

but was surprised to find that at p. 446 the former figure is repeated with the description, "Fig. 58.—Peruvian Depressed Skull." This is quite correct, for it is not only depressed, but depressed by art; therefore it cannot be an instance of a natural Peruvian dolichocephalic skull. But at p. 451 the latter woodcut is repeated as "Fig. 60.—Peruvian Child's Skull, Normal," and described as such. Indeed it is not necessary to go beyond Dr. Wilson's communication to NATURE. His Fig. 3, p. 48, is the identical woodcut, as "Peruvian Child's Skull Normal." This woodcut is quite conclusive as to what I have asserted, that Dr. Wilson has answered himself. For it is the calvarium of a child which has been artificially distorted and thereby elongated. And in truth it is only necessary to cast the eye on the figures upon the same page in NATURE to see that all the skulls, Figs. 1, 3, and 4, have all been distorted, and distorted in the same manner, viz. by a figure of 8 bandage, which has left its distinct impressions upon the frontal, parietal, and occipital bones. This distortion has necessarily converted them into dolichocephalic or long skulls, in contradistinction to their natural form, which is exhibited in Fig. 2, on the same page of NATURE. This bandage has been the instrument of distortion, and all three have been deformed in what I call the *cylindroidal* manner, resulting in the lengthening out of the calvarium. It may be observed that this mode of distortion is the most generally diffused of any among human races, both of the old world and the new. The figures differ only in the degree of deformation, the "Fig. 3.—Peruvian Child's Skull, Normal," having been less tightly compressed than the other two. I conclude that it is quite unquestionable that this Peruvian skull cannot be looked upon as a natural Peruvian skull, cannot be adduced as evidence that there was a second type of cranium among the ancient Peruvians. The best inspection I am able to give the figures proves this unequivocally, and I am bound to affirm, with the utmost respect to Dr. Daniel Wilson, that he has fully answered himself, and proved that the asserted long Peruvian skulls are simply crania artificially contorted into dolichocephalic ones. After this it may be very safely said that craniologists, beginning with Morton, and going on to that eminent and accurate anatomist, Prof. J. Wyman, are agreed that the ancient Peruvian race was distinguished by having brachycephalic skulls, as is shown in Dr. Wilson's "Fig. 2.—Peruvian Child's Skull, Santa," NATURE, vol. x. p. 48, which is simply an undistorted and natural example.

Having said this, which is a plain statement of what I believe to be the truth, I may add that I regret to find scientific questions are by some even who have acquired a reputation treated as a source of wrang ling (I do not at all allude to Dr. Wilson), which I observe with much regret; but such course I most certainly shall not imitate. If a plain statement of facts does not convince, I shall not try any other method. When Dr. D. Wilson shall produce half a score of ancient Peruvian dolichocephalic skulls, the appearance of which totally precludes the possibility of interference by art or other deforming accident, then the question he introduces will be open for discussion, but, until then, I hold that there is no valid reason to doubt that the ancient Peruvians were a decidedly brachycephalic race.

J. BARNARD DAVIS

IN NATURE, (vol. x. p. 46), Prof. Daniel Wilson replies to criticisms by Dr. J. Barnard Davis and myself, of his conclusion that certain skulls, described and figured in "Prehistoric Man," and belonging to the collections of Dr. Warren, of Boston, had natural and not artificial forms. As far as I am concerned, he quotes from a letter of mine to Dr. Davis the following sentence:—

"The upshot of the whole is the crania do not confirm Dr. Wilson's statement. One of Dr. Wilson's chief points—in fact it is his chief point—is, that the skulls are natural because they are symmetrical, and it is next to impossible that a distorted skull should be symmetrical."

In this sentence he says I misrepresent him, and appeals to his published views with regard to asymmetry in skulls in general, about which I had said nothing. I was writing only of those particular ones represented in Figs. 1 and 3 of Prof. Wilson's article in NATURE, and Figs 59 and 60 in "Prehistoric Man." In justification of the paragraph from my letter given above, and to which he objects as unfair, I quote the following sentence from "Prehistoric Man," pp. 449-50:—

"Few who have had extensive opportunities of minutely examining and comparing normal and artificially formed crania will, I think, be prepared to dispute the fact that the latter are rarely if ever symmetrical. The application of pressure on the head of

the living child can easily be made to change its natural contour, but it cannot give to its artificial proportions that harmonious repetition of corresponding developments on opposite sides which may be assumed as the normal condition of the unmodified cranium. But in so extreme a case as the conversion of a brachycephalic head averaging about 6'3 in longitudinal diameter, the retention of anything like normal symmetrical proportions is impossible. Yet the dolichocephalic Peruvian crania present no such abnormal irregularities as could give countenance to the theory of their form being an artificial one."

I will only add, that in several distorted dolichocephalic Peruvian crania in the collections of the Peabody Museum at Cambridge, the symmetry is as complete as in any ordinary undistorted crania.

JEFFRIES WYMAN

Cambridge, Mass., U.S.

Lakes with two Outfalls

FIFTY miles south of Denver, Colorado Territory, on the Denver and Rio Grandé R.R., there is a little lake with two outfalls, which I have myself seen. This lake is on an east and west "divide" and is 8,000 ft. above sea-level; the outfall to the north, Phun Creek, goes to the Platte River, while Monument Creek, to the south, flows into the Arkansas.

EDWARD S. HOLDEN

Naval Observatory, Washington, U.S., June 2

CAPT. J. D. COCHRANE, R.N., in his "Narrative of a Pedestrian Journey through Russia and Siberian Tartary, &c., in the years 1820-23," has the following reference. I quote from the American edition (1824), p. 235:—

"In the evening we reached a fertile spot, and halted on the banks of a lake, from which, it is said, the rivers Okota and Koudouson, running in counter directions, have their source, a circumstance which recalled to my recollection those words in an able work by Mr. Barrow upon rivers, wherein it is said that, although it is not a physical impossibility that two rivers should flow in opposite, or indeed in any direction out of the same lake, yet the contrary approaches so near to an axiom in geography that no instance is perhaps known of such an occurrence."

The rivers named flow respectively into the Sea of Okhotsk and the Arctic Sea. Perhaps a reference to other and later works may settle the question whether this lake has two outlets.

Chicago, U.S., June 2

S. W. BURNHAM

Palæotherium magnum

THE *Palæotherium magnum*, an account of the discovery of which appeared in NATURE, vol. ix. p. 285, differs in so many respects from that which was restored by Cuvier, that it may be well, if possible, to try and reconcile these two accounts.

Cuvier, in his "Ossemens fossiles" (1825) after taking the individual bones of the *Palæotherium* one by one, and considering their affinities, places them together, and restores from them as far as possible the animals to which they belonged.

In vol. ii. p. 163, he says: "Hence we see in our environs of Paris, and elsewhere, the genus *Palæotherium*, which resembles the tapirs by its incisor and canine teeth, and in that the nasal bones are so arranged as to carry a trunk, whilst the molars more nearly approximate to those of the rhinoceros and deer."

In vol. iii. p. 53, *et seq.* he commences with a description of the skull, and passes on to the other bones in order.

Having considered separately the various bones of the eight species which he describes, he passes on at p. 243 to the restoration of the whole skeleton, considering first that one of which he had the most perfect remains, viz. *Palæotherium minus*, vide vol. iii., pl. 34. This skeleton is a more perfect specimen in many ways than that which was discovered the other day, though a good part of the lower extremities are wanting.

Speaking of this specimen Cuvier says (vol. iii., p. 244): "If only we could bring this animal to life as easily as we have put together its bones, we should see running about a tapir smaller than a roebuck, with thin and slender legs." And again, "Its height to the withers would be from 16 to 18 in."

This skeleton, it will be seen, resembles to a great extent that of *Palæotherium magnum*, which was figured in NATURE, vol. ix. p. 286. Having completed the smaller animal, *P. minus* is next considered, of which Cuvier says: "We have the head and four extremities of this animal; by supplying it with a body like that of its predecessor, it will be very easy to restore its skeleton. Its head and limbs may be seen at pl. 49, 50, and 60, and its restoration at pl. 66, resembling almost exactly that of