

in which the presumed daughter of a particular Golden Eagle, remarkable for having produced eggs of very great beauty, has in two successive years laid eggs which unmistakably resembled those of her reputed mother in the brilliant character of their colouring.

Hence I am not afraid of hazarding the supposition, that the habit of laying a particular style of egg is likely to become hereditary in the Cuckow; just as I have previously maintained that the habit of depositing that egg in the nest of a particular kind of bird is also likely to become hereditary.

Now it will be seen that it requires but only an application to this case of the principle of "Natural Selection" or "Survival of the Fittest" to show that if my argument be sound, nothing can be more likely than that, in the course of time, that principle would operate so as to produce the facts asserted by the anonymous Solognot of a hundred years ago, and by Dr. Baldamus and others since. The particular *gens* of Cuckow which inherited and transmitted the habit of laying in the nest of any particular species of bird eggs having more or less resemblance to the eggs of that species, would prosper most in those members of the *gens* where the likeness was strongest, and the other members would (*cæteris paribus*) in time be eliminated. It is not to be supposed that all species, or even all individuals of a species, are duped with equal ease. The operation of this kind of "Natural Selection" would be most marked in those cases where the species are not easily duped, that is, in those cases which occur the least frequently. Here it is that we find it, for it has been shown that eggs of the Cuckow, deposited in the nests of the Red-backed Shrike, of the Bunting-Lark, and of that bird which for some reason best known to the donor bears the English name of "Melodious Willow-warbler," approximate in their colouring to the eggs of those species—species in whose nests the Cuckow rarely (in comparison with others) deposits her eggs. Of species which would appear to be more easily duped, or duped in some other manner—the species in whose nests Cuckow's eggs are more commonly found, I may have something to say in another paper.

ALFRED NEWTON

THE ORIGIN OF BLOOD-LETTING

THE flamingo in the gardens of the Zoological Society has recently been observed to vomit a red-coloured fluid over certain smaller birds kept with it; and it has been shown that this red fluid contains true blood-corpuscles, and inferred that the flamingo is in the habit of feeding its young by this ejection of a blood-stained "pigeon's milk" into their mouths. Further, the habit of the flamingo has been with great probability connected with the story of the pelican, which, as is well known, is stated to wound its own breast in order to feed its young with the blood. It is not at all improbable that birds so alike in their plumage and habitat as the pelican and flamingo should be confused in the way suggested by Mr. Bartlett, who, I believe, first observed the habit of the captive flamingo. The extravasation of *blood corpuscles* normally from the pharynx or œsophagus of such an animal is a matter of great interest. Mr. Lowne has a paper in the Journal of the Quekett Microscopical Club, in which he gives a full account of the case, having examined the bloody exudation microscopically.

To this the reader is referred; but I have something to add to it.

The connection of the flamingo with the classical story of the pelican's self sacrifice is increased in interest, since it appears that the red exudation of the hippopotamus is connected with an equally ancient and more important tradition—namely, the history of the origin of blood-letting. Before giving this tradition, I would mention that two years since, by the kindness of Dr. Murie, I obtained some of the red exudation of the hippopotamus on a slip of glass, and on examining it with the spectroscope, I did *not* obtain a blood-spectrum. Mr. Tomes (Proc. Zool. Society, 1857) described the microscopic appearances of the exudation of the hippopotamus, and stated that he found in it remarkable corpuscles with pigmentary granules, but not *blood corpuscles*. The folds of the skin in various parts of the body of the hippopotamus are coloured bright pink by a distinct pigment, and the same tint suffuses the darker parts of the skin. I believe it is this pigmentary matter which causes the red colour of the exudation of the hippopotamus, and that it is not a sweat of blood at all. The case of Mr. Jamrack's rhinoceros mentioned by Mr. Lowne may be otherwise. Mr. Lowne says that cases of blood-stained sweat from the skin of man are, though rare, well authenticated. This is perhaps true; but many apparent cases of such staining are due to the formation of a purpura in the sweat, from the decomposition of the uric acid which it contains.

Now, with regard to the hippopotamus, it is important to note how popular tradition has attributed the origin of a very valuable medical art to a totally false inference on the part of Egyptian priests.

M. Milne-Edwards, in the 3rd volume of his "Leçons sur la Physiologie" (p. 3), has the following note:—"Homer, whose poems constitute a sort of encyclopædia of the science which the Greeks possessed about the ninth century before Jesus Christ, does not speak of bleeding; but if we are to believe an author of the fifth century, Stephanus of Byzantium, this operation was known to the surgeons of the army of Agamemnon. In fact, he relates that one of them, Podalirius, son of Æsculapius, and brother of Machaon, on the return from the siege of Troy, practised it on a patient whose cure obtained for him the sovereignty of the Chersonese. This would be the first case of blood-letting of which the remembrance has been preserved; and, on consideration of a fable reported by Pliny, I am induced to believe that this practice had taken its rise in Upper Egypt: in fact, this naturalist tells us that the hippopotami, when they become too obese, have the habit of piercing for themselves the vein of the thigh, by pressing against a pointed reed; and that these animals have thus taught physicians to practise analogous operations. Now, this account does not apply to the sea-horse (or *Syngnathus*), as the author of an estimable work on the history of medicine (Leclerc) supposes, but to the great pachyderm which inhabits the rivers of the interior of Africa, and which is found in Upper Egypt. It is evidently a fable: but this fable could only have reached us from Egypt."

M. Milne-Edwards was not aware of, at any rate does not refer to, the red oozing observed on the skin of the hippopotamus sometimes after emerging from his bath,

or when enraged, which gives so marked a confirmation to the Egyptian story. We may conclude fairly enough, either that the Egyptian priests saw this red exudation, and imitated it with the practice of bleeding, or, as is infinitely more probable, that the Egyptian laity noticed the blood-coloured sweat of the great river-horse, and connected it with the practice of bleeding then in operation, by the interpolation of the sharp reed, and an inability to understand that their wise men could discover a remedy untaught.

E. RAY LANKESTER

PREHISTORIC ARCHÆOLOGY

Transactions of the International Congress of Prehistoric Archaeology, 3rd Session, 1869. Royal 8vo, pp. 419, with 53 illustrations. (Longmans, 1869.)

IN these days of annual gatherings or Congresses intended for the promotion of Science, whether Natural, Social, or Ecclesiastical, we need not be surprised at the numerous observers now engaged in different countries in the various branches of Prehistoric Anthropology and Prehistoric Archæology founding an International Congress for the discussion of questions in which they are particularly interested. It was at a meeting of the *Société Italienne des Sciences Naturelles*, held at La Spezia in 1865, that this Congress originated, with the more comprehensive than euphonious title of "Palæoethnological." With a slight change in its designation it met at Neuchâtel in 1866, and at Paris in 1867; while the Congress, the transactions of which are recorded in the volume before us, assembled at Norwich last year under the presidency of Sir John Lubbock, and with Colonel A. Lane Fox as organising secretary, contemporaneously with the meeting of the British Association. During the present year it has found a congenial home in the midst of the richly-stored museums of Copenhagen, under the fitting presidency of Professor Worsaae; has dug in the Kjökkenmøddings, and been right royally entertained by the King of Denmark; and next year the gathering is to be at Bologna, with Count Gozzadini as president. Such meetings, especially in the case of the followers of what must be regarded as a comparatively new science, serve at least a double purpose; as social gatherings they promote that intercourse and kindly feeling between those engaged in the same pursuit, which helps the onward progress of knowledge, while the discussions at the meetings tend to elicit truth from what may apparently be conflicting facts and opinions, and when too unruly hobby-horses are introduced into the arena, serve to control their wilder caracoles, if not effectually to break them in.

The success that has attended the institution of this particular Congress, which, by the way, is not to be held during two consecutive years in one country, cannot be better evinced than by the Report of its seven meetings at Norwich, which has just made its appearance, and forms a volume of upwards of four hundred pages, illustrated by more than fifty plates, for the most part presented by the authors of the papers they illustrate.

These Papers range over a wide area, both in space and time. The Pacific and South Sea Islands, the Cape of Good Hope and Southern and Western India, Japan and Algeria, as well as Spain, Portugal, France, Britain, and Ireland, all contribute their *quota* of facts; while various general questions relating to the condition, the

arts, the distribution, and other circumstances of early races of mankind are brought forward and discussed. On the whole we may congratulate the Congress on the object of its assembly having been so carefully kept in view by the authors of the papers read before it, since hardly any of them, though varying much in value, can be regarded as having been irrelevant to its general purposes.

The time and space at our command being small in proportion to that ranged over by the Prehistoric Archæologists, we cannot give more than a brief notice of some few of what seem to us the more important papers; but at the outset we must express our regret, which we are sure many others will share with us, that the excellent Opening Address of the President was not more fully reported.

First of the Papers, and among the first in interest, is one by Mr. E. B. Tylor, on the "Condition of Prehistoric Races as inferred from Observation of Modern Tribes," in which some curious anomalies in the degree of knowledge in different branches of art and constructive appliances possessed by certain tribes are pointed out; and the inference drawn that it is unsafe to attempt to fix the stage of civilisation of any given people from the rudeness of one single class of implements in use among them.

Professor Huxley's Paper on the "Distribution of the Races of Mankind, and its Bearing on the Antiquity of Man," appears to have met with more favourable criticism from those present, including Professor Carl Vogt, than the author anticipated. And certainly the connection between some of the changes which in comparatively recent times have taken place in the physical geography of the earth, and the limitation of the areas occupied by different races, such as the Negroid and Australioid, seems, if not susceptible of proof, at least possible; and, if so, Professor Huxley's conclusion that the distribution of these two races of Man affords as strong evidence of his antiquity as the occurrence of his works in the gravel of Hoxne and Amiens is in a fair way of being adopted.

Touching these early works of man, we commend attention to the excellent account given by Mr. R. Bruce Foote, of his discoveries of quartzite implements of Palæolithic types in the Laterite formation of the east coast of Southern India. We know of nothing more striking than the wonderful similarity of these implements to those discovered associated with remains of extinct mammals in the old river gravels of Western Europe. But for the difference in the material there are numerous twin specimens so like each other that they might be thought to have been formed by the same hand, and yet they occur thousands of miles apart, and under what are apparently different geological conditions, though we think that much remains to be unravelled as to the origin and age of the Lateritic deposits of Madras. Still this parallelism of type seems to afford most remarkable proof that the same wants, with the same means at command for fulfilling them, result, so far as tools are concerned, in the production of similar forms, no matter where or when the men live who make them.

This is further illustrated by the stone implements from Japan, described by Mr. Franks, nearly all of which may be matched in form by arrow-heads, lance-heads, and hatchets found in Western Europe; and what is no less remarkable, the former are by the Japanese regarded as of heavenly origin, like the Elf-bolts of Scotland, and the