Cornish Promontory Forts

INTEREST in the promontory forts of Cornwall has been much stimulated by the results of Dr. Mortimer Wheeler's excavations in Brittany. One of them, the large and evidently important fort of Trevelgue Head and Porth Island, Newquay, has been under excavation since July 3. Its investigation is being carried on under the direction of Mr. C. K. Croft Andrew on behalf of the Cornwall Excavations Committee. Excavation is still in progress, though much hampered through lack of funds; but the finds reported to date (*The Times*, Aug. 15), ranging from Neolithic to Early Iron Age, fully bear out anticipation of the importance of the site, based partly on its superficial resemblance to Hengistbury Head, Hampshire, partly on the imposing character of its septuple line of defences. The main defences are now assigned to the third century B.C., when there supervened an occupation rich in artistic and metallurgical attainments. The pottery is akin to that of Glastonbury Lake Village, displaying curvilinear and lenticular decoration, as well as naturalistic leaf and vegetable forms. It would appear that in order that the outermost defences should include a native iron mine, they were given an eccentric form. At the back of the sixth, the innermost, rampart was banked the refuse of a considerable Iron Age town. This consisted of houses, or large huts, arranged terrace-wise on the slope rising from the back of the sixth bank to the apex of the island. The best example of a house cleared as yet was occupied from about 200 B.C. to A.D. 100. It is nearly circular and 46 ft. across, the upper sector being sunk two feet deep in the soft slate rock. It shows some fine examples of dry-walling. The wall was probably never more than 4 ft. or 5 ft. high, but it was 6 ft. thick. The roof ran up from eaves which were supported on a ring of external posts, while the span, being too great for early carpenters, was supported by rings of inner posts.

Radio for Short Distances

THE use of ultra-short waves in radio transmission for keeping police cars in touch with headquarters has proved itself of great value. A.R.P. necessities are increasing the demand for this system of communication. There are also a number of uses to which it can be usefully employed in connexion with switching on and off street lamps, water heaters during peak loads, calling air raid wardens and firemen and there would still be space in the high-frequency band for further applications, which are sure to be suggested within the next few years. Had the cost of these installations not been so high the progress made would probably have been more rapid. Sudden changes in the temperature will also encourage the installation of load-controlling equipment. One of its most useful applications is in connexion with fire-fighting. Experience gained in a recent local blackout shows that ordinary telephone communications can break down under the stress of a sudden emergency. The *Electrician* of August 18 says the Post Office has allotted a limited range of frequencies in the ultra-short wave band for police and fire-brigade purposes and that experimental work is being carried out by the Post Office in association with the Home Office to ascertain the possibility of developing local systems of this type. In dealing with emergencies, speed of communication is of the highest importance and wherever it is feasible to provide an effective means by which police, fire-brigade and ambulance headquarters can keep constantly in touch with their mobile units, this should be done.

Broadcasting over the Power Mains

DEMONSTRATIONS have recently been made of the broadcasting of messages over the electric light and power mains. In 1927 the method was conceived by Captain P. P. Eckersley, who, at that time, thought that the B.B.C. should deal with this special transmission. There is no technical defect in the method. For example, a message can be sent from any sub-station to all the consumers with which it is connected. The messages traverse one of the underground mains and get back to earth by a leakage circuit which contains the signalling device. This system has the advantage that it can be applied very readily. It needs no overhead wiring and so is less vulnerable to attack during a war. It could reach the nine million people in Great Britain who are supplied by a company with electric lighting in their homes. If domestic telephones were used, only two million homes would be available. The following objection to the method has been urged by some engineers. It is said that in time of war or civil commotion, enemy agents could easily inject messages into a power mains system and that it would be difficult to locate where they were working until the mischief had been done. Similarly, they might be able to jam any official message to the public. Seeing that power networks are sectionalized it is improbable that pirate messages would reach more than two or three hundred people at most. If a telephone service were used the number of listeners affected would be about the same as with the power mains system. In either case it would not be difficult to devise a method of locating and cutting off the offender. Electric supply engineers are quite enthusiastic about the broadcasting method. Captain Eckersley and Mr. W. B. Woodhouse are urging that a conference of all bodies interested should be called in order to decide, without further delay, what is best to be done.

Vocational Training for Firemen

A BULLETIN, "Vocational Training for Firemen" (Vocational Division Bulletin, No. 199, Trade and Industrial Series, No. 57. G.P.O., Washington, D.C. 10 cents) issued by the Office of Education, U.S. Department of the Interior, gives a general account of the present status of firemen training in the United States, particularly with reference to programmes developed in co-operation with public vocational education. The estimated loss by fire in the United States in 1937 was 285 million dollars, and the growing demands upon the fire service have increased the importance of training all members of fire departments sufficiently to enable them to utilize

the results of technical progress and to apply scientific knowledge in fire-fighting and prevention. Since 1930, the International Association of Fire Chiefs has been responsible for a programme of training and development, and in 1937 fireman training schools were organized in connexion with State programmes of vocational education in twenty-two States, in which 5,441 firemen were enrolled. The training programmes include a system of zone or regional schools for training within a wide area; extension classes, chiefly in connexion with a State college or university; short courses or institutes providing three to five days of instruction annually; and local training programmes in the larger cities. Vocational training agencies appear to be of assistance chiefly in the training of instructors or conference leaders; the organization of instructors' conferences; the supervision of training programmes, particularly in the zone schools; the provision of instruction in practical and technical subjects through extension classes or short courses and the supply of literature for instruction and teaching. The bulletin also discusses the methods of assisting a local fire department in organizing a training programme and the possibilities of co-operation with other agencies. Details of the organization and administration of the Massachusetts zone schools are appended and also of the California programme.

Hygiene and Public Health in India

THE annual report of the All-India Institute of Hygiene and Public Health, Calcutta, recently issued, summarizes the teaching and research work for the year 1937. Statistical investigations on cholera have been pursued; for example, forecasts of epidemics, and research on variations in the chemical structure and antigenic properties of the cholera vibrio. An inquiry into the nature of an obscure disease, epidemic dropsy, has incriminated mustard oil (much used in cooking) as the causative agent, though what constituent of it is responsible still remains to be discovered. An account of the work of the Maternity and Child Welfare Centre is included.

Tuberculosis in Cyprus

THE National Association for the Prevention of Tuberculosis has published an interim report on the incidence and means of control of tuberculosis in Cyprus ("Tuberculosis in Cyprus", by N. D. Bardswell. M. D. Adlard and Son, Ltd., 21 Hart Street, W.C.1. 2*s*. 6*d*.). Tuberculosis was said to be rife in the island and to be increasing rapidly; the assistance of the National Association was requested, and Dr. Bardswell was appointed to conduct an inquiry in the island. A total of 250–300 notifications of pulmonary tuberculosis a year is recorded in a population of some 360,000. If a correct record, this would give a notification rate for pulmonary tuberculosis of less than 1·0 per 1,000 living—not a high rate, for the present rate (1935) for England and Wales is 0·97, and for London 1·27, per 1,000 living. There is reason to think, however, that the notification returns are inaccurate, and do not represent more than onequarter to one-half of the new cases occurring annually, owing to failures to notify all cases and to inaccuracies in diagnosis. Dr. Bardswell has surveyed the whole island, and the results of tuberculin testing in some districts are given. The report contains a mass of details, and is well illustrated with maps, plans, charts and photographs. It is difficult, however, to gather the actual facts and conclusions from this report of 228 pages, for it contains no table of contents, no index, and no general summary; these omissions should be made good in any further report.

Scientific Uses of Cinematography

THE British Film Institute, 4 Great Russell Street, London, W.C.1, one of the objects of which is to collect and disseminate information concerning the use of films for educational purposes, is engaged in compiling a bibliography on the scientific uses of cinematography. Very few books have been written on the subject and the list will consist almost entirely of references to reports of scientific associations and to articles which have appeared in scientific and film journals. The Institute would be glad to receive any information bearing on the undertaking.

Water Speed Record

SIR MALCOLM CAMPBELL set up a new record for speed on water on August 19 with his motor-boat *Bluebird II* on Coniston Water. The speeds reached over a statute mile in opposite directions were 142·85 and 140·62 miles an hour respectively, the average being returned as 141·74 miles an hour. Sir Malcolm's boat, in the design of which some novel features were embodied, was driven by a twelve-year-old engine intended for practice runs.

Recent Sunspot Activity

THE appearance this week of a large group of sunspots serves as a reminder that the sun is still very active though past the peak of the present 11-year sunspot cycle. This sunspot group, in latitude 13° N., crossed the central meridian on August 21·9 and will pass off the western edge of the disk on August 28. The aggregate area of the component spots on August 18 was 1,300 millionths of the sun's visible hemisphere. Since the last note on sunspots (NATURE, July 15, p. 109) a number of fair-sized spots have appeared of area greater than 500 millionths but less than 1,000 millionths. The respective times of central meridian passage (communicated by Greenwich) are as follows: July $17{\cdot}1^{d}$, $17{\cdot}7^{d}$, $20{\cdot}1^{d}$, $23{\cdot}4^{d}$, August $4{\cdot}3^{d}$, $7{\cdot}3^{d}$ and $11{\cdot}1^{d}$ U.T.

The Night Sky in September

THE autumnal equinox on September 23 brings equality of day and night the world over; thereafter (until December 22) the nights increase their duration in the northern hemisphere. The moon is new on September 13 and full (the Harvest Moon) on September 28. Jupiter is in conjunction with the moon on September 1 and 28: Saturn on September 3 and

(*Continued on p.* 375)