

of the Pyrenees on the frontier between France and Spain. A brief account of this station is given in the *Electrician* of March 8. The President of the French Republic (as successor to the Kings of France) and the Bishop of Urgel in Spain share as co-princes the over-lordship of Andorra, a condition which has lasted since the early part of the ninth century. Radio Andorra is situated on a rocky hill at an altitude of 2,920 ft. above sea-level, but its aerial is placed at an altitude 2,460 ft. higher and is suspended across a lake; the supports, 410 ft. high, are 820 ft. apart. The feeder cable between the station and the aerial is 2,788 ft. long and is believed to be the only case in which a distance of this order separates a transmitter and its antenna, with the exception of the Eiffel Tower, where ultra-short waves had to be considered. At Andorra transmitters for medium and short waves are installed. The energy required for the station is 350 kilowatts and is obtained from the Forces Hydro-électriques de l'Andorra, a water-power undertaking, which sells the bulk of its production outside the borders of this small State.

Illness in Meat Packing Industry

IN a recent paper (*Public Health Rep.*, 54, 2196; 1939) Hugh P. Brinton, assistant statistician, Harry E. Seiffert, assistant public health engineer, and Elizabeth S. Frasier, junior statistician, United States Public Health Service, present an analysis of cases of sickness and non-industrial injuries lasting eight calendar days or longer among workers in the slaughter and meat-packing industry. The annual number of cases per 1,000 was 95.0 for white males, 144.2 for white females, and 137.9 for negro males, while the average number of days of disability per person was 3.16, 4.85 and 4.01 respectively. Those who showed the highest figures in the form of an excess of respiratory diseases were cold-meat workers among white males, scalers, wrappers and packers among white females, and by-product workers among negro males.

Very excessive rates for rheumatic diseases were found in certain occupations, especially those of warm- and cold-meat workers, sausage and casing workers, and curing workers. As regards environmental conditions, white males exposed to high humidity or wet had the highest rates, with non-respiratory and non-digestive diseases most in excess. Among white and negro males the highest incidence was found among those working in hides and wool, or glue and entrails, among whom digestive diseases were much commoner than the average. White males and white females showed sickness-rates in decreasing order of magnitude as follows: semi-skilled workers in manufacturing, labourers, and clinical workers.

New Seismographic Equipment in the United States

A NEW seismograph station has been established at Lincoln, Nebraska, and new equipment has been installed at Chicago, Salt Lake City, and Bozeman, Montana, all co-operating stations of the United

States Coast and Geodetic Survey, according to J. H. Nelson and H. E. McComb. The new seismograph station is on the campus of the Nebraska Wesleyan University in Lincoln, Nebraska, and is situated on a layer of loess and glacial clay 150–175 ft. thick, under which is several hundred feet of Cretaceous sandstone. The position is latitude $40^{\circ} 49' 1''$ N., longitude $96^{\circ} 42' 2''$ W., altitude 358 ± 5 metres.

The seismograph operates as an east-west component and is a small experimental McComb-Romberg tilt-compensation seismometer having magnetic damping and a clock-driven completely enclosed recorder. Time control is furnished by a Seth Thomas pendulum clock compared daily with naval radio time signals from Arlington. Tilt compensating instruments have been installed at Chicago on account of the slow irregular tilt movements of the pier on which the seismographs rest. Salt Lake City (latitude $40^{\circ} 45' 9''$ N., longitude $111^{\circ} 50' 9''$ W., altitude 1433 ± 5 metres) had a two-component 100-kgm. Bosch-Omori seismograph and has recently installed a two-component small model McComb-Romberg tilt-compensation seismograph. At Bozeman, oil damping has been replaced by magnetic damping and the recording equipment has been improved.

Smoke Abatement

THE National Smoke Abatement Society has issued its quarterly, *Smokeless Air*, on a reduced scale but with a supplement "Smoke Abatement in War Time". This is an effort to rebut the belief that reduction of smoke under present conditions is unimportant. The impression that smoke serves a useful purpose by screening towns against air attack is challenged. A smoke screen may assist a moving object such as a ship, but serves as a landmark fixing the position of a stationary group such as a town. It may provide a screen to hinder the recognition of a specific object, but equally it conceals the attacker from the defence. Concealment is a great help to the submarine, and recent experience shows its assistance to raiding aircraft. The pamphlet directs attention to the way in which colliery tips serve as landmarks, providing a "difficult problem" in smoke abatement. The difficulty, it may be indicated, is less technical than political and due to the fact that the disposal of pit refuse is left to the discretion of the individual colliery. Naturally the cheapest possible method is used, regardless of the effect on the surrounding people, land and of the ultimate cost to the community. The chemical composition of pit refuse is such that self-ignition can scarcely be prevented when it is dumped in enormous heaps. Too often collieries are surrounded by low-lying land reduced to valueless swamp by mining subsidence. Pit refuse would serve a useful purpose, if used to raise the level of such land, and under such conditions firing would not occur.

Smoke results from the liberation of the volatile matter of coal, a large part of which is liquid. Smoke abatement is a movement for collecting this liquid for useful purposes instead of dispersing it as a public

nuisance. Present conditions emphasize the wisdom of smoke abatement as a national defence measure. The national need for liquid fuel cannot, it is true, be met by the carbonization of coal, but the contribution is already by no means negligible. Already in 1938, 8 per cent of the motor spirit consumed in Great Britain was obtained from coal. The quantity of heavier oil suitable as fuel was of the same order. The pamphlet makes a plea for a planned fuel policy, saying that "smoke is a by-product of the technologically primitive phase of industrial civilization from which we have not yet emerged".

The Cooper Union

THE eightieth annual report of the Cooper Union for the Advancement of Science and Art covers the year ended June 30, 1939 (Pp. 122. New York, 1939). The report of the Director, emphasizing the extent to which industry is becoming more scientific, refers to the increase in basic instruction in science and mathematics in the engineering schools, and decreased instruction in detailed applications of engineering. Special stress is laid in this report on the integrated study of the social sciences, so as to develop the mind of the engineering student not only to think rationally and scientifically, but also to be able to grasp concepts that do not admit of the precise analysis, calculation and control with which the physical scientist and engineer have been accustomed to work and which have hitherto been the accepted limit of his knowledge and proficiency.

The Director considers that humanistic studies should be required throughout the four or five years of undergraduate training. Commenting on our failure to stir those interests which lead the engineering graduate to continuing his studies of science and society, he urges that the impasse which faces civilization to-day is due to our attacking our problem by rule of thumb, expediency and self-interest, instead of by the scientific method, which, if coupled with sensitivity to the human values of freedom and individuality, will save civilization from the irresponsible technologist and the scheming politician.

Control of Spirit

FOLLOWING the introduction of prohibition in Bombay, the Government has restricted sales, advertising and general dealing in all spirituous preparations containing more than 2 per cent by volume of alcohol. Recently, however, the Bombay Government has entirely exempted all toilet and cosmetic preparations containing alcohol from the prohibition regulations. It has also set up a Classification Committee to decide whether preparations which contain more than 2 per cent of alcohol can be used as beverages or not.

Non-Ferrous Metallic Ores

THE Minister of Supply has appointed a departmental committee to consider whether an increased production of non-ferrous metallic ores in the United Kingdom is desirable and practicable, and to make recommendations. The members of the committee

are: Sir William Larke (chairman), Dr. C. G. Cullis, Mr. Arthur Deakin, Mr. J. Stanley Holmes, M.P., and Mr. S. S. Taylor. Prof. J. A. S. Ritson, Mr. T. Eastwood, and Dr. M. Macgregor will act as assessors to the committee. The secretary of the committee, to whom all communications should be addressed, is Mr. W. C. C. Rose, Geological Survey of Great Britain, Exhibition Road, South Kensington, London, S.W.7.

Colonial Appointments

THE following appointments and promotions in the Colonial Service have recently been made: H. K. Littlewood, veterinary officer, Nigeria; R. R. Temple, veterinary officer, Tanganyika Territory; C. L. Skidmore, agricultural superintendent, senior agricultural superintendent, Gold Coast; Dr. F. Dixey, director of geological survey, Nyasaland, director, Water Development Department, Northern Rhodesia; H. R. Binns, formerly veterinary officer, Nyasaland, veterinary research officer, Palestine; R. Leach, mycologist, Nyasaland, plant pathologist, Jamaica (temporary).

Announcements

THE tenth Joule Memorial Lecture will be delivered before the Manchester Literary and Philosophical Society by Prof. James Chadwick, professor of physics in the University of Liverpool, on March 19 at 5.30. His subject will be "New Applications of Physics to Medicine".

PROF. F. L. WARREN, formerly of the Fuad I University, Cairo, has been appointed professor of chemistry in the Natal University College, Pietermaritzburg.

THE fourth International Congress of Malaria will be held in Rome on the occasion of the International Exhibition of 1942.

THE Australian Commonwealth Government has set up a Central Medical Co-administrative Committee at the seat of Government at Canberra. The Committee will control all drugs and medical equipment so as to ensure the best use for the armed forces and civil population during war-time.

THE milk in schools scheme has been resumed for all children of school age, especially those in London. Voluntary milk clubs are being organized by teachers at schools and at certain other premises where children attend for some form of instruction. More than 200 of these clubs have already been formed and the number is growing almost daily. As in peace time, all children are asked to pay $\frac{1}{2}d.$ for each half pint of milk.

IN the article entitled "Food Production and Food Control" by Sir John Orr published in NATURE of March 9, p. 374, col. 2, last line of par. 3, the phrase "10 and 20 per cent" should read "5 and 10 per cent". This correction was received during the printing-off of the journal and was made in a part of the issue only.