(2294)

deposits of much orang material as food bone clearly indicated a way of obtaining part of a jaw 400-600 years old. Indeed, had Dawson, the Piltdown forger, and Everett, the Sarawak caver, but known the full facts, Dawson *could* have got former orang bone *many thousands of years old*, from Niah—where it continues down into fully Pleistocene stone-age food layers of the Palaeolithic.

Thus, also, the initial anomaly that the ape jaw on testing did *not* prove to have been treated in exactly the way Dr. Weiner suggested, is met by the introduction of this not-so-recent, and probably ex-cave, material—instead of the use of a nineteenth century collector's specimen.

It must be emphasised that none of this proves that it *WAS* Everett who supplied, directly or indirectly, the jaw Dawson grafted into Piltdown archaeology. But it is, at present, difficult to see who else it might so readily have been. For no one else, in either Borneo or Sumatra—the only possible places—had ready access to any orang-utang bones which were not *immediately* recent. Everett pioneered cave excavation and related exploration in the two islands. It is only since the Sarawak Museum resumed digging during the past decade that any comparable items—measuring up to the flourine, nitrogen and collagen* tests and the general *look* of the Piltdown jaw, have become available. And the British Museum's Piltdown skull had come under suspicion *before* the Sarawak Museum came into the story, happily!

There is one further line of research which now might be revealing, certainly amusing. That is to try and link A. H. Everett directly *with Dawson, at the English end*. We know that A. Russel Wallace had *some* contact with Everett; and of course much with Sir Arthur Smith Woodward, who resigned from Dr. Oakley's British Museum to devote himself wholly to working *with* Dawson at Piltdown. Other links which *might* connect the Sarawak and Sussex men include: Richard Lyddeker (via the Zoo), the great Hornaday of New York (who bought from Everett at Bau); and of course, Dr. Charles Hose, administrator-cum-collector in Sarawak to 1907, who gratefully acknowledged how he learned the business from Everett himself back in 1877—Hose and Everett together climbed Mt. Dulit in 1891 (cf. *Ibis*, 1893, p. 361).

*Collagen=bone protein.

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Niah Animal Bone: II (1954—8)*

by

LORD MEDWAY

The preliminary report on the animal bone excavated from the west mouth of Niah cave (Medway, 1958) was based on field notes made during the excavation and an examination of teeth and jaw remains which were identified against modern material available in the collection of the Sarawak Museum. This indicated that throughout the period covered by the upper 72" of the deposit (c.32,000 years; see Harrisson, 1958: 563) the fauna of the Niah district was comparable to the present tropical forest fauna of modern Borneo.

Since the publication of the preliminary report, it has been possible to re-examine the skeletal remains in some detail. This study has confirmed that fish, birds and reptiles (chiefly turtles and monitor lizards) formed a significant proportion of the cave men's diet in all ages, and that, of mammals, pig and monkey were the principal food animals, with orang-utan an important supplement. Remains of cattle and deer (sambhur, muntjac and mouse-deer) are scarce. Bones of rhinoceros prove that it too was eaten. Two further animals have been added to those already identified in the food remains; these are crocodile and tapir. The latter is now extinct in Borneo, and a discussion of the phalange on which the record is based is given separately elsewhere in this issue of the *S.M.J.* Another species, *Tragulus kanchil*, the lesser mouse-deer, must be deleted from the cava fauna list. It has also been possible to follow up the problem of *Sus gargantua* raised by Dr. von Koenigswald (1958) in connection with a large lower canine from this site. An interesting note on the dog remains has been received from Juliet Clutton-Brock and is also published in this issue.

*1959 bone material is currently being examined by this writer and others.

TABLE II.—(*Contd.*)

Species	Data	Distal metapodial head[1] Max: height (Ant.)	Max: height (Post.)	Max: breadth (Ant.)	Max: breadth (Post.)	Mid-length diameter (Posterior) (Transverse)	(Median)
Cervus sp.	Niah, N/D, 0-12″	—	28	—	43.5	—	—
,,	Niah, D/N4 12-24″	27	—	42.5	—	—	—
Muntiakus muntjac	B.M. (N.H.), 94.6.12.11	12	13	17	18	—	—
Muntiakus sp.	Niah, L/2, 0-2″	12		18		—	—
,,	Niah, E/B1, 12-24″	11	—	17	—	—	—
,,	Niah, E/B1, 24-36″ (a)	—	13	—	19.5	—	—
,,	Niah, E/B1, 24-36″ (b)	—	12	—	18.5	—	—
,,	Niah, P/S1, 24-36″	—	13	—	20	—	—
,,	Niah, E/B1, 36-48″	—	13	—	21.5	—	—
,,	Niah, W/X1, 48-60″	12.5		20.5		—	—
Tragulus napu	Suai, Sarawak, 13/11/57	6	8	10.5	13	7.5	5.5
Tragulus sp.	Niah, D/N4, 0-12″	—	—	—	—	7	5
,,	Niah, E/A4, 0-12″	—	8	—	12.5	8	5
,,	Niah, E/A3, 0-12″	—	8	— (*L. condyle only*)	7.0	7.5	6
,,	Niah, E/A2, 60-72″	—	—	—	—	7	5

Note (1) Maximum extent of the condyles and/or epicondyles. Figures placed centrally are from fragmentary material which might be anterior or posterior.

(iii) *Tapir and Elephant*

The tapir bone (described elsewhere) was originally picked out of the excavated material by Dr. von Koenigswald, and provisionally identified by him in the field as elephant (von Koenigswald, 1958: 622). Since it provided our only record of elephant so far, the position of this species in prehistoric Borneo is once again in doubt.

However, another large phalange is noted in E/C 3(A) at 60-66″. It is unfortunately incomplete, split longitudinally. The median height of the proximal articular surface, which appears to be kidney shaped, is 36 mm., the median dorsal length of the bone is 34 mm., and the height of the distal face 21 mm. It will be compared with suitable reference material as soon as possible.

The prehistoric distribution of elephant has been discussed by von Koenigswald (*op.cit*). The remains quoted (from Sampung) were found in a cave deposit in association with human artifacts, and had presumably been eaten by man. Tapir teeth are among the bones excavated from Gua Cha, Malaya (Sieveking, 1954-5), which are now in the Raffles Museum, Singapore, and were examined by courtesy of the Director, Mr. C. A. Gibson-Hill. Thus there is a precedent for both animals in prehistoric human food middens in this part of the world.

(iv) *Crocodile*

A number of crocodile bones have been identified from the Niah deposit, and several individuals must be represented. Crocodile bones are also among the food remains of Gan Kira and of another cave (Gua Sirih) in the Kuching district, which was excavated in 1959 by the Sarawak Museum. I can find no precedent for this in Indonesia (van Heekeren, 1957) or Malaya (Tweedie, 1953). Crocodile may occasionally be eaten nowadays as medicine (particularly for asthma), but is not part of the normal diet of the Dayaks, although in times of shortage (e.g. the recent Japanese occupation) it could be taken.

(v) *Rhinoceros*

Metapodials of rhinoceros in W/E1, 24-36″, and X/W1, 48-60″, prove that this animal was eaten at least twice in the cave mouth. The bone pillow of an early burial, figured and

discussed by Harrisson (1957: 164) has been confirmed as the radius of rhinoceros. It was in a very decayed condition, and could only be lifted after copious shellac had been applied. As it is, the total length is approximately 350 mm. and the proximal head measures 83 mm. (tranversely) by 35 mm. The distal head is crushed. (Now on display in Sarawak Museum).

(vi) *Giant Pigs*

Dr. von Koenigswald (1958: 623) also picked out fragments of a particularly large lower canine of pig (E/C1, 48-72"(*) and related these to the "giant pig" (*Sus gargantua*) described by Miller (1906) from a contemporary skull collected in South Borneo.

Chips and enamel fragments of pig canines are common at Niah, but there are few specimens complete enough to provide comparative measurements. Fourteen are available from the west mouth site (Table III) and of these only the deep fragment from W/X1 approaches the size of von Koenigswald's specimen; the W/X1 fragment has been worked into a cutting tool and the full breadth of the lingual face is not available for measurement, so that the figure 26.1 mm. represents a least possible dimension. Dr. von Koenigswald's specimen is also considerably bigger than the same face of the largest (left) canine of a very big recent *Sus barbatus* skull in the Sarawak Museum collection, and of all other *barbatus* canines available here.

There were no adult cheek teeth recovered from E/C1, 48-72", but the dimensions of these teeth are not considered significant in distinguishing between *barbatus* and *gargantua* by Tucker (1931). This is emphasized by comparative measurements of the cheek teeth of the largest pig skull in this museum's collection (referred to above), which are seen (Table III) to be intermediate in size between the cheek teeth of the only two specimens of *gargantua* known. This Sarawak skull is undoubtedly *barbatus*, exhibiting none of the occipital distortion of *gargantua* figured by Tucker (1931): the posterior palatine foramen is in the typical forward position, the ratio of the profile length (483 mm.) to the basal length (417 mm.) is 116 ("about 117" quoted for *barbatus*, 121-123 for *gargantua* in Tucker, *l.c.*),

(*) The trench and depth correction should be noted.

and the height of the skull resting on the mandibles is 260 mm., 62.3 per cent of the basal length ("about 60" for *barbatus*, 53.8 for *gargantua*).

As Dr. von Koenigswald (*l.c.*) noted, Tucker did not publish measurements of the canines of the *gargantua*. However, a cast of the largest canine of the Cambridge specimen has very kindly been provided by Dr. K. A. Joysey, of the University Zoological Museum, where the skull is kept. The measurement of the lingual face is included in Table III, and it is seen that it is not only considerably smaller than von Koenigswald's specimen but also falls within the range of *barbatus* proper.

The lower canine fragment from E/C1, 48-72", thus stands valid as a "giant" example, without intermediates in modern or prehistoric material, but it cannot be attributed to Miller's "giant" *gargantua*. It is unlikely that the problem of *gargantua* will be solved in the context of Niah, since it is dependent solely on the relative proportions of whole skulls; it is improbable that an undamaged pig skull will ever be found at Niah, where most of the teeth even are recovered in pieces. It remains to be seen if other non-*gargantua* "giant" teeth are present.

(vii) *Dog*

Miss J. Clutton-Brock (this issue, elsewhere) draws attention to the smallness of the dog remains excavated from Niah west mouth, which indicates active selective breeding in Neolithic times. The modern native domestic dog of Borneo is universally the pye or pariah type. Tom Harrisson writes:

> "I have probably covered more of Borneo (Kalimantan, North Borneo, Brunei and Sarawak) than any other one person since 1945. I have inevitably observed and often recorded facts regarding the native dogs. Except where there is a clear and known admixture of recent European influence (mainly Alsatian), I have never seen any other than the "Pye" dog with a curved-over tail. The Kelabits pay more attention to their dogs — and heaven knows this is little enough — and sometimes do selective breeding. Their dogs tend to have (or did until recently) a higher proportion of black or pale markings and very occasionally a straight tail. Everywhere else, from the northern Dusuns down to Long Nawang in the Kenyah centre and throughout the west to Tanjong Dato the dogs are uniformly Pye, 90 per cent brown, and 80 per cent with tails curved over on left side."

TABLE IV

Measurements of modern pye (pariah) dog skulls from Kuching.

Specimen data (inc. coloration)	*MEASUREMENTS* 1	2	3	4	5	6	7	8	9	10
1. ♀ 15/9/59 Yellow-brown	187	100	134	63.4	69.0	18.6	12.5	19.6	8.7	23
2. ♂ 21/9/59 Black and white	192	96	136.5	59.4	67.3	16.5	11.4	19.3	8.0	23
3. ♀ 21/9/59 All black	165	86.5	123	56.2	64.5	16.0	10.4	17.6	7.6	18
4. ♂ 29/9/59 Yellow-brown	178	100	134	59.6	66.7	16.9	11.2	18.9	8.0	21.5

The measurements taken were chosen to compare with those given by J. Clutton-Brock (q.v., elsewhere in this issue). All are in millimetres.

They are:

(1.) Skull length: anterior margin of premaxilla to most posterior point of the supra-occipital crest in the mid-line.
(2.) Skull breadth: maximum zygomatic width.
(3.) Length of mandible: posterior margin of condyle to anterior margin of alveolus of the central incisor.
(4.) Maxillary check teeth: P^1 to M^2 at alveoli.
(5.) Mandibular cheek teeth: P_1 to M_3, at alveoli.
(6.) Mesiodistal length of crown of fourth maxillary premolar.
(7.) Length of first maxillary molar.
(8.) Length of first mandibular molar.
(9.) Length of second mandibular molar.
(10.) Depth of mandible below the first molar.

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