

## III.

THE CEMETERY OF NUNRAW, EAST LOTHIAN. BY THE HON.  
J. ABERCROMBY AND MR A. MACTIER PIRRIE.

During the process of ploughing a field on the property of Col. W. W. Gray of Nunraw, in the parish of Garvald, East Lothian, a cemetery was brought to light. The field lies on the top of the right bank of the burn which flows past the village of Garvald, and is exactly opposite it



Fig. 1. The field from which the bones were exhumed.

(fig. 1). I made my first visit on 21st December 1903, and again in company with Mr Pirrie, assistant-demonstrator to Professor Cunningham, on 23rd February 1904. As the weather was very inclement on both occasions, I am indebted to Mr James Boucher, schoolmaster in Garvald, for the use of his notes in addition to my own.

Altogether twenty-four graves were discovered, lying in five rows from 9 to 10 feet apart. These graves consisted of stone cists constructed of thin slabs of red sandstone. In nearly every case the covering-stones had

been broken by the ploughshare in previous ploughings and had been removed, as they lay only a few inches below the surface. The long sides, the covering and the paved floor of the cists, were formed of two slabs each, and the short ends of a single slab (fig. 2). The form of the cist was not always a parallelogram, but was sometimes coffin-shaped.



Fig. 2. One of the Cists laid open and emptied.

Some of the measurements were 6 feet by 15 inches; 5 feet 2 inches long by 14 inches wide at the head and 10 inches at the foot, but 17 inches at the widest part; 6 feet long by 12 inches at the head, 9 inches at the foot, and 17 inches at the widest part; 5 feet 3 inches long by 18 inches at the head and 12 inches at the foot; 5 feet 9 inches long by 14 inches at the head, 13 inches at the foot, and 8 inches deep.

A child's grave measured 3 feet 10 inches long by 1 foot 1 inch at the head and 9 inches at the foot.

Each cist was full of fine red soil and contained a skeleton lying on its back with the head to the west and the feet to the east. No relic of any kind was discovered with any of the interments, though the earth in the coffins was well searched and the bones were picked out with the greatest care by Mr Pirrie.

From the absence of any relic it is impossible to determine with accuracy the date of this cemetery. But Professor Cunningham informs me that, judging from the condition of the bones, it cannot be of ancient date, certainly not earlier than the Christian Period.

Nunraw, as its name implies, was formerly the site of a nunnery; so at first sight it seemed probable that the cemetery was in connection with such an establishment. But, judging from the number of male skeletons and from the child's grave it has yielded, this hypothesis must be abandoned. A very similar cemetery of fifty-one cists, disposed in nine rows, was discovered some years ago near the Catstane, Kirkliston, West Lothian, and is described in *P.S.A.S.*, vi. 184-198.

Subjoined is a valuable detailed anatomical report on the human remains by Mr Pirrie.

REPORT ON THE HUMAN REMAINS FROM NUNRAW, EAST LOTHIAN. By  
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Edinburgh.

In framing this report, the bones from each cist have been described separately, as so many "Lots," each lot being from a separate cist. There are in all thirteen lots, which were exhumed on two occasions. On the first occasion, four lots were forwarded for examination. They were from the highest part of the cemetery, and were in better preservation than those exhumed later. They also included the interesting thigh-bone which evidences marks of syphilis. This is remarkable when taken in connection with the fact that the earliest recorded appearance

of syphilis in Europe is assigned by Simpson to the close of the fifteenth century.<sup>1</sup>

On the second occasion on which bones were exhumed, the findings were not so well preserved, as they were not interred in such dry soil. Nevertheless they have yielded several points of anthropological interest such as are seen in characteristics and configurations associated with the races of bye-gone days, or with the lowest savages of the present time. It is noteworthy that caries of the teeth is completely absent in this series, notwithstanding that the majority of the teeth are ground flat with use.

At the end there is a short summary giving some of the more important conclusions as to sex, age, etc., with references to the detailed description in the text.

The bones are to be seen in the Anatomy Department, University of Edinburgh.

#### LOT No. 1.

**GENERAL DESCRIPTION.**—A thigh-bone of great interest, as it depends upon the date assigned by the archaeologists to the burying-ground whether this is not the earliest specimen of syphilis on record, for on the lower part of the bone there are undeniable marks of syphilis. Otherwise the bone shows some degree of platymery, and a high degree of carination, both being characters frequently associated with the femora of prehistoric races of man. It is a bone of an adult, but not aged person, probably of the female sex.

**DETAILED DESCRIPTION.**—The right femur. It does not present senile characters, and it is on the whole rather slender. At the lower third of the shaft it shows an oval thickening, rough behind, but smooth in front, pronouncedly syphilitic (fig. 3).

Length (maximum) . . . . . 419 mm.  
 „ (oblique) . . . . . 412 „

Platymery well marked.

*Index of platymery:*  $\frac{21 \times 100}{32} = 65.6$ .

Carination prominent.

*Pilastric index:*  $\frac{28 \times 100}{24} = 116.6$ .

♀ (probably); fully adult; syphilitic.

<sup>1</sup> *Archæological Essays*, by the late Sir James Y. Simpson, Bart., M.D., D.C.L., edited by John Stuart, LL.D., 1872, vol. ii. p. 303.

## LOT No. 2.

GENERAL DESCRIPTION.—A large number of fragments taken from one cist. The bones being very brittle, are in small fragments. They are the bones of a well-developed male of middle age.

DETAILED DESCRIPTION.—The bones consist of: (1) parts of skull;

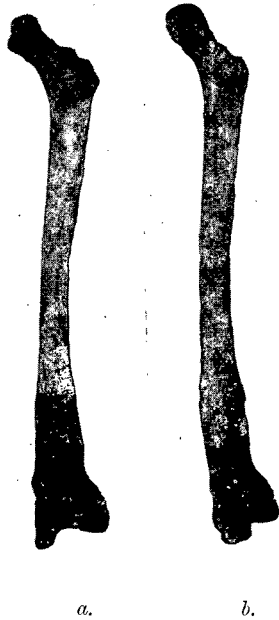


Fig. 3. Thigh-bone with thickening at lower end (syphilitic), from Lot 1.  
*a.* Posterior view.  
*b.* Postero-internal view.



Fig. 4. Thigh-bones, right and left, from Lot 2, showing marked flattening at upper ends, *i.e.* Platymery. (Both front view.)

(2) 2 vertebræ; (3) humerus (right and left); (4) clavicle; (5) radius and ulna; (6) femora; (7) tibiæ and fibulæ; (8) fragments.

(1) *Skull*.—Inferior maxilla (right ramus and upper part of left ramus lacking). It is a narrow bone with pointed chin. Genial tubercles are well marked. It is a strong and heavy bone. The teeth (5 molars and 2 premolars), are all worn flat on the surface but exhibit no caries.

Left superior maxilla : the antrum appears well developed, and the palate a little higher arched than normal.

Teeth : 1 molar, 2 premolars, 1 canine, and 1 lateral incisor.

Temporal bones : well-developed mastoids.

(2) *Vertebrae*.—These belong to the dorsal region.

(3) *Humerus* (right and left).—Strong, well-developed bones with well-marked musculo-spiral groove.

(4) *Clavicle* (left).—This bone is markedly curved and more slender than the other bones. It is also very long, indicating that the individual was comparatively broad-shouldered.

(5) *Radius* (left) ; and *Ulna* (right).—Stout bones with powerful muscular markings.

(6) *Femur* (right).—Strong and long, but the head is absent. The upper part of the shaft is markedly flattened, *i.e.* exhibits platymery (fig. 4).

$$\text{Index of platymery : } \frac{2.3 \times 100}{3.6} ; \text{ i.e. } 63.9.$$

*Femur* (left).

$$\text{Index of platymery : } \frac{2.4 \times 100}{3.5} ; \text{ i.e. } 68.5.$$

This indicates that the amount of flattening is greater on the right than on the left side.

Associated with the platymery there is a well-marked hypotrochanteric ridge and hypotrochanteric fossa.

(7) *Tibiae and Fibulae* (incomplete).—Only the upper part of the right tibia and head of the left tibia are preserved ; the fibulae also are in fragments.

These fragments merit no special description.

(8) *Fragments*.—These include a large number of small pieces of ribs, vertebrae, scapulae, skull, and other parts.

They have been examined, but present no characters worthy of description.

♂ ; middle-aged ; strongly built.

#### LOT No. 3.

GENERAL DESCRIPTION.—This lot includes some very well-preserved bones, as well as a number of fragments. The bones are those of a male, of mature adult life, perhaps approaching 50, of very powerful build.

DETAILED DESCRIPTION.—The bones include : (1) inferior maxilla ; (2) superior maxilla ; (3) frontal ; (4) temporals ; (5) basi-occiput ; (6) atlas ; (7) axis ; (8) vertebrae ; (9) clavicle ; (10) fragments.

(1) *Inferior maxilla*.—This is a most handsome bone, powerfully and massively built, with a complete set of teeth which are perfectly preserved, though the crowns are worn with use, the effect being similar to what is seen in the dentary arcades in the Australian savage (fig. 5).

The genial tubercles and muscular impressions are very prominent; chin square and projecting.

Symphysial height . . . . .	31 mm.
Coronoid height . . . . .	61 "
Condyloid height . . . . .	67 "
Intergonial width . . . . .	104 "
Gonio-symphysial length . . . . .	83 "
Breadth of asc. ramus . . . . .	36 "
Angle about . . . . .	115° or 120°.

The teeth are fairly large, probably pretty highly mesodont in character.

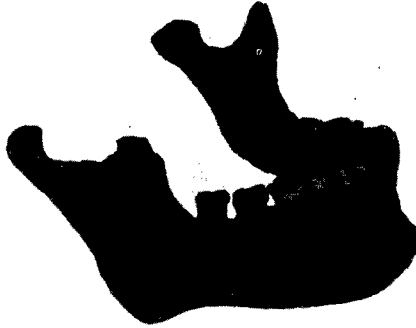


Fig. 5. Lower Jaw, from Lot 3.

(2) *Superior maxilla*.—Character in keeping with the inferior maxilla. The teeth are all preserved, are large, and are worn flat on the surface. The central incisors are very heavy teeth, and separated by a gap. The antrum of Highmore on the left side is much less developed than on the right; it only reaches to the first molar tooth. It is not possible to determine the palatal index. The hard palate is high, but has a flat roof, giving a rectangular appearance on transverse section. From the character of the bone, especially when placed *in situ* with the inferior maxilla, probably this skull was prognathic, though it is not possible to measure the amount (fig. 6).

(3) *Frontal*.—This is also a very massive bone, with large supraorbital ridges. The frontal sinuses are very large. They reach high up on the forehead, and the two sides do not communicate. There are separate loculi at the base of the nose.

(4) *Temporals*.—These bones show nothing special except very large mastoids with deep digastric grooves.

(5) *Basi-occiput*.—This is joined to the sphenoid; the basal synchondrosis being completely ossified. The sphenoidal sinuses are large.

(6) *Atlas*.—Very well preserved.

(7) *Axis*.—Also very well preserved.

(8) *Vertebrae*.—Two cervical vertebrae both well preserved.

(9) *Clavicle* (left).—Muscular impressions not remarkably prominent, nor the bone particularly long.

(10) *Fragments*.—These belong to the vault and base of the skull; left scapula (which is powerful); ribs, etc.

♂; probably about 50; very powerful build.

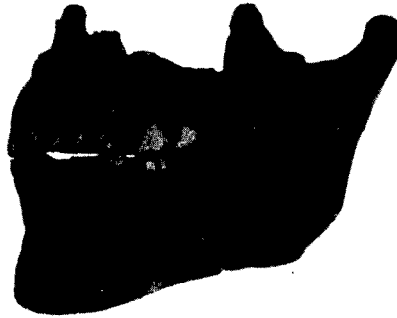


Fig. 6. Upper and Lower Jaws, from Lot 3. The upper front teeth do not overlap the lower set, but are "apposed." They are therefore ground flat, not chisel-wise.

#### LOT No. 4.

GENERAL DESCRIPTION.—A shin-bone. It exhibits a sabre-like character, such as is frequently seen in certain prehistoric races. It also shows a facet similar to that, which is present in those races that assume a squatting attitude when sitting. The bone probably belonged to an individual of the male sex.

DETAILED DESCRIPTION.—The tibia of the left side. The head is absent. The shaft is stout and strong. The shaft is thin and compressed from side to side, while the anterior border is sharp and convex. It exhibits "platyknesia."

$$\text{Index of platyknesia} : \frac{22 \times 100}{33} = 66.66.$$



This index shows a high degree of platyknesia.

There is a prolongation of the tibio-astragular joint-surface on to the front of the tibia, such as is found in the Punjaabee of the present day ; this, however, cannot be regarded as affording evidence that the individual was in the habit of assuming the squatting attitude (fig. 7).

♂ (probably) ; adult ; well developed.



Fig. 7. Shin-bone from Lot 4, showing extra facet at the lower end in front.

#### LOT No. 5.

GENERAL DESCRIPTION.—A few bones of a child of about 3 or 4 years old, consisting of fragments of skull and some teeth belonging to the first dentition. They were found in the small cist, and are much eroded with age. It is impossible to tell the sex.

DETAILED DESCRIPTION.—The bones consist of : (1) sphenoid ; (2) petrous-temporal ; (3) teeth.

(1) *Sphenoid* (body and left wing).—It shows non-union of the basal synchondrosis.

(2) *Left petrous-temporal*.—Partly eroded and semicircular canals exposed.

(3) *Teeth*.—Four molars, 2 incisors, and 1 canine. They are typical "milk-teeth."

Child of 3 or 4; sex indeterminable.

#### LOT No. 6.

GENERAL DESCRIPTION.—Portions of skull and lower jaw of a fully adult male, probably between 50 and 60 years of age.

DETAILED DESCRIPTION.—The bones include: (1) calvarium; (2) inferior maxilla; (3) superior maxilla; (4) fragments.

(1) *Calvarium*.—Is made up of frontal, parietals, and part of the occipital. The glabella, supraorbital ridges, and frontal sinuses are large. The saggital and other sutures are obliterated on the inside; hence age and sex.

Glabella-occipital length . . . . .	175 mm.
Greatest breadth (parietal) . . . . .	135 "

*Cephalic Index*:  $\frac{135 \times 100}{175} = 77.1.$

*I.e.* mesaticephalic, or, more strictly, subdolichocephalic.

(2) *Inferior maxilla*.—Well preserved, only the left articular condyle missing. The teeth are all present, but the right wisdom-tooth is not developed, or else it has been lost very early in life, which is extremely improbable. Careful dissection of the bone has failed to reveal any trace of it in an unerupted condition. Chin rounded but prominent. The angle is rounded and open.

Symphysial height . . . . .	27 mm.
Coronoid height . . . . .	53 "
Condylloid height . . . . .	64 "
Intergonial width . . . . .	93 "
Gonio-symphysial length . . . . .	87 "
Breadth of asc. ramus (right) . . . . .	34 "
" " (left) . . . . .	29 "
Angle about . . . . .	140°

(3) *Superior maxilla*.—Imperfect; several teeth missing, but the dentary arcade is handsome. No caries, but the teeth are worn.

(4) *Fragments*.—Of temporals, base and vault of the skull, ribs, and vertebræ.

♂; between 50 and 60.

#### LOT No. 7.

GENERAL DESCRIPTION.—A skull, consisting mostly of the calvarium; but the roof of the orbits and the right temporal bone are preserved. The skull is that of an adult male, probably about 50.

DETAILED DESCRIPTION.—The bones (united together) are: (1) skull as a whole; (2) frontal; (3) parietals; (4) occipital; (5) temporal.

(1) *Skull as a whole*.—The skull is symmetrical, and not very large. The bones are light but well preserved. The sutures are all considerably obliterated on the inner aspect, and on the outside the saggital suture is obliterated at the region of the obelion. Hence the age of the skull is about 40. The following measurements it has been found possible to take; and, as the skull is in good preservation, they will be found to be reliable.

Glabello-occipital length . . . . .	135 mm.
Greatest breadth (parietal) . . . . .	178 "

$$\text{Cephalic Index: } \frac{135 \times 100}{178} = 75.7.$$

*I.e.* the skull is mesaticephalic, or, more correctly, subdolichocephalic.

Minimum frontal diameter . . . . .	96 mm.
Stephanic diameter . . . . .	108 "
Asterionic diameter . . . . .	100 "
Horizontal circumference . . . . .	505 "
Frontal longitudinal arc . . . . .	138 "
Parietal longitudinal arc . . . . .	116 "

(2) *Frontal*.—Large supraorbital ridges, and large supraorbital notches, the right one being converted into a foramen by a spicule of bone. The frontal sinuses are large, and do not communicate. On the inner aspect of the left frontal boss there is a strange appearance of erosion; it looks pathological rather than *post-mortem*. It suggests some thickening (localised) of the dura. There are two deep depressions for Pacchionian bodies.

(3) *Parietal*.—Nothing to note except complete closure of the parietal foramina, and commencing obliteration of the saggital suture in their neighbourhood.

(4) *Occipital*.—Very projecting above the inion. There are several well-marked Wormian bones.

(5) *Temporal (right)*.—The mastoid process is very well developed, and there is a deep digastric groove.

♂; approaching 50; moderate development.

#### LOT No. 8.

GENERAL DESCRIPTION.—A few fragmentary remains taken from one grave. They include an imperfect lower jaw and fragments of bones of the extremities. The bones evidently belonged to a pretty aged female.

DETAILED DESCRIPTION.—The bones consist of: (1) inferior maxilla; (2) radius; (3) tibia; (4) axis.

(1) *Inferior maxilla* (rami incomplete).—Small, prominent, and narrow chin,

and the genial tubercles are well marked. There are 7 teeth, which are considerably worn, but exhibit no caries. The right ramus is set at an angle of  $140^{\circ}$  to the body of the bone. The angle is, moreover, a very rounded one, and the bone here worn-looking and thin. These characters indicate senility.

(2) *Left radius*.—Is slender, but exhibits no special characters.

(3) *Left tibia*.—Is also slender, and exhibits no special characters.

(4) *Axis*.—A little imperfect, and the odontoid process inclines somewhat to the left.

♀ ; aged ; slender build.

#### LOT No. 9.

GENERAL DESCRIPTION.—Very fragmented and incomplete. The bones evidently belong to a comparatively young person, of the male sex, slight in build, and rather poor in musculature. The only point of interest anthropologically is an abnormality of the frontal bone. It presents a metopic suture, a comparative rarity.

DETAILED DESCRIPTION.—The bones consist of: (1) parts of skull; (2) humerus; (3) femora; (4) tibia.

(1) *Skull* (comminuted and incomplete).—The frontal bone contains large frontal sinuses, which do not communicate. The metopic suture is evident on both aspects of the bone. The basi-occipital shows non-union of the basal synchondrosis. Other portions are the right and left petrous-temporal; and fragmented portions of frontal, parietal, occipital, and malar bones. One molar tooth is worn more than the apparent age of the other bones would indicate.

(2) *Right humerus* (lower end lacking).—The muscular impressions are fairly prominent.

(3) *Femora* (right femur).—The upper extremity and lower epiphysis are lacking. It is a long and fairly slender bone. Left femur (lower end only). The lower epiphysis is ununited.

(5) *Right tibia* (upper epiphysis and lower end lacking).—The upper epiphysis has been ununited. The muscular impressions are poor.

♂ ; under 20 ; slender build.

#### LOT No. 10.

GENERAL DESCRIPTION.—Very fragmented portions of skull. The skull when *in situ* was much deformed, being greatly flattened transversely. The bones themselves are distorted, and some are thinned to scales. The bones are of a young adult, but it is impossible to dogmatise of which sex; though, from the delicate nature of the bones and the character of the muscular impressions, it is more probable that the bones are those of a female.

DETAILED DESCRIPTION.—The bones consist of: (1) superior maxilla; (2) temporals; (3) malleus and incus; (4) fragments.

(1) *Superior maxilla* (right).—This bone is interesting, as it shows an unerupted wisdom-tooth, which is in relation to the floor of the antrum of Highmore. The bone itself is small, and is obviously that of a quite young adult, not only from the character of the wisdom-tooth, but also from the position of the antrum of Highmore, which is as yet far back. Teeth: second premolar, 2 molars, and the unerupted wisdom-tooth. They are not worn.

(2) *Temporals* (right and left).—The mastoids are poorly developed, hence the probability of the bones belonging to a young female.

(3) *Malleus and incus*.—These belong to the left side.

(4) *Fragments*.—These belong to the vault and base of the skull, but call for no special notice.

♀ (?); adolescent; normal build.

#### LOT No. 11.

GENERAL DESCRIPTION.—A skull poorly preserved, with a portion of the lower jaw. The remains have belonged to a strong woman of adult life.

DETAILED DESCRIPTION.—The bones consist of: (1) skull; (2) inferior maxilla.

(1) *Skull*.—This is distorted and incomplete. The calvarium and left temporal bone are preserved. The sutures have sprung open, and the bones are distorted. Frontal sinuses and mastoid process small. Bosses (frontal and parietal) large. Orbits small.

Glabello-occipital length . . . . .	182 mm.
Greatest breadth (parietal) . . . . .	132 „

*Cephalic index*:  $\frac{132 \times 100}{182} = 72.4$ .

*I.e.*, dolichocephalic, but the measurements cannot be very accurate.

(2) *Inferior maxilla* (body and teeth alone).—The depth of the body is small; chin narrow, but the angle of the two sides at the chin is very wide. Teeth very irregular but large. The wisdom-teeth and the first premolar on the left side are missing. There is no caries.

♀; adult; strong; dolichocephalic.

#### LOT No. 12.

GENERAL DESCRIPTION.—These bones are from the skull of an adult. The base of the skull is fairly well preserved, but the vault is fragmented and distorted. The sex is more probably female.

DETAILED DESCRIPTION.—The bones consist of: (1) base of skull; (2) parietal; (3) occipital; (4) fragments.

(1) *Base of Skull*.—This consists of: temporals (right and left), sphenoid, and left half of the frontal. The skull is much distorted and eroded. The frontal sinuses are very small, but the sphenoidal are well developed. The mastoids appear to be poorly developed. The sex is probably female, but it is not possible to dogmatise. Basal synchondrosis ossified.

(2) *Parietal* (left).—Shows nothing to note.

(3) *Occipital*.—Shows a small inion.

(4) *Fragments*.—Of the vault and base of the skull.

♂ (probably); adult; stature indeterminable.

#### LOT No. 13.

GENERAL DESCRIPTION.—A few fragments of skull. They have belonged to a fully adult person, but the sex is indeterminable.

DETAILED DESCRIPTION.—The bones include: (1) inferior maxilla; (2) basi-occiput and sphenoid; (3) fragments.

(1) *Inferior maxilla* (right half only).—Distorted. Wisdom-tooth *in situ*, worn but sound.

(2) *Basi-occiput and Sphenoid*.—United by ossification.

(3) *Fragments*.—Of the base and vault of the skull.

Adult; sex indeterminable.

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## SUMMARY OF SEX.

Males . . . . .	6
Females . . . . .	5 (2 doubtful).
Indeterminable . . . . .	2
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Total	13

## SUMMARY OF AGE.

Under 23 . . . . .	3 (1 child).
23 to 50 . . . . .	7
Over 50 . . . . .	3
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Total	13