

was suitable and so a clerk in the office had to act as a human 'repeater'. He repeated word by word the messages he received into a microphone connected with three small loudspeakers in the street. The police objected as the crowd blocked the thoroughfare, and so this early forerunner of broadcasting had a short life. Broadcasting began early in 1923, when a 500-watt station was installed at Oslo. In those days the ether was not, as now, jammed by high-power broadcasting stations and so the reception was excellent. It was at first proposed to put a tax on all receiving sets sold, but this was modified into an annual tax of 2-5 kroners on every set installed. As early as May 1923 it was demonstrated that it was possible to broadcast to the fishing fleet from the northern part of Norway. In the very early days, to receive a portion only of what was broadcast was considered satisfactory. Now not only is the complete message intelligible but the finer nuances of speech and music are transmitted over great distances without audible impairment. The small station at Oslo has been replaced by one of 100,000 watts. Marvellous progress has been made during the last ten years.

#### Archæological Research in the Indus Valley

ON December 8, Dr. E. J. H. Mackay delivered the Sir George Birdwood Memorial Lecture before the Royal Society of Arts. Dr. Mackay pointed out that until we are able to outline the history of the intervening centuries of darkness, the influence of the Indus Valley civilisation upon later times can only be tentatively discussed. He, therefore, preferred to indicate its relationship with other contemporary centres of culture. He welcomed the rejection of the earlier title 'Indo-Sumerian'. Commercial relationship almost certainly existed between the Indus Valley and the Middle East, but the culture displayed at Mohenjo-Daro must be regarded as distinct. He also supported the rejection of the title 'Chalco-Lithic'. Dr. C. L. Woolley, in seconding the vote of thanks to the lecturer, expressed the hope that Dr. Mackay will soon be able to resume his work, now that the Government has made it possible to obtain permission to carry out archæological researches in India.

#### Egyptian University's Excavations at Ma'adi

AN account of the excavations carried out last season at Ma'adi, the third season of excavation on the site, by the Geographical Department of the Egyptian University, is given in *Ancient Egypt* (pt. 4; 1932) recently issued. The excavations were conducted by Prof. Oswald Menghin and Prof. Mustafa Amer. More than 5,000 square metres were excavated. Among the more important finds was a complete square hut foundation, which throws light on Neolithic house construction in Egypt. A hoard of seven basalt vessels in a deep cellar hole cut in virgin soil is said to be "the biggest coherent find of prehistoric stone vessels made, so far, in Egypt". A vase of limestone had had red colour applied to it so that it resembled pottery. A large number of

exceptionally fine worked flints included several big, oval and exceptionally thin scrapers, and a fish-tail lance. Among a group of wooden objects was a boomerang. Personal ornaments included a comb made of ox horn, the first of this material to be found at Ma'adi. A very large amount of pottery was found, more than a hundred vases being complete, many of them new types and bearing likeness to the ceramics of the Syrian third millennium B.C. No complete vessel of painted pottery was found, though a big fragment painted inside and out was saved. The painted pottery of Ma'adi has a peculiar style quite independent of any painted Egyptian ware. The importance of this Neolithic site, especially as a source of information bearing on the early relations of Egypt with Palestine and Syria, is becoming increasingly apparent and makes its complete excavation a matter of considerable moment.

#### Salmon Fisheries Research

IN the Ministry of Agriculture and Fisheries Report of the Salmon and Freshwater Fisheries for the year 1932 (London: H.M. Stationery Office. 1s. 6d. net), it is stated that the catch of salmon and migratory trout showed a still further increase over the very poor catches that were made in 1930. It is also satisfactory to read that in 1932 there was no considerable outbreak of furunculosis, a disease concerning the determining factors of which we need much more information. Thanks to the preliminary work which has already been carried out, it has now been shown possible to disinfect ova with acriflavine, which if carried into practice should eliminate one possible source of spreading infection. The need for continued and increased research into the life-history of the salmon is stressed as bearing on the formulation of fishery laws. It is not yet known how great a part is played by heredity in the determination of whether a fish shall be early- or late-running; if indeed, as some apparently believe, this characteristic is carried on from one generation to the next, it would be advisable to cease protecting those fish which ascend the rivers after the close season and are thus of no commercial value. The clearing up of this question would indeed be of far-reaching interest in the racial study of fishes in general. The salmon is a fish on which such an investigation can be carried out in practice, and information thus obtained might throw light on similar phenomena among our sea fishes, such as spring- and autumn-spawning herring. It is all the more regrettable therefore that the recommendations of the Committee appointed in 1930 by the Minister and the Secretary of State for Scotland on artificial propagation of salmon have had to be regarded as not feasible at the present on the grounds of economy.

#### The Qattara Depression and Water Power

THE Qattara depression in the north-east of the Libyan Desert has an area of 19,500 square kilometres, an average depth of floor of 60 metres below sea-level, and a maximum depth of 134 metres. Rather more than a quarter of the floor is covered

with a watery mixture of sand and salt, known as *sabakha*, which often has a crust over salty sludge. In the October issue of the *Geographical Journal*, Dr. J. Ball discusses in detail his proposal to utilise this depression for power production. He suggests the construction of four pipe lines to bring in the waters of the Mediterranean, which lies about fifty-six kilometres to the north. For a lake area of 13,500 square kilometres with a level below the sea of 50 metres, he calculates a permissible influx of 56,700,000 cubic metres a day. The level would be maintained by the heavy loss of water due to evaporation, which he calculates at 4.6 millimetres a day where the rainfall is not more than 20 millimetres a year. This process would, of course, lead to increasing salinity of the lake and the eventual filling up of the depression by saline deposits, but Dr. Ball calculates that this would not occur for many centuries. His plan foresees the gradual formation of a lake of the maximum depths extending over nearly two centuries. Dr. Ball has worked out his scheme in much detail and gives all the figures in his paper. It should be noted that the distance over which the power would need to be transmitted to the Nile delta is about 560 miles.

#### Ellsworth Antarctic Expedition

ONE of the major problems of the antarctic, the relation between the Ross Sea and the Weddell Sea, is the objective of the Ellsworth expedition which has sailed for the Ross Sea in the *Wyatt Earp*. The sole aim of Mr. L. Ellsworth and Mr. B. Balchen is to fly from the Bay of Whales, early in January, across to the Wilhelm Barrier in the south of the Weddell Sea on a course that will take them within about four hundred miles of the pole on the Pacific side. The *Geographical Journal* of November gives some details of the expedition. No landing will be made in the Weddell Sea and the party will return at once to the base. The double journey of a total of 2,900 miles should be made in about twenty hours. A Northrop low-wing monoplane has been built for the flight and tested in Canada and Norway. It is not contemplated that more than a week will be spent in the Ross Sea, though a year's supplies are being carried.

#### Journal of the University of Bombay

THIS journal is mainly intended for the publication of the results of researches carried out by the teachers and students of the University of Bombay. It is to be issued six times in the year; the parts issued in January and July are to be devoted to history, economics and sociology, the part for March to biology, the part for September to the physical sciences and mathematics, and the parts for May and November to arts and law. We have received the biological part, dated March 1933, which contains thirteen papers, three on botanical subjects, seven on zoology, and others on the rabbit ovulation test for pregnancy, the characters of the Indian pelvis and the biophysics and biochemistry of the blood in tuberculosis. The zoological papers include

descriptions of the vascular system of the sea-slug, *Oncidium*, the skeleton of the globe-fish, *Tetrodon*, the reproductive and excretory organs of *Thalassoma bombayensis*, and of the history of the thymus of the plaice. This last investigation was carried out in the University of Liverpool, but the others represent work done in Bombay. The papers are illustrated by line drawings in the text and by plates. Several of the line drawings are somewhat crudely executed; but the fault in some cases is in the original drawings, though in others a smoother paper would probably be more suitable for clear reproduction of details. At the end of the part are abstracts of four M.Sc. theses in Bombay for the year 1931-32.

#### Disappearance of 'Submerged Forests'

THE disappearance of the last traces of the 'submerged forests' at the old peat beds of the Lancashire and Cheshire coast, where the tides have now washed away all trace of the prehistoric tree stumps that littered the shores so abundantly at West Kirby, Hoylake, Dove Point and Leasowe on the Cheshire shore, and Hightown and Blundellsands on the Lancashire shore, has robbed geologists in particular of one of the most extensive of these collections on the British coasts. The submerged forests near Liverpool have perhaps been more closely studied than any others of these remains, and a generation ago the stumps that littered parts of the coast numbered many hundreds and were widely known. None now remains. Numerous remains of the antler deer (*Cervus elaphus*), wild oxen (*Bos longifrons* and *B. primigenius*), the metacarpel of a roe deer (*Capreolus caprea*) and of domestic animals as the horse, dog, and in 1873 the skull of *Homo sapiens*, have been taken from these submerged forests in the Liverpool area. Smith (*Proc. Historic Soc. Lancs. and Cheshire*, 18) describes an unusually fine pair of horns of the larger form of the red deer taken at Leasowe, 1863, each antler forty inches long and the pair measuring seven feet from tip to tip, while Liverpool Museum received a large number from Hightown in 1916 (*Proc. Liverpool Geol. Soc.*, 14). Roots of *Osmunda* and shells of *Buccinum*, *Turritella*, *Scribicularia*, *Tellina* and *Nutica* have also been obtained from the blue silt below the peat beds.

#### Botanical Society and Exchange Club of the British Isles

UNDER the editorship of the new secretary, W. H. Pearsall, this report (Arbroath: T. Buncle and Co, 1933) contains a mass of interesting information relating to British field botany. Lists and critical notes on many new varieties, subspecies and adventive species, and new county records are given. Articles on critical species and genera are contributed by the late Dr. Drabble on "*Ranunculus bulbosus* and its varieties in Great Britain" and "*Valeriana officinalis* and its allies in Great Britain". Mr. Pearsall gives a revision of the genus *Zannichellia* and new keys and descriptions of the British species of *Carex*. A. E. Wade contributes notes on the genus *Myosotis* and J. S. L. Gilmour writes on "The Taxonomy of Plants intermediate between *Medicago*