

## Research Items.

A STATUE-MENHIR FROM TRAMIN, SOUTH TYROL.—Dr. O. Menghin of Vienna describes in *Man* for April a sculptured stone, now in the Ferdinandum Museum at Innsbruck, which is from the Tyrol, but unique in that region. It is of sandstone, 181.5 cm. high, 57.6 cm. broad, and 25.77 cm. thick, and is shaped like a column, with square section and triangular top. It is worked superficially to represent a human figure—an armed man, but the face is not indicated. It recalls the statue-menhirs of southern France and upper Italy. The Tyrol example is linked to the Italian group by the occurrence on each of daggers with triangular blades, narrow handles, and circular pommels. The daggers which occur rarely on the French statues are of different type. Similarity to a dagger in the wall painting of Peña-Tu in Spain, usually attributed to the Bronze Age, and the age assigned to the Fivizzano monuments of Italy, suggests a similar date for the Tyrolean menhir. Typologically it is intermediate between the French and Italian types, and is therefore to be connected with the West European culture cycle. It is suggested further that the statue-menhir may represent not a god or goddess of death, but may be the image of persons buried originally at the foot of the monument.

SCOTTISH ANTHROPOMETRY.—Prof. R. W. Reid and Mr. J. H. Mulligan have published in the *Journal of the Royal Anthropological Institute*, vol. 54, pt. 2, a study of the stature, head-length, and head-breadth of eight hundred and forty-seven natives of the north-east of Scotland. The material was collected in the Anthropometric Laboratory of the University of Aberdeen. While stature appeared to be a determining factor in head-length, head-breadth depends on the conformation of the skull itself. This was confirmed by a calculation of the cephalic index, the stature tending to vary inversely as the cephalic index. A comparison between natives of the north-east of Scotland and inhabitants of Norway and Sweden yielded some interesting results. Broadly speaking, the Scottish students resembled the Scandinavians in that they were tall and mesocephalic. They were particularly like the Swedes as regards the shape of the head. They were like the Norwegians in shape of face and nose, on the average both features being narrow. No comparison with Swedes was possible from deficiency of observations of these features. The colour of the hair was intermediate between Swedes and Norwegians. The eyes were darker. The Scottish students showed a higher percentage of the Nordic type when pigmentation was disregarded, but, subject to qualification due to certain defects in the evidence, when pigmentation was also taken into account, the percentage of this type in the Scottish material fell below that of Sweden. In all three groups the percentages of Mediterranean and Alpine types were negligible.

MARINE BIOLOGY AT PLYMOUTH.—The March issue of the *Journal of the Marine Biological Association* contains papers of wide general interest, both in hydrography and general marine biology. Very notable are three contributions. Mr. W. de Morgan describes (with excellent figures) the marine ciliates living in the tanks at the Plymouth laboratory (there is one new species). This is a paper of outstanding merit and usefulness to zoologists. Dr. Marie Lebour gives a most interesting account of young angler-fish larvæ and their enemies, as studied in a plunger jar in the laboratory; the figures are quaint and very

instructive, and should be used by all teachers. Mr. O. D. Hunt gives results of investigations into the food of bottom-living animals of the Plymouth region. This paper contains an account of special observations, but it also includes a very useful general discussion of modes of nutrition among demersal animals and of the rôle of organic detritus in the feeding of bottom organisms, and it has some very beautiful and interesting photographs.

ANTS OF THE ADRIATIC REGION.—Since the year 1908 Dr. Giuseppe Müller has been engaged, at first in conjunction with Dr. Carlo Wolf, who died as a result of wounds sustained in the War, and later with the collaboration of Bruno Finzi, in the classification of the ants found in Julian Venetia and Dalmatia. The results of their investigations, which correct many of the observations made or recorded by earlier authors, are now published in volume 28 of the *Bulletin of the Adriatic Society of Natural Sciences (Trieste)*. The catalogue comprises 89 different species and extends to 170 pages, the characteristics of each species, and its habitat, etc., being described in detail. Alphabetical indexes, both of the sub-families and genera, and of the species, are appended, as also is an accessory table by means of which any individual specimen may be accurately placed.

GENETICS AND WOOL PRODUCTION.—Prof. A. F. Barker discusses this subject in an address to the Pan-Pacific Science Congress, Sydney, 1923, published in the *Journal of the Textile Institute* and now re-issued. He reviews the history of genetics and points out its importance to the practical sheep-breeder. Several interesting points in the genetics of sheep are brought out. For example, the offspring of a cross between a Lincoln ram and a Merino ewe are said to be gregarious, while those from the reciprocal cross are non-gregarious. This, if confirmed, would be a fact of much interest. In a century of breeding the Merino in Australia, the wool-production has increased from about 4 lb. to 8 lb. or 10 lb. per fleece. It is probable that the wild sheep originally shed its coat yearly, and that man has selected strains under domestication in which this power was lost.

INFLUENCE OF MAGNETIC FIELD ON BLOOD-VESSELS.—Recent experiments by the Russian physiologist N. P. Kravkov have shown that an isolated ear of a rabbit, kept in the Ringer-Lock's solution, responds by rhythmical changes in the diameter of blood-vessels to each opening and closing of a circuit connected with an electro-magnet creating a magnetic field near the ear. According to P. P. Lazarev (*Comptes rendus*, Russian Academy of Sciences, 1923) this may be explained on the basis of the ionic theory of excitation. Each opening or closing of the circuit results in an electro-magnetic impulse which spreads in space with the same velocity as light. This impulse may affect the nervous centres in the walls of blood-vessels which influence contraction of the latter, so that the whole process may be explained by the electro-magnetic impulse giving rise to a certain chemical reaction of short duration in the nervous centres, resulting in a pulsation of the vessels. This explanation requires experimental tests, but it is important that further studies of the interesting phenomena discovered by Kravkov should be made along some definite lines arising from the above theory.

VARIATION IN COCONUTS.—Volume 13, No. 2, of the *Malayan Agricultural Journal* is devoted to a study of variation in coconuts by Mr. H. W. Jack.

Not only do marked variations occur in the colour, size, and shape of the fruits produced on particular trees, but also in the yield. Other variations are known to occur in root formation, in the thickness and oil content of the "meat," the rate of germination of seed-nuts, and other features, many of which are economically important. Growing side by side under similar soil conditions, trees retain their individual characters. The necessity for greater care in selection is pointed out, and also the desirability of planting seed-nuts only from trees having favourable characters. Frequency curves show the various ranges of variation. The progeny row method is adopted, and the fruiting capacities of these rows will form the basis for more accurate future investigations.

**TIDAL OSCILLATIONS IN THE LAVA PIT OF KILAUEA.** Mr. Ernest W. Brown has recently considered the existence of tidal oscillations in Halemaumau, the lava pit of Kilauea (*Amer. Journ. Sci.*, vol. 9, 1925, pp. 95-112). During an interval of 28 days in 1919, an almost continuous series of measurements was made of the vertical distance below a station on the outer edge of the pit of two points, one on the lava crust near the centre of the pit, the other of the liquid lava in the lake. While oscillations with other periods may exist, the paper is confined to those with tidal periods, namely, 24 h. 50 m. and 12 h. 25 m. Two analyses of the observations were made, and the author concludes, as regards the variations in the height of the crust-lava, that "there is some evidence of tides, with the periods of the lunar day and lunar half-day, with double amplitudes of an inch or so. . . . The variations of height of the liquid lava are too irregular to show small tidal effects."

**LONDON'S ATMOSPHERE.**—The issue of the *Journal of the Royal Society of Arts* for March 27 contains a lecture by Dr. J. S. Owens on the conditions of the atmosphere over London. While over the North Sea outside Spurn Head there are 140 dust particles per c.c. of air, over London there are on an ordinary winter day 4000 or 5000 and during a fog 100,000 per c.c. During a working day, as shown by the curve published in *NATURE* of December 15, 1923, the amount of suspended matter in the air over London increases from 6 A.M. to a little after noon and then decreases to a minimum at 6 A.M. It is least on Saturdays and greatest on Wednesdays. The tarry nature of the suspended matter shows that it is due mainly to domestic smoke, as factory smoke is almost free from tar. Dr. Owen estimates that the domestic fire is responsible for about 70 per cent. of the London smoke. Increase of speed of the wind decreases the amount of suspended matter per c.c., and rain brings down with it a considerable quantity of the soluble matter. Although there has been a reduction of about 40 per cent. in the amount of suspended matter in the last eight years, there is still ample scope for improvement, especially in respect of domestic fires.

**IS ELECTRICITY ATOMIC?**—In the April issue of the *Philosophical Magazine*, Prof. Ehrenhaft, of the University of Vienna, summarises his investigations of the past sixteen years, which have all led to the conclusion that the minute particles used in measuring the alleged atomic charge of electricity frequently possess charges which are fractions of that atom. An editorial note which accompanies the paper explains that owing to the interruption of international communications during the War, these attacks on the orthodox position as to the atom of electricity may have been to some extent ignored.

*NATURE*, however, directed attention to them on August 11, 1910, on January 19, 1911, and on February 8, 1912. In his most recent work Prof. Ehrenhaft uses particles of radioactive substances of radii less than  $3 \times 10^{-6}$  cm. and finds that their individual speeds in the electric field in which they are observed vary so nearly continuously as to imply that their charges vary with time by amounts which are much smaller than the orthodox atom of electricity of  $4.77 \times 10^{-10}$  electrostatic units.

**PYREX GLASS.**—An article on English "Pyrex" glassware, by G. E. Stephenson, appears in *Chemistry and Industry* for March 20. Pyrex glass is a borosilicate glass of high silica content first produced by the Corning Glass Works, U.S.A., as a substitute for Jena and other German glass, supplies of which were stopped by the War. The coefficient of expansion of the glass is  $34 \times 10^{-7}$ , below the limit proposed by the Reichanstalt for first-class glasses for flame protection purposes. This enables Pyrex ware to be made thicker than usual for glass articles, with consequent increase in mechanical strength. English manufacture of Pyrex ware was commenced in June 1923 by the Wear Flint Glass Works; the manufactured articles include teapots, cooking utensils, and such like, besides the more conventional test-tubes, beakers, and flasks. An outline is given of the general methods used in the manufacturing processes. It is considered that the demand for Pyrex laboratory glassware will greatly increase.

**CONVERSION OF STEAMSHIPS TO MOTOR-SHIPS.**—A paper on this subject, read by Eng. Lt.-Comdr. L. J. Le Mesurier before the North-east Coast Institution of Engineers and Shipbuilders on March 27, gives an interesting comparison of the performances of the *Buitang* before and after conversion. This vessel was built in 1916 for the Nederland Steamship Company, and is 417 ft. 8 in. long, with a displacement of 14,000 tons. The original steam plant consisted of triple expansion engines of 3600 I.H.P. at 85 rev. per min. The main engine of the new propelling machinery is a Sulzer two-stroke engine with direct driven scavenge pump, and has a normal output of 3600 B.H.P. at 90 rev. per min. During the official shop trials this engine developed as much as 4390 B.H.P. at 96 rev. per min. during an overload trial. The fuel consumption at normal load was 0.410 lb. per B.H.P. per hour, and the mechanical efficiency was 78.3 per cent. The fuel consumption for all purposes with the original machinery worked out at an average of 1.5 lb. of coal, or 1.1 lb. of oil fuel per I.H.P. per hour; these correspond to 58 tons of coal or 41 tons of oil fuel per day at sea. With the new plant the total consumption per day at sea will be 14.7 tons of fuel. The total annual cost of fuel, including both sea and port consumptions, is 27,780*l.* before conversion and 14,230*l.* after conversion, showing a total annual saving of 13,550*l.* Before conversion the ship could remain at sea 43 days, and after conversion 164 days. Thus, taking in 2000 tons of fuel at Batavia, Java, or other ports, will enable the vessel to complete the round trip to Holland and back, and will permit of 1000 tons of extra cargo on the outward voyage. Staff savings will amount to 1440*l.* per annum. The actual cost of the conversion will probably be 70,000*l.*, and the net saving is estimated at 14,500*l.* per annum—a return of more than 20 per cent. on the capital outlay. Figures are also given for the converted vessel *Wieringin* during a voyage from South America, showing that the speed has been increased by about 20 per cent., despite bad weather, and the cargo carried was about 10 per cent. greater.