

tially available, but has reference to peace-time conditions. In war-time, consumption by the fighting services will obviously increase even beyond the figure for 1938 when Germany was mobilizing, but at the same time civilian consumption will drop on account of the stringent rationing schemes now in force; also less oil will be used by Germany's mercantile marine, the activities of which have been so severely restricted of late. It is probable, therefore, that Germany's potential resources of oil will be sufficient for her war-time needs, and as reserves are available to supplement home production until such time as all projected plants are in operation, it is unlikely that she will go short of oil, unless through drastic changes in the international situation.

Folsom Man: Further Investigation in Colorado

A FURTHER season of excavation on the Lindenmeier site in northern Colorado has again failed to produce any trace of skeletal remains of Folsom man. Until such evidence is forthcoming, and on the assumption that it will afford some certain indication of the relation of the authors of the culture to the Amerindian peoples, the Folsom industry, with its distinctive characteristics, hangs in the air. The geological interpretation of the Folsom deposits on the Lindenmeier site assigns them to the last phase of the glacial period at an approximate dating of 12,000-25,000 years ago, and an association with an extinct fauna including mammoth, camel and extinct forms of bison. In the course of excavations carried out by Dr. F. H. H. Roberts, jun., in the past summer, the fifth season of his investigations on the site, it is reported in a statement issued by the Smithsonian Institution of Washington, that among animal bones, which had been chopped and split by man, was found the skull of an extinct bison measuring 36 inches between the tips of the horn cores—fully a foot wider than the spread between the horns in the modern species. In four months' work Dr. Roberts opened up a new section of the site over an area of some 45 ft. by 60 ft. to an average depth of six feet. His finds, in addition to the characteristic projectile points and previously known artefacts, included new forms of knives and scrapers, two to three times as large as those found before. A new feature in the culture is the bone bead, not hitherto found in Folsom deposits. Of those found here, one shows definite ornamentation in the form of a simple geometric design scratched on the surface.

Mental Hygiene in Old Age

IN a paper on this subject read before the Section on Care of the Aged, Welfare Council, New York City (*Mental Health*, 23, 257; 1939), Dr. George Lawton, psychological adviser to the Andrew Freedman Home, New York City, maintains that there is no group of persons whose mental welfare is more neglected than that of old people. This indifference, he declares, is world-wide even in countries with advanced social services. Although there has been for many years a guidance clinic for the aged in San

Francisco, no definite steps have been taken for establishing a similar one in New York. Dr. Lawton asserts that what little knowledge we have of old people is based on pathological material, while we possess very little information about non-psychotic old persons. He suggests that the psychological difficulties presented by aged people should be classified as follows: (1) the problems of neurotic, borderline psychotic, psychotic, feeble-minded, and deteriorated individuals; (2) the minor mal-adjustments of fairly adequate old people caused by excessive economic pressures and inhibitory social attitudes; (3) the stresses and strains of persons undergoing normal mental and emotional decline. According to Dr. Lawton, the management of the problem of senescence should include the following measures, among others: (1) intensive, systematic studies over long periods of time, of the mental abilities, interests, recreations, emotions and personalities of larger groups of men and women in town and country in each decade from forty to sixty, (2) when such facts have been collected, guidance clinics should be set up to function in a similar manner to child guidance clinics; (3) courses in geriatrics should be established in the medical schools to give future physicians a better understanding of the effects of mental attitudes on the bodily ailments of the aged.

Wild-life Restoration in the United States

IN the United States, as in other progressive countries, the existence of many wild creatures has been threatened by the appropriation of lands for farming and industrial purposes, the destruction of living places and breeding places, and the gradual disappearance of natural food and cover. To check this decrease of wild-life, the Federal Government passed two years ago one of the most beneficial measures of recent years, the Federal Aid to Wild-life Restoration Act, briefly known as the Pittman-Robertson Act of 1937. The co-operative scheme which it envisages is one that might well be adopted in other countries, and a summary of its provisions and explanation of the co-operation which it seeks are now given by Albert M. Day (*U.S. Dept. Agric. Misc. Pub. No. 350*; 1939). The Act recognizes the fundamental principle that wild-life is linked with the land, and aims at the restoration of suitable environment in which wild birds and mammals may live and multiply. The Federal Government is willing to contribute materially towards this restoration programme, since it is known that individual States have been unable to cope with the situation because of lack of funds. But a State to qualify for a share of the grant—up to 75 per cent of the cost of work performed on approved projects—must have passed laws for the conservation of wild-life, which shall include a prohibition against diverting fees paid by hunters to any other purpose than the administration of the State fish and game department. Already the Act appears to be working effectively. The grand total allocated for conservation projects in 1939 was 1,186,666 dollars, of which State legislatures

contributed 296,666 and the Federal Government 890,000 dollars. Some time must elapse before the effect of these widely distributed schemes shows itself on the wild-life population, but there is every reason to think that the result will be gratifying to the naturalist as well as to the sportsman.

Television Transmission over Telephone Cables

IN the *Record* published in October by the Bell Telephone Laboratories, Inc., L. Weis gives a helpful discussion of the problem of transmission signals over telephone cables. Most radio broadcasts originate in the studios of the broadcasting companies, and are transmitted thence to the radio stations over high-quality programme circuits. Not infrequently the 'pick-up' point is at a distance from the studio and circuits to the studio must be provided over telephone 'cable pairs' not normally employed for broadcasting. With television broadcasts such remote pick-up points are also required, but the utilization of ordinary telephone circuits to link them to the television studio is more difficult because of the much wider band of frequencies employed, besides certain exacting requirements for television transmission. Because of the experimental state of television broadcasting at the present time, no arrangements for transmitting from these remote pick-up points have as yet been standardized.

LAST May an experimental circuit of this nature was provided for the National Broadcasting Company. More recently a somewhat similar one was provided for the Columbia Broadcasting System. For ordinary telephone circuits a frequency band of about 3,000 cycles is sufficient, while for both these recent experiments the band extended from 45 to more than three million cycles—a range a thousand times greater than the voice band. When we consider the losses, we find that the loss in a co-axial cable at three million cycles is only one millionth that in a cable-pair of equal length. For satisfactory television transmission, equalizers must be provided to make the overall loss essentially the same for all frequencies. In addition to the variation in loss with frequency there is also a variation in the time of transmission. In television transmission, if this is not kept extremely small the detail of the picture will be blurred, and spurious transients and 'ghosts' will appear. Before a cable pair can be used for television, it is necessary to know the transmission time and then to provide phase equalizers to correct it. In the experiments the equalized line maintains the same transmission time to within plus or minus one tenth of a microsecond, and this can be measured.

Traffic Signals at 'Bank Complex'

A DESCRIPTION is given in *Roads and Road Construction* of November 1 of the 'electromatic' vehicle-actuated system operating on the 'flexible-progressive' system. Automatic traffic signals outside the Bank of England and on several important roads in the locality are to be installed as early as possible. It has been found that the signals in other parts of the

City have proved of such value during the black-out that police officers have been able to concentrate on other important duties, and it is only at a few intersections that it has been necessary for them to control traffic by hand signals. The name 'Bank Complex' has been given to the area which is the junction of Threadneedle Street, Cornhill, Lombard Street, King William Street, Princes Street, Queen Victoria Street, Poultry and Mansion House Street. A specification for traffic signals to control the heavy and complicated traffic at this junction was prepared by the Ministry of Transport in collaboration with traffic officials of the City of London Police.

A SCHEME to meet the requirements of the specification was prepared by Automatic Telephone and Electric Co., Ltd., using electromatic vehicle-actuated signals. As traffic is approximately equally heavy in all directions, the problem is mainly concerned with ensuring the most rapid transit of vehicles through the thoroughfares converging on the area of the Bank Complex. Traffic increases to a maximum at morning and evening periods, and, if congestion and traffic blocks are to be avoided, the available road space must be used with the greatest efficiency. The whole system will be 'electromatic', operating on the flexible progressive system, under the control of a 'dual master-timer', and vehicle detectors will be used in each approach to the 'Bank Complex'. Signals are actuated by a special control unit divided into seven sections, which are linked together to co-ordinate the signal phases. It is important to notice that right-of-way is given to an approach only if there is a demand, and the length of this right-of-way period depends, up to a predetermined maximum, on the volume of the traffic. A novel feature of this system is provision of accommodation for traffic assessors in Cornhill and Poultry to determine the volume of traffic entering the complex on these approaches, so that variations of the right-of-way time can be made automatically.

The International Seismological Summary

THE International Seismological Summary for October, November and December 1933 has just been received. It deals with 123 epicentres for earthquakes which occurred during that quarter, of which 47 were new epicentres and 76 repetitions of earthquakes from old epicentres, thus again confirming the knowledge that earthquakes tend to recur from the same epicentres. The five earthquakes with abnormal focus during the quarter all had deep foci. The first was on October 25, with epicentre in the Andes, north-west of Jujuy (Argentina) with focus 0.03 of the earth's radius below normal. The second was on November 14 with epicentre north-east of Santiago on the borders of Chile and the Argentine with focal depth 0.02 of the earth's radius below normal. The third was on November 19 in the Pacific Ocean off the Japanese coast nearly south of Tokyo with focal depth 0.035 of the earth's radius below normal. The fourth and deepest was on December 1 with epicentre in the Pacific Ocean immediately to the south of the island