

they were specially typical of the Mousterian culture, but for reasons connected with the localities of the finds, stratigraphy, and patination. Also included in the group were two forms not occurring in Europe, namely, "crescents" and a heavy drawing-tool, for which the name "tortoise point" was proposed. Forms transitional to Capsian, or Capsian, were notched flakes, end-scrapers, hollow end-scrapers, nose end-scrapers, end-borers, and asymmetric end-borers. From the morphological point of view the river-drift types were unmistakable, while the Mousterian types, so far as the borers, scrapers, and points were concerned, could be paralleled precisely from European forms, while the non-European forms could either be derived from well-known types or were produced by an identical process. A certain number of implements could not readily be referred to Chellean, Acheulean, or Mousterian technique, and, although they might be classed in Europe as Aurignacian of a coarse type, Prof. Seligman was inclined to regard them as highly developed Mousterian modified by Capsian influence from the north.

The great majority of the implements from the Thebaïd present a more or less lustrous surface of various shades of reddish-brown. Specimens of different shades of dull white occur, but only in wadies and "wash-outs." This marked difference in coloration was undoubtedly due to the fact that the white specimens had only comparatively recently been weathered out of the gravels forming the banks of the wadies.

In reference to the stratigraphical evidence for the age of these implements, Prof. Seligman gave a detailed account of the geological character of the area in which they were found. Implements of a highly developed Mousterian type, without the charac-

teristic brown patina of the palæoliths which have been exposed to weathering, have been found *in situ* in undisturbed gravels of Pleistocene age.

An interesting discussion followed the reading of the paper, in which several points of importance were touched upon. Mr. Reginald Smith argued that while patination was an indication of great age, absence of patination did not indicate the reverse; the oldest types of French cave implements showed no patination. He also asked if Prof. Seligman had been able to correlate relative antiquity of type and shade of patination. In reference to the geological data, he was of the opinion that further evidence was required to establish the Mousterian character of some of the implements, especially in the case of those not collected by Prof. Seligman himself. Mr. M. Burkett briefly reviewed recent French work on this subject, and cited the results of a correlation of type and patina which had recently been made by the Abbé Breuil in a series from Tebessa (Southern Algeria). Mr. H. Peake pointed out that the Mousterian industry appeared to have developed further in Africa than in Europe, where its development had been interrupted by the Aurignacian type, and he suggested that this might be due to more favourable climatic conditions on the former continent. It had been stated that no Solutrian culture was found in Africa, but in this case it was difficult to account for the resemblance between certain Saharian and the Solutrian implements. Prof. Fleure said that Prof. Seligman's evidence pointed to a continuous development from Mousterian to Capsian; geographical conditions suggested that at this period there was a great difference between the climates of Africa and Europe.

Tides in Small Seas.

TWO important papers on the tides in small seas have recently been published by the Vienna Akademie der Wissenschaften. The first, in Bd. 96 of the *Denkschriften*, is the latest of a series of researches by R. Sterneck, jun., on the tides of the Adriatic; the second, in Bd. 129 of the *Sitzungsberichte*, is the sixth part of A. Defant's researches on tides in "Mittel- und Randmeeren, in Buchten und Kanalen," and concerns the tides of the Irish Sea. Both investigations are applications of hydrodynamical principles, assuming from observation just sufficient to give or replace the "boundary conditions" where the sea communicates with the larger body of water. Both treatments depend on the elongated nature of the sea in question and utilise charts of soundings after the manner initiated by Chrystal for the longitudinal seiches of lakes. Defant makes separate applications to the Bristol Channel, Liverpool Bay, and Solway Firth. In each case the assumed type of motion may be regarded as a longitudinal oscillation sustained by the tides outside, together with a transverse gradient maintained by the longitudinal current in virtue of the earth's rotation.

Sterneck considers separately the four chief semi-diurnal and the three chief diurnal harmonic constituents; Defant considers mainly the semi-diurnal spring tides. In each case the agreement with observation is remarkable. That for the Irish Sea is not so close as that for the Adriatic, but this is to be expected when the deviations from a canal of slowly varying section and the ratio of tidal range to water-depth are taken into account. Friction is neglected altogether by Sterneck for the Adriatic, but is an important element in Defant's explanation of the Irish Sea tides, in which the amount is of the same order as that used by G. I. Taylor. The negligible importance of friction in the Adriatic may be ascribed to its greater depth and much smaller currents as compared with the Irish Sea. Sterneck calculates the longest free period of the Adriatic to be about 23 hours as against the 16 hours of previous calculations by the "Merian" formula. The larger number agrees well with the observed seiches, and shows the possible error of rough methods. Defant estimates the longest free period of the Irish Sea to be about 18 hours. J. P.

Paris Academy of Sciences: Loutreuil Foundation.

REQUESTS for grants to the amount of 219,600 francs were received by the Academy. Six of these were refused on the ground that they were presented by persons belonging to universities already in receipt of funds from M. Loutreuil. A total sum of 131,200 francs is allocated by the council of the foundation to the following:

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I. Grants to Establishments named by the Founder.

(1) National Veterinary School of Alfort: 8000 francs for the construction of a special room for researches relating to the therapeutics of cutaneous and respiratory diseases.

(2) National Veterinary School of Lyons: 3200 francs to François Maignon, for the purchase of

instruments and apparatus for his researches on nutrition.

(3) National Veterinary School of Toulouse: 3000 francs to Jean Lafon, for his researches on the comparative physiology of the secretions in different animal species.

II. Grants to Establishments Called to the Consultative Committee of the Foundation by the President of the Academy.

(1) Conservatoire national des Arts et Métiers: 6000 francs to Henri Chaumat, for his studies on the electrical and magnetic properties of electrolytic iron.

(2) Central Electrical Laboratory: 10,000 francs for the researches, under the direction of Paul Janet, on the absolute standards of the international ohm.

III. Grants Given on Personal Application.

(1) 10,000 francs to Charles Alluau and to R. Jannel, for the study of the zoological and botanical material collected by them in the high mountains of eastern Africa and for the publication of the results.

(2) 5000 francs to Jules Baillaud, for the establishment of a recording microphotometer of the type suggested in 1912 by P. Koch.

(3) 3000 francs to Henry Bourget, director of the Marseilles Observatory, for the *Journal des Observateurs*.

(4) 2000 francs to Clément Codron, for his researches on the sawing of metals.

(5) 5000 francs to the School of Anthropology, for the publication of the *Revue d'Anthropologie*.

(6) 4000 francs to Justin Jolly, for the publication of a work on blood and hæmatoporesis.

(7) 7000 francs to Louis Joubin, for the publication of the results of the French Antarctic Expedition.

(8) 3000 francs to the late Jules Laurent, for the publication (under the direction of Gaston Bonnier) of a work on the flora and geography of the neighbourhood of Rheims.

(9) 3000 francs to Henri Brocard and Léon Lemoyne, for the publication of the second and third volumes of their work entitled "Courbes géométriques remarquables planes et gauches."

(10) 2000 francs to A. Menegaux, for the *Revue française d'Ornithologie*.

(11) 5000 francs to Charles Nordmann, for his researches on stellar photometry.

(12) 8000 francs to the Zi-Ka-Wei Observatory, in China (director, R. P. Gauthier), for recording time-signals from distant centres.

(13) 2000 francs to O. Parent, for his studies on a group of Diptera.

(14) 10,000 francs to G. Pruvot and G. Racovitza, directors of the *Archives de Zoologie expérimentale et générale*, for this publication.

(15) 6000 francs to Alcide Railliet, for the publication of researches on the parasites of the domestic animals of Indo-China.

(16) 4000 francs to J. J. Rey, for the publication of a botanical geography of the Central Pyrenees.

(17) 10,000 francs to Maximilien Ringelmann, for researches relating to the physical and mechanical constants of metals intended to be used in the construction of agricultural machines.

(18) 12,000 francs to the Academy of Sciences, for the establishment of a catalogue of scientific and technical periodicals in the libraries of Paris.

It was pointed out by the council in 1917 that, although the special object of this foundation was the promotion of original research, up to that time requests for assisting work to be carried out according to a well-defined scheme had been exceedingly few in number. For the three years 1914-17 the

majority of the requests had for their object the establishment or improvement of equipment more suitable for teaching than for personal work. These remarks still apply, and a possible modification in the method of dealing with the revenue of this foundation is foreshadowed.

University and Educational Intelligence.

BIRMINGHAM.—At a special degree congregation held in the Great Hall of the University on Saturday, February 5, the honorary degree of Doctor of Laws was conferred on the Prime Minister, the Right Hon. David Lloyd George, who had a most enthusiastic welcome. After receiving the degree the Prime Minister made a short speech in which he expressed his admiration of the way in which the universities of the country had come to her aid in the great war, and his own surprise at the discovery of the vital importance of the universities, not only as centres of culture and learning, but also as essential factors in the strength of the nation. He paid a generous tribute to the energy and foresight of the founder of the University of Birmingham (Mr. Joseph Chamberlain), and hoped that the Midland area generally, realising its obligation, would come to the assistance of the University in this its time of serious financial need.

On behalf of the subscribers to the Poynting Memorial Fund, the portrait of the late Prof. J. H. Poynting (by Mr. Bernard Munns) has been presented to the University, and Mr. W. Waters Butler has presented the portrait of the late Prof. Adrian Brown by the same artist. The council has expressed its warm appreciation of these gifts, both of which now hang in the Great Hall of the University.

In response to the appeal for 500,000*l.*, the sum of 280,444*l.* has been received or promised.

CAMBRIDGE.—Dr. C. S. Myers, Gonville and Caius College, has been appointed reader in experimental psychology, and Mr. F. A. Potts, Trinity Hall, demonstrator of comparative anatomy.

A grant of 150*l.* from the Craven Fund has been made to the managing committee of the British School at Athens in aid of further excavations at Mycenæ.

A LECTURE on "The Innervation of Striped Muscle Fibres and Langley's Receptive Substance" will be given at the rooms of the Royal Society of Medicine, 1 Wimpole Street, W.1, by Dr. J. Boeke, professor of embryology and histology in the University of Utrecht, at 5 p.m. on Wednesday, February 16. This lecture has been arranged under a scheme for the exchange of lecturers in medicine between England and Holland. Four other Dutch lecturers will also give one lecture each, particulars of which will be announced later. The chair at the lecture of February 16 will be taken by Prof. W. M. Bayliss. Admission is free, without ticket.

THE University of Bristol will shortly possess as fine a block of university buildings as can be found in the United Kingdom outside Oxford and Cambridge. The entire expense of erecting these buildings was, from the outset, undertaken jointly by Mr. George A. Wills and Mr. Henry H. Wills. The cost of completing the work will vastly exceed even the liberal sum contemplated when the gift was originally made. Additional contributions were made by the two brothers during the course of the war, and since the present year commenced they have placed in the