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the bridge of the nose. The use of face-pendants belongs to the later part of the pre-historic age; and the well-formed figures here may well belong to the dynastic race who brought in artistic work. The use of a hook at the lower end clearly points to a face veil being suspended from it, and indicates that the latter prehistoric people wore face veils, which have been re-introduced by the Arabs into modern Egypt. The shining pendant of white shell or polished copper is evidently akin to the burnished gilt metal ornament now worn on the forehead by Egyptian women, from which the face veil is suspended.

W. M. FLINDERS PETRIE.

Crete: Fauna.

Boyd-Dawkins.

Remains of Animals found in the Dictæan Cave in 1901. By **114**
Professor W. Boyd-Dawkins, M.A., D.Sc., F.R.S.

The remains of the animals discovered by Mr. Hogarth in the Dictæan Cave in 1901, and sent to me for identification, present points of considerable interest. They belong partly to animals which have been sacrificed in the Sanctuary of Zeus and partly to animals which have been eaten and left in a lower stratum to form a refuse heap similar in every respect to those invariably found in caves which have been occupied by man. They form an important contribution to our knowledge of the wild and domestic animals in Crete in the Mycenaean and early Greek periods.

The conditions of their discovery were as follows: The larger specimens were obtained from an untouched deposit in the atrium of the cave (*Journal of Hellenic Studies*, Vol. XVII., p. 355) three feet in thickness, which rested upon a layer of gravel. They were associated with fragments of charcoal and of pottery. Three fragments sent along with the bones belong to three flat-bottomed bowls similar to those described by Dr. A. J. Evans in the above paper. One of these, covered with stalagmite, is of thick

FIG. 1. FRONTLET OF *Bos domesticus*, VAR *creticus*.

red ware made on the wheel; another is of thin red ware, hand-made, with little stones embedded in the paste; and a third of black pottery, fine in the grain, with a polished surface.

The smaller, or refuse-heap

bones, were derived from the lower stratum, and are therefore of higher antiquity than those obtained from the undisturbed layer above.

The following species have been identified: 1. *Bos domesticus*, variety *creticus*—A frontlet (Fig. 1) with two perfect horncores, from the upper deposit, belongs to a small domestic bull. It has been hacked off the rest of the skull and has probably been fixed to one of the sides of the shrine or to the altar, as a *Bucranium*.

It presents the following measurements:—

	mm.		mm.
Anterior width between horncores -	190	Length of horncore -	180
Middle - - - - -	170	Basal circumference of horncore -	167
Posterior - - - - -	144	Between tips of horncores -	490
[162]			

The horncores are short, straight, and stout, and do not project beyond the plane of the frontal bones. The frontals are convex between the bases of the horncores, flattened and convex below. The horncores differ from those of *Bos frontosus*, described by Nilsson and Rüttimeyer, in their shortness, and from *Bos brachyceros* (*B. longifrons*, Owen) by their thickness and straightness. They belong to neither of these domesticated breeds. They are, however, identical with those of the head of a bull on the coins of Phocis, of Thessaly, and of Samos (Ridgeway, *Early Age of Greece*, Vol. I., p. 334). The upper of three oxheads (Schuchardt, *Schlieman's Excavations*, p. 282) figured along with the head of an ape, and with cuttle-fishes on a gold ring, found in Mycenæ, bears similar though larger horncores, and probably belongs to the same breed as the specimen under consideration. The other two, with doubly curved horns, belong to the larger oxen of the type of the wild urus, the hunting and the taming of which is represented so well in the famous golden cups from the Vaphio tomb.

This frontlet undoubtedly belongs to a breed largely kept in ancient Greece, which for purposes of identification may be named *Bos creticus*.

The following remains, from the refuse heap in the lower stratum, may probably be referred to the same domestic variety of oxen. Fragments of a lower jaw, three lower jaws of calves with milk teeth, five broken long bones, two phalanges, and a broken metatarsal. Some of the bones have been scraped. One left upper maxillary with teeth was also found, and three upper teeth* :—

2. *Capra ægagrus*,† the wild goat, formerly abundant in the wild state in the Mediterranean, but now found in Europe only in Crete and some of the Cyclades, and in the higher mountains of Asia Minor, is represented by one frontlet and two perfect horncores belonging to males, a skull of a young female, and the frontlet of a kid, and one horncore of adult cut off from the head. All these are probably domesticated varieties, the sole difference between wild and domestic being a question merely of size.

In the following table the principal measurements of the horncores will be found in millimetres :—

—	He Goat.				She Goat.	—	He Goat.				She Goat.
Anterior width between horncores.	16	22	32	34		Distance of tips - -	290	—	—		100
Posterior width between horncores.	63	—	—	53		Basal measurement for front to back rounded angle.	64	63	60		18
Length of horncores -	400	400	420 +	150		Measurement at right angles to this.	36	36	45		—
Basal circumference of horncores.	165	156	160	73							

The goat, *Capra ægagrus*, indigenous in the district, is frequently represented in Cretan gems, as may be seen in Figs. 25 and 67*b* of Evans' *Cretan Pictographs*, and in Fig. 16, p. 269, of *Journ. Hell. Stud.*, XVII. (A. J. Evans). In all these the long

* The teeth present the following measurements in millimetres :—

—	M 3	M 2	M 1	M 1	Pm 4
Antero-posterior length - -	25	26	20	20	15
Antero-transverse width - -	24	21	21	20	—
Postero-transverse width - -	23	20	21	20	20

† Blasius, *Fauna der Wirbelthiere Deutschlands und der angrenzenden Landes von Mitteleuropa*, Braunschweig, 1857, p. 485.

simply recurved horns define the species from the *Capra hircus*, a goat with doubly twisted horns figured on a coin of Delphi (Ridgeway, *op. cit.*, p. 281).

3. *Ovis aries* (Blasius, *op. cit.*, p. 467).—One large twisted horncore, with a basal circumference of 150, and a length of 312 mm., belongs to the horned domestic sheep. Six upper and eight lower jaws, and numerous refuse bones broken for food, occurring in the lower stratum, may belong either to the goat or the sheep.

4. *Cervus dama*.—Two antlers of the fallow deer, each torn from the head, and consisting of the two lower tynes and a portion of the flattened palm, were found. The smaller of these has been hacked off the head.*

The palm is broken off in both specimens. The flattening of the base of the second antler and the flattening of the upper part of the beam above it differentiate these two antlers from those of red deer (*Cervus elaphus*), with which in other particulars it bears a superficial resemblance.

5. *Sus scrofa*.—Three skulls of boar, found in the upper stratum, in the atrium, and very nearly perfect, present the following measurements :—

MEASUREMENTS OF SKULLS OF DOMESTIC AND WILD BOAR.

—	Boar, Cave of Psychro.			Wild Boar.					
	1.	2.	3.	Garson.	Rüttimeyer.	—	Manchester Museum.	—	—
(1) Occipital crest to alveolar point	352	340	350	400	—	—	350	350	340
(2) Basion to alveolar point -	308	298	300	357	—	—	340	342	320
(3) Basion to occipital crest -	126	110	124	132	—	—	144	140	134
(4) Inter-orbital width - -	80	82	83	84	98	95	202	113	91
(5) Length of canine alveolar process.	46	45	44	—	49	48	63	53	42
(6) Length of palate - -	216	204	216	—	258	250	243	242	252
(7) Breadth of palate - -	36	27	32	—	—	—	33	44	37
(8) Length of molar series -	112	111	108	118	120	137	112	116	112

MEASUREMENT OF TEETH OF BOAR.

—	Cave of Psychro.			—	Cave of Psychro.		
	1.	2.	3.		1.	2.	3.
<u>M 3.</u>				<u>Pm 4.</u>			
Length - - -	31	30	33	Length - - -	14	12	12
Antero-transverse - -	18	18	20	Breadth - - -	13	12	13
Medio-transverse - -	16	17	17	<u>Pm 3.</u>			
Postero-transverse - -	11	11	13	Length - - -	12	10	11·5
<u>M 2.</u>				Breadth - - -	10	10	10·5
Length - - -	18	17	19	<u>Pm 2.</u>			
Antero-transverse - -	16	16	16	Length - - -	10	11	11
Postero-transverse - -	17	17	17	Breadth - - -	7	6	10
<u>M 1.</u>				<u>Pm 1.</u>			
Length - - -	15	14	14	Molar series to alveolus of <u>Pm 1</u>	117	114	111
Antero-transverse - -	14	13	14	True molar series, length - -	62	63	66
Postero-transverse - -	14	14	15				

* These measurements are as follows :—

Basal circumference	-	144	128	Brow tyne to second tyne -	160	170
Length of brow tyne	-	205	170	Circumference of beam -	100	78

On a comparison of these skulls with those of wild boar described by Rüttimeyer (*Fauna der Pfahlbauten der Schweiz*, V., pp. 28, 56) I find that they are smaller and without the strong muscular ridges and crests which differentiate the wild from the domestic variety. The tusks, too, are proved by the small size of the canine socket to be considerably smaller, although unfortunately the canines themselves have been removed. This conclusion is confirmed also by the comparison of the measurements of the typical wild boar selected by Dr. Garson (*see Pitt-Rivers' Excavations in Cranbourne Chase*, II.: *Tables of Test Animals*) and with three skulls of wild boar in the Manchester Museum, Owens College. They may therefore be referred to the domestic boar, which occurs, as Dr. A. J. Evans notes, among the Cretan pictographs.

The remains of the domestic hog also are represented in the lower stratum of gravel by a lower jaw with three molars, a lower canine, an incisor, two broken bones, and the shaft of a long bone belonging to a sucking pig. These are in the condition of ordinary refuse bones.

6. *Canis familiaris*.—The last animal to be added to the above list is a small variety of dog, represented by an upper jaw with an abnormal upper true molar, discovered in the lower stratum of gravel.

The remains of all the animals found in the upper stratum, the domestic ox, the goat, the horned sheep, the fallow deer, and the hog were parts of offerings to Zeus, while the dog from the lower stratum may belong to an earlier period in the history of the cave, when it was used as a habitation and before it was used as a shrine of the Dictæan Zeus. The perfect condition of the offerings contrasts strongly with the fragmentary remains of the refuse heap.

W. BOYD-DAWKINS.

Eskimo.

Tocher.

Note on some Measurements of Eskimo of Southampton Island. 115
A Paper read at the Belfast Meeting of the British Association, September 15th, 1902. By J. F. Tocher, F.I.C.

In the following note the results are given of an analysis of the measurements of 35 adult male Eskimo taken at my instigation by Captain A. Murray and Mr. W. J. Tocher of the whaler "Active" at Southampton Island, Hudson's Bay, on the 24th August, 1901. These figures will be useful for comparison with the numerous measurements of Eskimo skulls, while they are interesting in themselves, being confirmatory to a large degree of former measurements of the living head. The measurements recorded were those of stature, maximum head (glabella-occipital) length, and maximum head breadth. The colour of the hair and eyes, the shape of the nose and face, and the appearance of the lips and cheek bones were also recorded. Observations were made on eight male children, one half-breed male, and one female, but are not dealt with here. The average of each dimension, the mean cephalic index, and the standard deviation have been calculated and contrasted where possible with former results. The standard deviation of a group from the average—a method of ascertaining the purity or otherwise of race already applied in a former paper—is exceedingly valuable, as the smaller the deviation is, the nearer the group approximates to the average characteristic. The average stature of the 35 Eskimo was 1,620 mm. The stature varied from 1,486 mm. to 1,740 mm. The greatest individual deviation was 134 mm. below the mean. The standard deviation amounted to 68.4 mm. or 4.2 per cent. The average head length and breadth of the group amounted to 192.4 mm. and 148.5 mm. respectively, the standard deviation in each case being 6.3 mm. and 4.84 mm. or 3.3 per cent. in both cases. The head lengths ranged from 179–205 mm., and the breadths from 140–161 mm. The cephalic index of the group was 77.2, with a standard deviation of 8.36 or 2.89 per cent. The cephalic index of individuals ranged from 69 to 82,