

## Early Egypt and the Caucasus.

DURING the recent meeting of the British Association at Oxford, the question of the origin and date of the Badarian culture of Egypt was again raised by Sir Flinders Petrie, and provided the material for an animated discussion which, with two closely related papers on the geology and archæology of the Fayum by Miss Gardner and Miss Caton-Thompson respectively, occupied the whole of an afternoon session in Section H (Anthropology).

Sir Flinders Petrie in opening gave a brief summary of the paper which he read before the Section last year at the Southampton meeting. It may perhaps be a convenience to recapitulate here the facts. While working at Badari, a site thirty miles south of Asyut, four seasons ago, members of the British School of Archæology in Egypt discovered a settlement which had in its lowest stratum pottery of a very fine type, entirely hand made, and the thinnest and hardest of any age, with a polish never surpassed. With it were associated ivory statuettes and flints finely worked in technique and form and resembling the Solutrean, and identical with the finely worked flints already known, though from surface finds only, to occur in the Fayum and across the desert up to Palestine. A later investigation by Miss Caton-Thompson produced similar implements from the settlement sites of the Fayum.

Sir Flinders Petrie suggested an Asiatic origin for this culture, its centre possibly being the Caucasus. As regards its dating, basing his conclusions in the levels of the Nile as a time scale, he suggested something like 12,000 to 15,000 B.C. as the period at which the sites had still been uncovered. The chronological evidence was thus, on this reckoning, not contradictory of an attribution of the culture to the Solutrean, following the indication of form and technique in the flint work. Obvious difficulties stand in the way of accepting the Badarian culture as an Egyptian offshoot of a Solutrean culture, not the least of course being the presence of pottery. To this the reply is that while one branch of the original Solutrean culture on its migration into Europe along a glacial fringe lost certain elements in that culture, such as the pottery, the other branch, proceeding southward in easier conditions of travel, was able to retain them.

Further, among other criticisms, it has been pointed out that flint working of this delicate type occurs at what is known and admitted to be a later date: it is not to be accepted as being beyond question Solutrean on the ground of its form and technique. In Scandinavia, implements known to be neolithic present a resemblance to the Solutrean form and technique. Sir Flinders Petrie is prepared to accept the facts, but not necessarily as militating against his conclusions. Just as the European Solutrean lost in its way across the Continent, so the south-western branch lost something and degenerated after it had reached Egypt; there was a descent from the finest to the coarsest pottery and from the finest to the coarsest flint work. The recurrence of the finer technique is to be regarded as evidence of a long-continuing Asiatic civilisation which sent off branches from time to time at long intervals.

Apart from the recapitulation and expansion of the argument in favour of the Solutrean date of the Badarian culture, Sir Flinders Petrie brought forward at Oxford two pieces of evidence bearing upon the question of its northern origin, one of which is certainly of first-rate importance if it should be ratified by subsequent examination. Among the finds made by Miss Caton-Thompson in her excavations on the settlement sites of the Fayum during the past season,

straw granaries were found buried in the ground which were made of the straw of wheat. This wheat has been pronounced to be neither the old wheat of Babylon and Egypt nor the wheat of Roman times, but a northern wheat. This wheat was certainly unknown in later times, and if the claim that it is of a northern origin can be substantiated, it is a conclusive piece of evidence for, at least, an intrusive element from the north.

The second class of evidence which, in Sir Flinders Petrie's opinion, pointed to a Caucasian origin, was derived from the coincidence between names mentioned in the "Book of the Dead" and certain place-names in the Caucasus. Recently Mr. Fessenden of U.S.A. has advanced the view that in the Caucasus area we are to find the cradle of civilisation, basing his theory upon a multitude of coincidences between Caucasian place-names and names mentioned in legend and tradition. Among others he identified names mentioned in the "Book of the Dead." Sir Flinders Petrie has carried the investigation further. Extracting place-names in the "Book of the Dead" in their local relation to one another, he finds that they equate with place-names in the Caucasus, and, what is more, their local relation corresponds to the correct geographical relation of the equivalent place-names in that area. Further, the mention of a lake of fire in a fertile valley surrounded by barren hills could only correspond in actual fact to the conditions of a naphtha lake in the Caucasus. The traditional origin of Osiris, the god of the corn, in this legendary region is corroborated by the northern origin of the corn now discovered.

It is perhaps scarcely necessary to say that Sir Flinders Petrie's theories found many stern critics, ranging from Prof. Sollas, who pointed out that the conditions of the Badarian culture could not be regarded as corresponding to the conditions of the Solutrean, certainly as regards dating, to Mr. Peake, who, while inclined to accept the northern origin of the culture of the pottery and the grain-growing worshippers of Osiris, not only raised the question as to the equation of Badari and the Fayum, but also in regard to the last argument pointed out the necessity for certainty in the transliteration of the names taken from the "Book of the Dead." Such experts in the technique of flint working as the Abbé Breuil, Dr. Bosch Gimpera, and Mr. M. C. Burkitt concurred in thinking that the finely worked flint might be an independently developed Solutrean-like technique entirely African in origin.

It was, however, the papers by Miss Gardner and Miss Caton-Thompson which most strongly emphasised the difficulties inherent in Sir Flinders Petrie's theories. As already mentioned, he had based his dating of the Badarian culture on the height of the water level. Miss Gardner's investigations of the recent geology of the Fayum showed that the lake beds north of the Birket Qarun must be divided into at least two series—those of an earlier lake occurring up to 222 ft. above the Birket Qarun level, which were at one time connected with the Nile, as is shown by the fauna, and a later series which only reached the maximum of 205 ft. above the present level. Miss Caton-Thompson's examination of the settlements yielded flint implements of the characteristic type, pottery, and ample evidence of the agricultural, hunting, and fishing culture of the people. It is a characteristic culture of advanced neolithic type. Further, it was found that the sites fringe the shore of the second lake period, resting upon the sands and clays of the old high-level lake. There is

no sign of subsequent submergence. Both topography and the distribution of the high-level gravels emphasise the long period which elapsed between middle palaeolithic times and the arrival of the Fayum flint-workers.

It would appear that both the geological evidence and the evidence of culture—unless we are to revise entirely our conception of the culture attainable by a palaeolithic people—preclude the attribution of a very high antiquity to this civilisation of the Fayum. In so far it has failed to support the early dating of the analogous culture found at Badari, where too it must be remembered that it has been stated that copper beads were found, not, it is true, in the settlement, but in a grave in the adjacent cemetery.

### Animal Breeding and Genetics.<sup>1</sup>

THE report under notice contains the record of a series of most interesting researches, not by any means all of which deal with what may be termed genetical problems, for a considerable number consist in studies of abnormal development. Thus the Director, Dr. F. A. E. Crew, has studied the so-called 'bull-dog calf.' These calves are born dead, and their anatomy shows a close resemblance to the so-called achondroplasia in human dwarfs. Dr. Crew maintains that the tendency to produce such offspring is hereditary and 'mendelises' when crossed with the type. He attributes it to the retardation of the coming into action of the pituitary gland; this may be so, but the immediate mechanism is doubtless as it is in human dwarfs, amniotic pressure, *i.e.* a too closely clinging amnion.

Mr. Nichols investigated a cross between Leicester and Cheviot sheep, the result of which had been stated to produce a hybrid of stable character. When the  $F_2$  generation was raised, however, it was found that whereas 64 out of 103 resembled their  $F_1$  parents, 18 approached the Leicester type and 20 had mixed characteristics of both Cheviot and Leicester. This result does not, as Mr. Nichols imagines, prove Mendelian segregation in the proper sense of the word. It is a result always obtained when two natural races are crossed; every conceivable intermediate turns up, but the attempt to express the result in 'factors' leads to interminable confusion. The number examined (100) is far too small to warrant any statistical conclusions.

Mr. Blyth has been engaged in a microscopical survey of the various types of wool raised in the British Islands. Four types are distinguished, namely, mountain long wool, lustre (also long wool), mountain short wool, and short wool (Down breeds). There are two main types of hairs making up the fleeces, namely, (a) long coarse hairs with reticular scale markings, and (b) short, fine hairs with coronal markings. Type (a) is found only in the long wools, type (b) in varying proportions in all the breeds. Short coarse fibres called 'Kemp,' frequently shed, are found in all the breeds. This and type (a) are regarded as equivalent to the primitive hair of the wild progenitor, whilst type (b) represents the original wool.

Mr. Greenwood has been following the fate of grafts of gonads implanted in fowls. This is especially interesting in view of the claim of Zawadovsky to have changed a cock into a hen by two operations, (a) cutting out the testes, (b) implanting an ovary. Mr. Greenwood finds that the ingrafted ovary frequently assumes a testicular structure by the ingrowth of sex-tubules from its periphery, and that sometimes the

removal of the ovary stimulates the development of the vestigial right gonad. This gonad in one case was testicular in structure, in another ovarian, but with ingrowth of sex-cords indicating that it was being transformed into a testis.

Mr. L. Tamura is engaged in investigating the sex dimorphism of the suprarenal gland, which, as a result of previous work, he asserts, is different in the two sexes, the gland of the female showing a wide zona reticularis, whilst this region is vestigial in the male gland. It was found that when the male was castrated the suprarenal underwent enlargement, which was entirely due to the appearance of a wide zona reticularis. A sterile Dingo bitch which was investigated showed an infantile vagina and uterus with degenerating ovaries whilst the teats were normally developed, but not only the suprarenal but also the thyroid and pituitary glands showed obvious and gross signs of degeneration.

In conclusion, we should like to congratulate Dr. Crew on the variety and interest of the researches which are being carried on under his supervision.

E. W. M.

### University and Educational Intelligence.

THE Brighton Technical College in its calendar for 1926-27 is able to offer substantial evidence of the efficiency of their instruction in engineering subjects, six of the students having gained directly from the College the B.Sc. (Engineering) degree of the University of London in 1926. The College has a flourishing school of pharmacy, and provides courses of building, architecture, commercial subjects, and domestic science, as well as in arts and pure science subjects.

The Technical College, Bradford, gives particulars in its prospectus for 1926-27 of diploma courses in textile industries, arranged with special reference to the needs of the worsted industry, chemistry, dyeing, civil, mechanical and electrical engineering, physics, and, exceptionally, biology. In recognition of the importance to students in all branches of technology of a knowledge of the fundamental principles of economics, courses in the department of commerce and banking have been developed in relation to those in the various other departments of the College, and particularly to those in the department of textile industries. Conversely, a special course for merchants has been established to equip those students who are to be engaged in the distributive side of the industry with a sufficient knowledge of dyeing and textile subjects.

FROM the Czech Academy of Sciences and Arts, Prague, we have received an "Almanach" for 1924. It is beautifully printed on 240 pages and is embellished with a large number of remarkably fine portraits accompanying biographical notices. It is printed throughout in the Czech language without any summary or abstracts in more widely known languages, and it was with some difficulty that we ascertained the purport of even the title-page. One of the recommendations made by the Directors of National University offices at their recent reunion at Paris was that the official publications of universities should, if printed in a language the use of which is not widely diffused throughout the world, have appended to them abstracts in one of the languages in more general use. The adoption of this recommendation is no doubt impossible in many cases without a certain sacrifice of *amour propre*, but it is

<sup>1</sup> Animal Breeding Research Department, the University, Edinburgh. Report of the Director for the year April 12, 1924, to March 31, 1925 (being the Fifth Annual Report). Pp. 21. (Edinburgh.)