SOME NOTES UPON A TASMANIAN ABORIGINAL SKULL.

By

H. H. SCOTT, Curator of the Launceston Museum,

and

R. MCCLINTON, D.D.S. (Cal.).

Plates I.-VIII.

(Read 9th March, 1925.)

The Skull, which has recently come to light, was discovered upon the North-East Coast, and apparently represents the total "find," since extended search failed to add other remains.

It is devoid of a mandible, but otherwise is extremely perfect, even the turbinoid bones being *in situ*—it is that of a young female.

GENERAL DESCRIPTION OF THE SKULL.

All the characteristics of the Tasmanian skull are in evidence, the age being certified to by the non-erupted wisdom teeth, and the following items of osteology:—

1. There is a trace of the frontal suture at the nason, and some evidence of it higher up as the frontal recedes to the bregma.
2. The pre-maxillo-maxillary suture is not ankylosed.
3. The occipito-sphenoidal suture is still spongy, complete ankylosis not having taken place.

In this latter connection it may be said that of three other female skulls of the same race, available to us for study, two show the suture open, with non-erupted wisdom teeth, and one shows the suture ankylosed to extinction with the wisdom teeth still in their follicles. A male skull, in which the left wisdom tooth had alone been erupted, manifested a completely ankylosed occipito-sphenoidal suture. The female skull cited, with the closed suture and non-erupted teeth, is a larger and heavier cranium than the one that

forms the subject of our paper, but is beyond all doubt that of a female, being in point of fact No. 26 of Prof. R. J. A. Berry's Atlas.

In our skull under review we find the inion slightly developed, but rather less so than obtains in the other female skulls used for comparison. It seems reasonable to suppose that the protrusion of the skull in this region was both an age and a sex character. Upon the right side there is a parieto-squamosal ossicle 25 mm. long; it is quite loose. No epipteric appears upon this side, although one is present upon the left.

The most striking instance of wormian ossicles found in this skull is that of a divided "Inca bone," the two moieties of which are similar in outline, their shape being cordate. There is an ossicle upon the right side of the skull, situated in the Lambdoidal, slightly below the last parietal contribution to that suture. This is not exactly duplicated upon the left side, but rather higher up, the parietal thrusts a bony dart into the occipital. Again, upon the right side an ossicle occupies the squamosal notch. Upon this side, therefore, there are three ossicles directly relating to the squamosal ("temporal") element. The most interesting of the eight old ossific centres, active in this skull, has yet to be called attention to, namely, one found in the right orbit. This is a minute island of bone in the osplanum, slightly anterior to its junction with the sphenoid, in short, the so-called "orbital process of the sphenoidal turbinate "bone," known at times to appear in the skulls of lowly races. Osteologically, we are here dealing with a last relic of the external plate of the old pre-frontal. The styloid processes were not ankylosed to their respective bases (the tympano-hyals), and may not have even been ossified, but in any case they are missing, and the squamosal piers manifest the condition of articulation by syndesmosis with the stylo-hyals. Such conditions point to immaturity.

THE TEETH.

The palate of this truly primitive human being is a perfect horse-shoe shaped cavity, and the lingual aspect of the tooth line slightly widens as it goes backward, and is thus in marked contrast to that which obtains in the higher ape—*Troglodytes gorilla*—in which the tooth line is absolutely straight in antero-posterior extension. This posterior extension of the palate is in direct relation to the added width

of the face, and, all things being even, should not strongly alter the points of contact of the several teeth as the evolution of the human race proceeded. The Dentist of to-day, however, finds that the blending of races by intermarriage and the inherited effects of disuse, have both changed the character of the palate and altered the dental points of contact—essentially for the worse! In these circumstances a primitive skull, such as that before us, is of great value as an indication of the racial base line upon which modern complex conditions have been reared. In the gorilla the points of contact of the five cheek teeth are practically *central* and *even*, but in the primitive human, the widening out of the palate rolled these points slightly to the labial aspect, the pivot point being the posterior surface of the last pre-molar. It seems reasonable to suppose that degeneration of the human palatal conditions would tend to reverse this outward thrust, and that, as a natural result, the present-day contracted and distorted palate would follow. In a word, the complex man of to-day—the sum total of all antecedent individuals—reverts to a period of racial history in which he first began to make human history, as such, and departed from the anthropoid apes in his long upward climb. An examination of the second molars of this skull shows that the lingual cusps are higher and more worn than the labial ones, which is exactly what might be expected if the outward thrust of the tooth line was more strongly marked at the alveolar line than it was at the floor of the palate. Put in another way, the maxillary walls of the palate bent outwards at a more rapid rate than the maxillary moieties, that constituted the floor of the palate, increased in width. The reversion of one, or both, of these osteological changes, together with characters later acquired through alterations of diet, are the potent factors in abnormal human dentition to-day. In conclusion, it may be said that "Cobia," the lowest and most debased of Tasmanian Natives, has a palate that makes a nearer approach to that of the gorilla than any other Native's skull available to us for study.

THE ORAL CAVITY.

The oral cavity is large, with a well-formed round arch; the vault is ample, but nearly flat. All the bony elements that enter into the formation of the cavity are regular in outline and well defined. The articular sutures are clearly marked. In the median suture, distad of the interproximal space of the central incisor, lies the anterior palatine for-

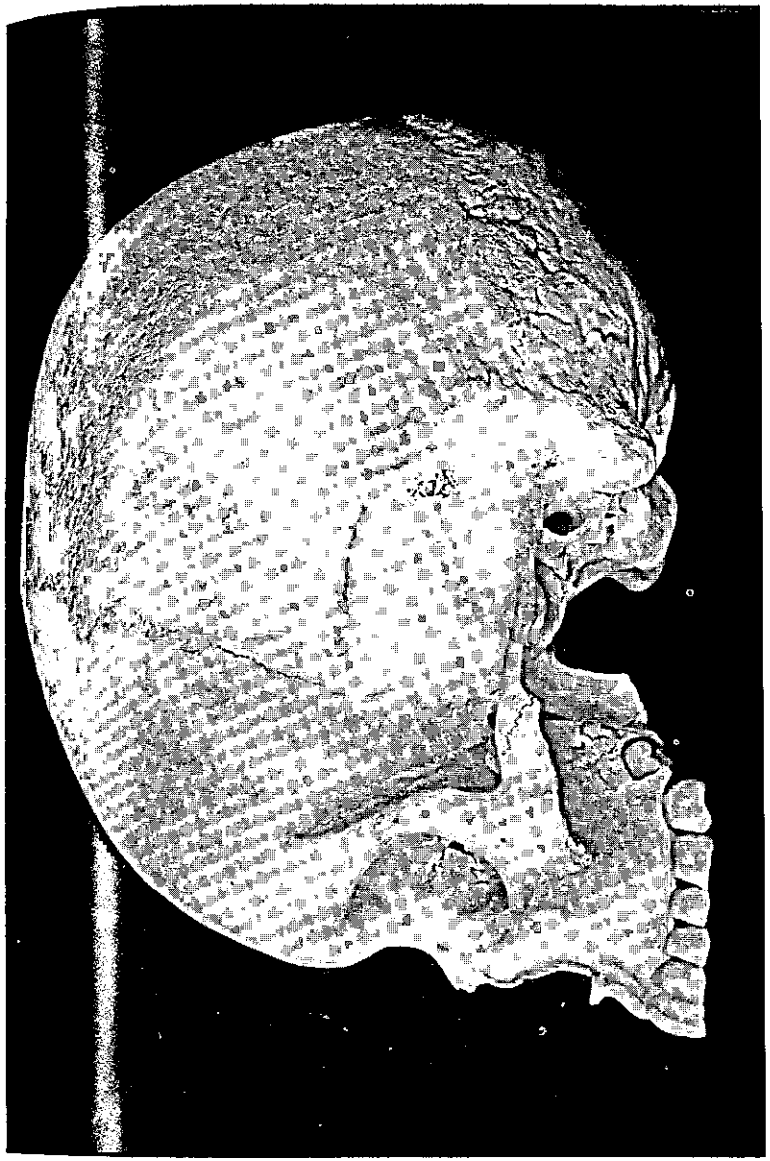
amen, a single, large aperture, and, therefore, in contra-distinction to the conditions that obtain in skulls of the higher races, where it usually appears as a group of four foramina. Immediately behind this foramen is the suture of the incisive bone—which pre-maxillary suture extends across the junction of the maxo-maxillary for about 5 mm. upon either side. The maxillo-palatine suture is to be noted in the item of its left branch leaving the central line 4 mm. earlier than the right moiety. The posterior palatine canals are large, and occupy a position approximately centrad of the last-named suture. Several accessory palatine foramina exist behind them. The general surface of the maxillary is rough, and penetrated by a number of minor foramina; also, here and there, the outer table of the bone is raised into projecting points and ridges. The most marked instances of the latter are to be found near the maxillo-palatine suture, just in line with the posterior palatine canals. Externally, the maxillary bone conforms to the outline of the arch, its surface being alternately grooved and ridged in a vertical direction, thus indicating the rooting of the six anterior teeth and the two pre-molars. We note also that here, as within the arch, numerous foramina penetrate the alveolar rims. Several nutrient foramina are also to be found upon the facial portion of the maxillary, centrad of its junction with the malar. Reverting to the palatine areas again, we may note that the right internal pterogoid plate ends in a well-marked hamular process; mutilation has unfortunately robbed the skull in this respect upon the left side.

TEETH.

The skull is abnormal in having 17 teeth *in situ*, 14 being those duly erupted during life, and the remainder are in their respective dental follicles. The third pair of molars were upon the eve of eruption, the over-lying bone having been fully absorbed. The abnormal molar, which is situated upon the left side about half-way up the zygomatic surface of the maxillary, is apparently imperfectly calcified, its surface is soft and crenated. With the exception of the two central incisors, which are slightly rotated towards the median line, all the teeth present a beautiful curve, the individual teeth taking their places with unerring accuracy, and with perfection as to points of contact. The incisors, which taper in outline, have broad cutting edges—sides that taper to a small rounded neck; the mesial sides mark

Plate I.

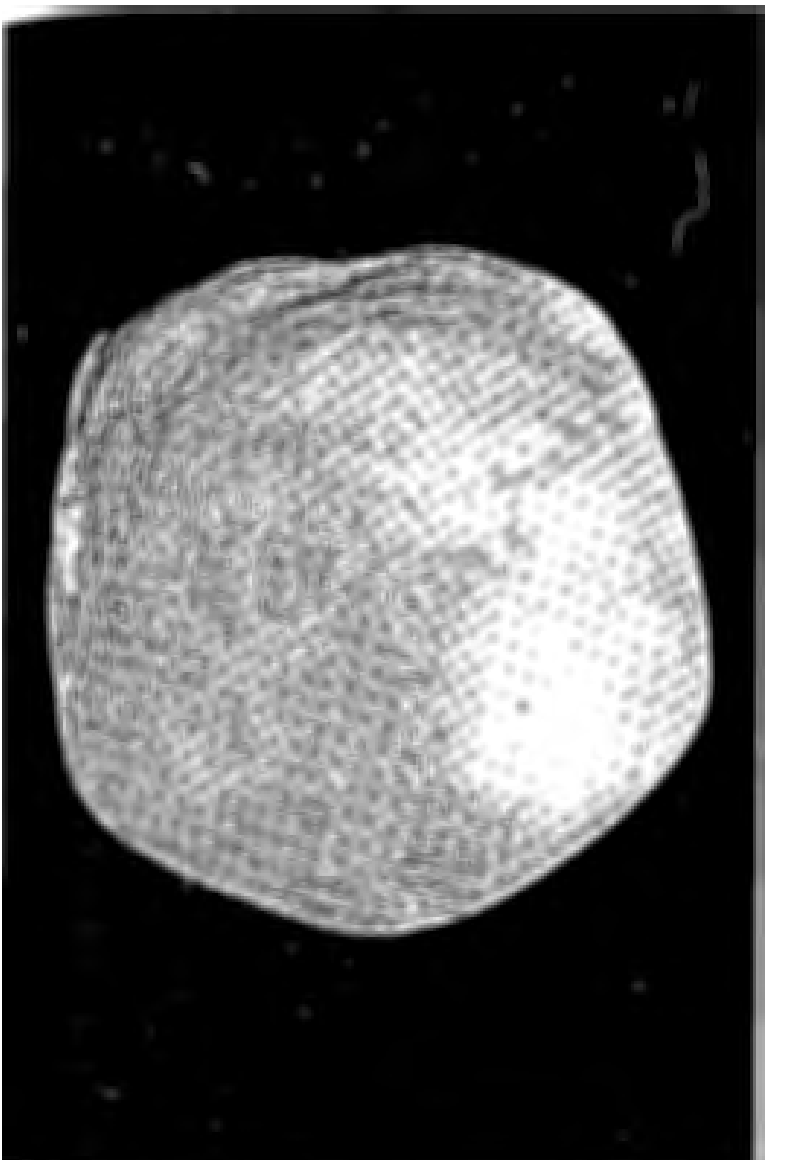
P. and P. Roy. Soc. Tas., 1925.



TASMANIAN ABORIGINAL.
The Skull in *Norma lateralis*.

TASMANIAN ABORIGINAL.

The Skull in *Norma facialis*.

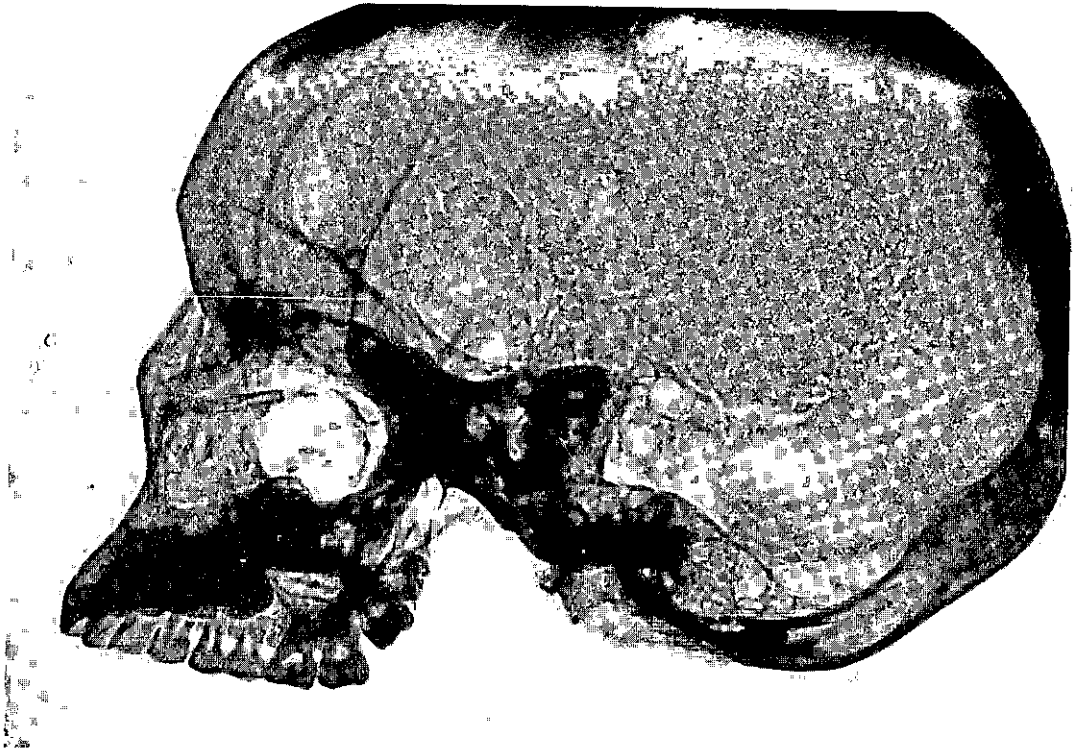


TASMANIAN ABORIGINAL.

The Skull in *Norma occipitalis*.

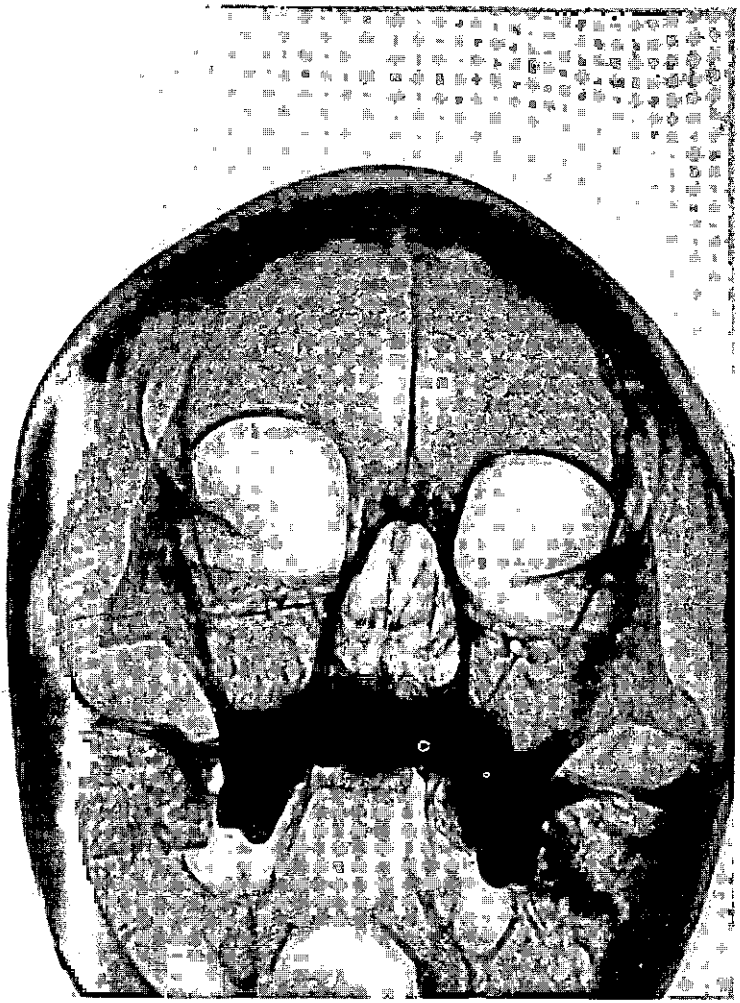
TASMANIAN ABORIGINAL.

The Skull in *Norma basalis.*



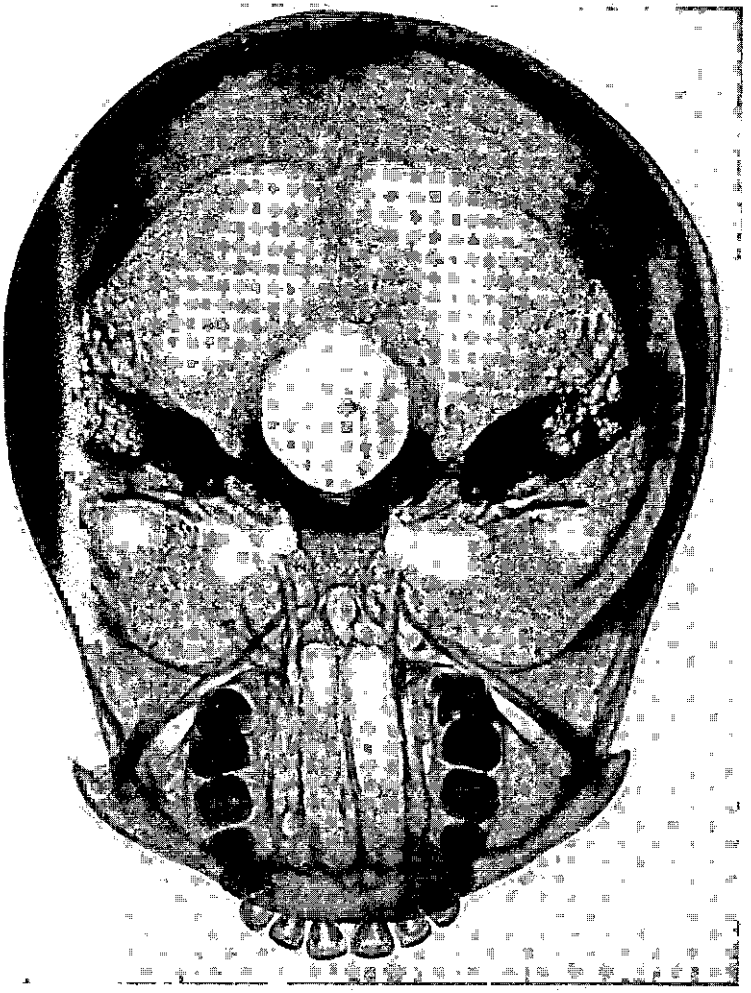
TASMANIAN ABORIGINAL.

Skiograph of the Skull in *Norma lateralis.*



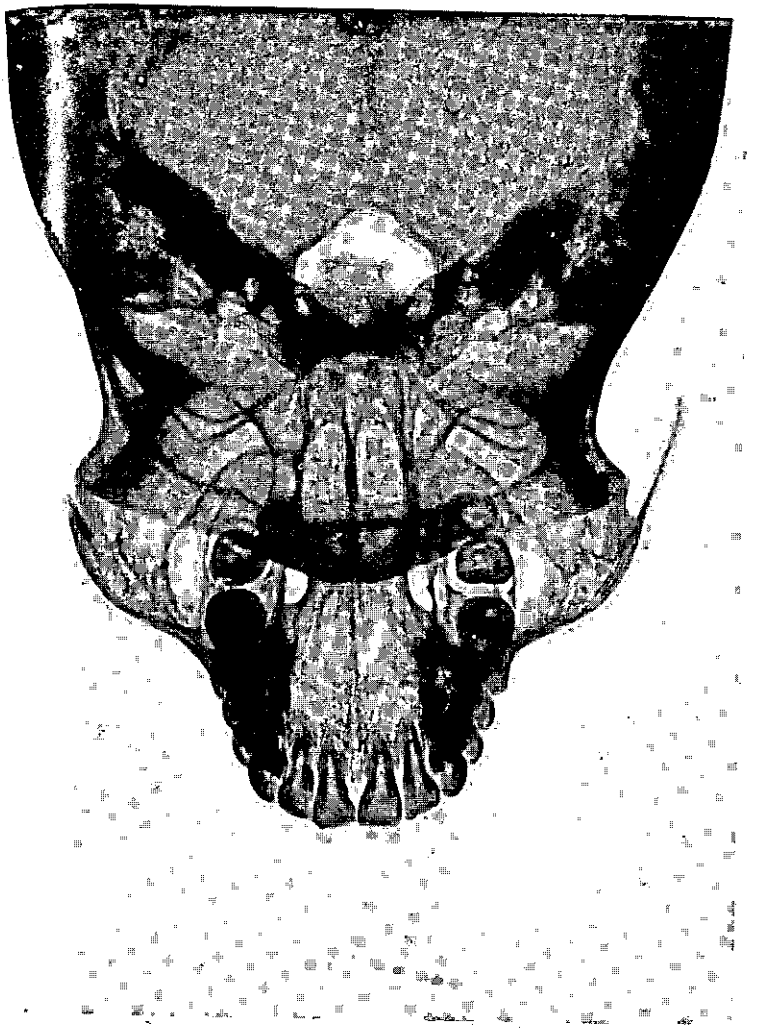
TASMANIAN ABORIGINAL.

Skiograph of the Skull in *Norma facialis.*



TASMANIAN ABORIGINAL.

Skiograph of the Skull in *Norma basalis*. (Complete view.)



TASMANIAN ABORIGINAL.

Skiograph of Palate and Teeth. (Viewed in *Norma basalis.*)

the sharpest angle with the plane of occlusion. Upon both incisors and pre-molars the developmental marks may still be traced, although the effects of action upon coarse food have started to become manifest. Upon the left hand side of the arch, with the mesial angle of the left central incisor as a starting point, the plane of occlusion bears away from the normal about 5 degrees in a graceful curve, and does not become normal again until we reach the second pre-molar—effects incidental to excessive chewing upon this side. The lateral incisor shows a deep indentation upon its cutting edge. The lingual surfaces of all the teeth are highly polished as the natural result of correct usage. The pre-molars and the first molars upon both sides show the effects of attrition, but the second molars (although well polished) only show wear upon the lingual cusps. With the exception of the abnormal fourth molar, all the teeth are physically perfect, and without structural defects such as commonly obtain among the white races of to-day. The radiographs show large pulp canals in all the teeth, and an absence of bone absorption; in a general way, these data indicate youth. The rooting of the teeth is as follows:—Incisors single rooted, pre-molars double rooted, first molars triple rooted, while the roots of the second molars are drawn to a point. This latter is to be regarded as a special provision of nature to allow of the mutual adjustment of the occlural surface to conform to the curve of occlusion, and thus assist the act of food mastication. The gingival surfaces are all healthy, and devoid of any pathological conditions such as follow upon the ravages of pyorrhœa. In conclusion, it may be stressed that the vigorous jaw action incidental to the grinding of coarse food called out such a rich supply of blood as to fully nourish the teeth, and much of their perfect condition may be directly traced to this important factor.

After the above notes had been written Dr. William K. Gregory's work upon the Origin and Evolution of Human Dentition became available to us, and we notice that upon page 421 he figures (after Keith) a Tasmanian palatal arch, and compares it with that of a Mousterian Youth and certain primitive apes. As our photographs will show, the arch we are dealing with is much nearer to that of the Mousterian than it is to the Tasmanian outline he re-produces. In this connection we also desire to record the fact that four female and six male skulls available to us all *agree in having palatal arches of this type,* but that an eleventh skull (that of

"Cobia"), as we have already stated, is more gorilla-like, and in a general way conforms to the figure by Keith. We also call attention to the note upon page 478 of Dr. Gregory's work respecting "shovel shaped" incisors, and invite attention to the shape of the incisors shown in the skull we have under study; their extreme perfection should supply useful data for future workers in this field of research.

EXPLANATION OF PLATES.

Plates I.-VIII.

1. The skull viewed in *Norma lateralis.*
2. *Norma Facialis.*
3. *Norma occipitalis.*
4. *Norma basalis.*
5. Skiograph of *Norma lateralis.*
6. Skiograph of *Norma facialis.*
7. Skiograph of *Norma basalis.*—Total outline, with internal structures.
8. Skiograph of *Norma basalis.* Teeth and palate only.

All Photos by Dr. R. McClinton.