

until the very end, the educational authorities succeeded in maintaining practically all the important research institutions and cultural associations remaining within the country. Scientific publications also continued to appear, and there was every reason to believe that the nation would, by hard labour, maintain its vigour and prosperity, and its men of science would be able to continue to achieve distinction and add to the sum of human knowledge by meritorious work in their respective fields. It is, perhaps, too early to foresee the consequences of the latest events in Central Europe. The new Protectorate is avowedly to have a measure of autonomy, though this is scarcely likely to go so far as to permit the free and open interchange of thought which has been banned in Germany for the past few years.

Tuberculosis in Wales

THE report is published of a Committee, consisting of Mr. Clement Davies and Dr. F. J. H. Coutts, appointed by Sir Kingsley Wood, when Minister of Health, in response to a request of the King Edward VII Welsh National Memorial Association for an inquiry into the anti-tuberculosis service in Wales and Monmouthshire (London: H.M. Stationery Office. 4s. 6d. net). The problem of tuberculosis is relatively more serious in Wales than in England, for the mortality rate has not declined so rapidly as, and exceeds, that of England. Excessive mortality in Wales occurs among young adults aged fifteen to twenty-five years and in the age group twenty-five to forty-five. In contrast with England, the rates at fifteen to twenty-five show little change since 1921 and the rate for females is distressingly high. Certain areas, notably Anglesey, Caernarvon and Merioneth, are especially afflicted with the disease. The report states, that for practical purposes, racial susceptibility as a factor in causing the high mortality may be ignored. Segregation in tuberculosis is one of the most effectual preventive measures against the spread of the disease, the need for additional bed accommodation if tuberculosis is to be adequately dealt with is stressed, and it is suggested that, with a widely scattered population in some Welsh areas, small local institutions of a simpler type might be a valuable adjunct to the more fully equipped hospitals. The Committee recommends the provision of additional laboratory accommodation, and suggest that the proposal to establish a village settlement in Wales should be explored.

It is pointed out that after-care work has made little headway in Wales, and although the Committee does not recommend that the Association should undertake this work, the hope is expressed that local authorities will realize the importance of setting up effective care organizations. Treatment is only one aspect of tuberculosis work, and the importance of preventive work should be realized. Unfortunately, over large areas in Wales, preventive duties are neglected or are carried out imperfectly by local

authorities, who do not appear fully to realize their responsibilities. In regard to housing, the report states that in rural areas, villages and small towns there are hundreds of houses that are unfit for habitation. The Committee also points out that there is scope for much improvement in the provision of milk and meals in schools, and authorities in Wales as a whole, with few exceptions, make little or no provision for midday meals. The Committee concludes by directing attention to the great disparity among local authorities in the standard of performance of public health services, and remarks that many of the authorities, owing to small population and inadequate resources of their area, are incapable of carrying out their public health duties properly. The Committee was impressed with the general efficiency of the Welsh National Memorial Association's work for the treatment of tuberculosis.

Launch of the R.R.S. *Research*

THE launching of the Admiralty non-magnetic ship, the R.R.S. *Research*, will take place at 6 p.m. on April 4 at the Noss Works, Dartmouth, of the builders Messrs. Philip and Son, Limited. The launching ceremony will be performed by Mrs. Spencer Jones, wife of the Astronomer Royal. The day and time of the launching have been chosen to coincide with the highest spring tides, as investigations proved that the *Research*, which is a 770-ton ship, would need all the water possible. The construction of a special vessel such as this, which is to be so far as possible non-magnetic, raises many problems. The question of the best substitutes for iron or steel in various components and fittings has required a good deal of investigation and experiment. The builders have shown a great interest in the work and have co-operated with the Admiralty to obtain the most satisfactory results. Lieut.-Commander D. H. Fryer, who has been appointed captain of the *Research*, was given special leave by the Admiralty to make a voyage to Australia in one of the grain ships in order to gain experience of sailing ships. He has recently completed the rigging of a scale water-line model of the *Research*, which will be on view at the reception to be given by Messrs. Philip and Son after the launching.

Recent Researches in Steel Metallurgy

IN a Friday evening discourse at the Royal Institution on March 17, Dr. W. H. Hatfield discussed what he described as the three principal aspects of steel research: (a) elucidation and improvement of the process of steel manufacture and manipulation; (b) the investigation of the properties of steel under variable conditions approximating to those of service; and (c) the exploration of the influence of added elements and of the effect of heat-treatment. Dr. Hatfield showed a colour film illustrating the electric and open-hearth steel processes, the casting of ingots and forging operations. Dr. Hatfield said that one of the most complex studies is that of the changing properties of steels with varying temperature, this

study not only including the properties of the steel at a particular temperature but also the degree of persistence of these properties at that temperature over long periods of time. In this connexion, details were given of a creep test carried out on a heat-resisting steel maintained under a load of 280 lb. per sq. inch for a period of 10,000 hours at 900° C. With reference to the production of permanent strain at normal temperatures, Dr. Hatfield instanced a test now in progress at the Brown-Firth Research Laboratories. The experiment consists of a strip of cold-worked austenitic steel placed in tension under a stress of 25 tons per square inch. The test was commenced in June 1929, and since that date the extension has been nil within the accuracy of measurement applied, that is, a sensitivity of 1/40,000 of an inch and a gauge length of 8 inches. In discussing the results achieved by the addition of alloying elements, Dr. Hatfield stated that, experimenting upon the basis of the rustless steel composition by modifying the chromium and nickel, and by adding other elements such as tungsten, molybdenum, cobalt or titanium, steels have been produced which maintain a reasonably protective film at temperatures even in excess of 1000° C., besides possessing a useful strength.

Palaeolithic Man in Northern England

ALTHOUGH it is more than sixty years since the late Sir William Boyd Dawkins brought to light evidence of the presence of man during the Upper Palaeolithic period in the north Midland region of England, it was not until Mr. A. Leslie Armstrong's investigations in the cave and other deposits of the area in a series of systematic researches, which began in 1921, that it became possible to establish a chronological succession in human occupation here in the course of the palaeolithic age, and its relation to phases of the Ice Age. The results of these investigations were surveyed by Mr. Armstrong in his Wilde Lecture before the Manchester Literary and Philosophical Society on March 14. In dealing with the earlier evidence of occupation, he pointed out that until three years ago it had not been known that the range of Lower Palaeolithic man extended to the northern Midlands, but intensive research directed to the contents of the glacial drift and old river terrace gravels of the Trent and its tributaries had provided evidence of his presence there in the form of hand-axes of flint and other artefacts, representing all the Lower Palaeolithic cultures. Excavations in the Pin Hole Cave, Creswell, revealed three zones of occupation in Mousterian times, including two cold periods. Mr. Armstrong's Trent Valley researches indicate that the lower terrace gravels of the river approximate in time to the second Mousterian occupation of the cave, and that they were laid down during one, or possibly both, of the cold periods recorded in the cave. Rock shelters in the Creswell gorge and neighbouring valleys and habitation sites on the Lincolnshire cliff, covered by solifluxion deposits, indicate that man lived in these regions while events which mark the final glaciation

of England were active in the east, west and north of the region; therefore human occupation of the north Midland area throughout palaeolithic times can now be demonstrated.

Archæological Finds in the Nile Delta

AN archæological discovery described as "exceptionally important" is reported from the ancient city of Tanis in the Sharkia Province of the Nile Delta (*The Times*, March 20). Prof. Montet of Strasbourg, who has been engaged for some years in excavating on the site, on which both Mariette Pasha and Sir Flinders Petrie carried out archæological investigations, has discovered the first gold coffin to be found in Egypt since that of Tutankhamen, and a silver sarcophagus, the first example in that metal from Egypt. Tanis was the capital of Egypt between the Thirteenth and Eighteenth Dynasties; but the present find was made in excavating a series of funerary chambers of the tombs of kings of the Twenty-first and Twenty-second Dynasties (1100-950 B.C.), the capital of which was Tell Basta, the site of the modern Zagazig. Hitherto there has been no certain knowledge of the residence of these kings. The funerary chambers were empty, but a few days ago a narrow corridor was found leading to a wall which, when pierced, gave entry to an intact chamber of medium size, built of white limestone, and containing a gold sarcophagus. Within this sarcophagus was a second of silver, in which was a mummy. Inscriptions show that it is that of King Shishak. Two human skeletons still wearing ornaments were found on either side of the sarcophagus; and there were many jewels among the remains. In one corner of the tomb were funerary statuettes representing King Cumin, and in another corner a large vase, which has yet to be opened.

Libraries in Technical Institutions

A REPORT on libraries in technical institutions, which has been issued by a joint committee of the Association of Technical Institutions, the Association of Principals of Technical Institutions and the Association of Teachers in Technical Institutions, should be of considerable service to those responsible for providing and maintaining library services in technical colleges (Loughborough: Loughborough College, 1939). In addition to a clear analysis of the aims of such a library service, which should assist in the formulation of sound policy based on well-defined principles, it gives sufficient detail in regard to such matters as accommodation and planning to be of real service in the design of a new library or expansion of existing services. A feature of the report is the inclusion of plans and details not only of three distinct types of library design but also of a number of representative libraries. The basic recommendation of the report is that in every technical institution there should be at least one room of adequate size reserved solely as a library, containing an ample supply of books and periodicals kept thoroughly up to date and covering all departments of work carried out in the institution, and including also a good