, dark-haired, swarthy aborigines," possessed skulls that are principally characterised by "their extreme length from before backwards, or what is technically termed the "antero-posterior diameter and the flatness of their sides." He says in addition, "Now we find similar conditions of head still existing among the modern inhabitants of this country, particularly beyond the Shannon, where the darker Firbolg race may still be traced as distinct from the more globular-headed, light-eyed, fair-haired Celtic people who live to the north-east of that river."

5/ The earlier primitive interments of the Celtic race are to be found in kistvaens or sandstone chambers, and probably they were the race that used urn-burial also. Their origin, whence they came, and what countries they inhabited before arriving here, has proved a fertile field for speculation, but still remains an unsettled question. They may be, and probably are, the race termed in old Irish annals the "Tuatha de Danaan," who are said to have

invaded and overcome the original Firbolg inhabitants, and they would seem to have introduced, or at least known the use of, bronze weapons, just as at a much later period, and within historic times, the Scandinavian races were distinguished for their knowledge and free use of weapons made of iron. The crania of these Celts are "better proportioned, higher, more globular, and approach more to the better forms of Indo-European, or Caucasian skulls.

We notice, therefore, in Sir William Wildes' memoir, three separate and distinct classes of skull found in Ireland, the Firbolg, Celtic, and Dane, and it was with much surprise and interest that, after collecting all the crania I could secure from the Donnybrook mound, and submitting them to rigid examination and the most accurate of all modes of testing, namely, careful measurement and calculation, that from the group three different varieties of crania were evolved. One of these—the rarest of all—was a long-headed form of skull of low organisation, that fairly corresponds with that of a Firbolg. Much more numerous were the class of Celtic skulls, properly so-called; and in addition we had types different from both, and ranging themselves with those of Scandinavian origin, and with British skulls derived from Scandinavian ancestry.

I wish to add further, that being convinced from the different osteological peculiarities of the human remains that were obtained in this mound, that further careful research would yield the "humeri with perforation of the olecranon cavity," a characteristic feature of less importance than the discovery of platycnemic tibæ, but still one of much interest and value for corroboration of the primitive period to which these bones must be referred, as it is a condition of bony structure which dates back as an ordinary racial character to the Polished Stone Period, and to that of the Dolmen builders, and might reasonably be expected to be found in conjunction with the platycnemic tibæ, that I directed the workmen to make special search for these perforated humeri, and they have been accordingly found as I expected they would be, thus affording an additional point of much interest in the history of the discovery and one worth recording.