SCIENTIFIC CORRESPONDENCE.

BONE-CAVES IN BORNEO.

5, Westbourne Grove Terrace, W.

I ASK permission to lay before your readers a few facts and suggestions on the above subject. Some weeks since I was informed by an old acquaintance, Mr. Robert Coulson, a mining engineer who has explored a good deal of North-Western Borneo, that he had found a quantity of bones in a cave in that country; and, having read, during his stay in London, Sir Charles Lyell's "Antiquity of Man," he thought the fact might be of some interest. On inquiring particulars, I found that the cave in question was situated in the district between Sarawak and Bruni, on a mountain some distance inland. Mr. Coulson had been searching for tin and other ores, which were reported to be found in these caves, and in this particular one he found the floor covered with a kind of fossil guano, very hard, and about two feet thick. He had some of this broken up with picks, and found it to contain abundance of bones, especially at the bottom, next the rocky floor of the cave. He assured me there were great numbers of bones of many sorts, and numbers of teeth of all sizes. The guano was so hard that they did not break up much of it. There were also some human skulls lying on the surface, about which the natives who accompanied him could tell him nothing.

The presence of this layer of solid guano in a cave is not easy to account for. If it is the accumulated dung of the small bats, and perhaps a few swifts or goatsuckers that may now frequent caves, it would indicate a long period of time. There are now no animals in Borneo that would be likely to frequent caves, the only moderately large carnivora, the Malay bear and the tiger-cats (*Felis macrocelis* and *F. javensis*), being arboreal animals. The mere fact therefore of large quantities of bones found in a cave, with the accumulated dung in which they are buried, indicates a state of things which has now passed away; and the examination of these bones might throw light upon the changes which have resulted in the peculiar zoological character which the productions of the island present.

It may, perhaps, be advisable, in connexion with this subject, briefly to point out the chief characteristics of the fauna of Borneo, the anomalies which it presents, and which a knowledge of its most recent changes may assist us in explaining; as well as the promise it holds out of richly rewarding the researches of palæontologists. The natural productions of Borneo resemble on the whole so closely those of the other Indo-Malayan countries (*Java*, *Sumatra*, and the *Malay Peninsula*), that there can be little doubt of there having been a geologically recent connexion between them all. Of about seventy mammals known to inhabit Borneo, only ten are peculiar to it, the remaining sixty occurring, with but slight differential characters or none, in one or other of the adjacent islands. In birds and insects about the same proportion are really distinct, though there are many more which offer slight but constant peculiarities, and have therefore received distinct specific names. Notwithstanding, however, this great and very general similarity, there are in Borneo certain peculiarities and certain deficiencies which give it a marked character. Several genera are peculiar to it, as *Nasalis*, *Dendrogale* and *Ptilocercus*, and that singular bird *Pityriasis*. The tiger, which abounds on all the other islands and in the peninsula of Malacca, is absent, and yet several of the large herbivora, which, being free from the attacks of such a ferocious beast, one would expect to find in greater abundance, are very local and scarce, and apparently dying out. The elephant and rhinoceros, which in Sumatra and the Malay Peninsula exist in company with the tiger, are so local and scarce in Borneo that their very existence has been for some time doubtful, and even the tapir is by no means so plentiful as in the places mentioned above. The wild ox, also (*Bos sondaicus*), only exists in the north-east extremity of the island.

The most striking feature of Borneo is, however, undoubtedly the presence and comparative abundance of the great anthropoid ape, *Simia satyrus*, as well as a second species, *Simia morio*, Owen. One or both of these is met with over the whole extent of Borneo, whereas, though there can be no doubt that the former occurs also in Sumatra, it seems confined to a limited district, and in the whole southern half of the island is entirely unknown. Another important consideration is, that the Malayan region (of which Borneo forms an important section), though of limited extent, has a highly characteristic and peculiar fauna. It possesses many genera entirely restricted to it, and many families which attain their greatest development in it, and also presents us with some of the most singular and interesting forms in the animal kingdom.

From the foregoing facts the following conclusions are, I think, rendered very probable:—(1st) A great geological antiquity for the Malayan region as a whole; (2nd) a considerable antiquity for that portion of it which now forms the island of Borneo; and (3rd) great and varied changes in physical geography, and great concomitant changes in animal life, which have resulted in the present condition of that island's fauna;—and we may I think be certain, that the remains of the animals which inhabited Borneo at a comparatively recent period will be of great interest, and may serve to indicate the nature of the changes that have been recently, and are probably still, going on.

Quite independently, however, of the fact that bones are known to exist in a particular cave in Borneo, it appears to me that that island offers a field for exploration unequalled perhaps in the globe. Limestone caverns abound in it. There are several very extensive ones in the Sarawak territory itself, and Mr. St. John mentions others in the Bruni country. The character of the existing fauna, as well as the extent of the land and the height of the mountains, all prove it to be of some geological antiquity. Now, in every other country which has been explored, the animals which have recently become extinct are always allied to those now living in the same region, and are often of gigantic size or remarkable forms. Europe gives us elks, bears, and hyenas, Australia extinct kangaroos and wombats, South America giant sloths and armadillos; according to all analogy, therefore, we may expect that the caves of Borneo would reward a persevering explorer, not only with fossil tapirs, Malay bears, and scaly ant-eaters, but also with the precursors of the extraordinary lemuroid forms now inhabiting the country—*Galeopithecus*, *Nycticebus*, and *Tarsius*—and with fossil proboscis-monkeys, gibbons, and orangs more or less resembling those which now abound in its vast and luxuriant forests. It is not improbable that some human remains may also be found to throw light upon the question of the origin of the Malayan races, and to prove whether a Negrito or some still lower race was formerly spread over the whole archipelago.

Should the naturalists of this country be willing to make an effort to carry out this most promising work, I can inform them that Mr. Coulson, who is now on his way out to Singapore, is willing to undertake it, if he receives instructions within the next month or two, after which time he will probably have other engagements. The necessary expenses of going to such a remote part of the country would be rather heavy, as he must engage a native boat and crew, as well as labourers, at Sarawak; but I estimate that £150 would cover expenses and his remuneration for getting a good sample of the contents of the cave he described to me; and, if an additional £100 could be raised, he would be able, while in the country, to explore several other caves and ascertain whether any of them contain remains of greater antiquity and higher interest. It is needless to observe that to carry out a thorough examination of all the caves or recent deposits in the country (which would be necessary to reap the full benefits of any exploration) would require a much larger sum than I have mentioned.

ALFRED R. WALLACE.

THE NEGRO'S PLACE IN NATURE.

4, St. Martin's Place, W.C., March 15.

PROFESSOR HUXLEY again thinks fit to controvert some anatomical facts stated by myself, and, in so doing, introduces a style of argument which I shall neither repeat nor imitate.

Professor Huxley's vindication as respects the dentition of the Negro is indeed a characteristic example of forensic skill. The manner in which Professor Huxley re-states the case of his opponents deserves especial notice. He says: "Dr. Hunt writes (giving Mr. C. Carter Blake as his authority) that 'The inferior molars sometimes present in the Negro race five tubercles, and this anomaly is sporadically found in other races.'" The ensuing sentence, however, of Dr. Hunt's paper is most disingenuously suppressed. He went on to say, "It has been noticed in the European and the Esquimaux, but is affirmed by my friend Mr. Carter Blake to be more frequent in the Negro and Australian than in any other race." Yet Professor Huxley, without a single qualm of conscience, actually ventures to suppress the second clause of Dr. Hunt's proposition, in justification of which my authority is alone cited, and to transfer my name to the head of the first clause, for which I was not in any way responsible. After having given to the scientific public this wholly untrue version of my original statements, Professor Huxley thinks fit to pen twenty-one lines (see his tenth paragraph) in which he says that "this particular error is traceable to Pruner-Bey." An unprejudiced observer, however, must see that the assertion of the five-tubercled nature of the inferior molars in some negroes is all that Pruner-Bey states. I allege this condition to be more frequent in the Negro and Australian than in any other race. The words of Professor Huxley are so peculiar, and the ascription of my authority to the statement of my friend M. Pruner-Bey is so gross a perversion of my opinions, that the "*difficult problem in casuistry*" appears to be what future confidence we can have in the truth of an observer who could stoop to such an artifice to misrepresent the sentiments of an opponent. The word "discovery," on which Professor Huxley lays such contemptuous stress, is not, however, to be found connected with either my name or that of M. Pruner-Bey in Dr. Hunt's paper. The manner in which Professor Huxley employs the word is truly characteristic.

The deliberate way in which Professor Huxley can term, *e. g.*, Dr. Webb's statement that "the fifth or posterior tubercle in the second molar of the lower jaw. . . . is not the typical configuration in man" (Webb, p. 41)—"strong corroborative evidence of the truth" of the statement that "the lower molars, whether of white or of black men, are normally five-tubercled"—is singular and embarrassing, as such an opponent obviously cannot be bound by the ordinary rules of controversy.

I am, however, glad to obtain from Professor Huxley an admission that "it is not uncommon for single molars to vary." But, as regards the "anticipated quibble," and the accusation which Professor Huxley brings against me of "suppressing the half of his conditions, and then pretending to have fulfilled them by seven examples," I must retort the imputation of unfair dealing. In the fourth paragraph of my previous letter, I also anticipating a quibble, have been careful to say "seven examples of, so far as regards the quadricuspid normal molar." Yet Professor Huxley demands a case in which the first and second molars shall be quadricuspid. I have already given one case; without the "anxious search" which he, gifted with omniscience respecting all my thoughts and actions, attributes to me, I can produce others, although they might not be so "rare and interesting" as Professor Huxley may consider.

What right Professor Huxley has to speak of my "obvious pro-slavery tendencies" I cannot divine; nor am I aware to what publicly expressed or authoritatively published sentiments of mine he can refer in justification of his attribution to me of this unpopular political creed. The reasons which induce him, by an appeal to the passion and prejudice of the political world, to raise the cry of popular disapprobation against the secretary of a successful scientific society are manifest. Professor Huxley's experience in the management of the Ray Society might lead him to make less "virulent" attacks on other zoologists.

The last paragraph of Professor Huxley's letter contains such vehement personalities, and is in such contravention of the etiquette which usually governs literary men in England, that I shall pass some passages in it over in silence. The introduction of a reference to previous discussions with other individuals, and to the editorial management of a scientific periodical, is, I submit, not sanctioned by the rules of controversial courtesy. I am only, however, cognisant of one reference to the person to which Professor Huxley alludes, which has ever proceeded from my pen in the *Anthropological Review*; that letter, signed *Antipuros* (*Anthrop. Rev.*, vol. i. p. 153), is avowed by me in the contents and index which complete the volume for 1863, and for it I am solely responsible. With the exception of the above, so far as the *Anthropological Review* is concerned, I can say to Professor Huxley or to his friend—

* Nil in te scripsi, [illegible] ..."

I must also publicly state that the *Anthropological Review* is not in any way dependent on the "credit and resources" of the Anthropological Society—consequently, no opinion of any indivi-