

sylvicultural work undertaken at the Institute is a recent paper in sylviculture entitled "Seed Weights, Plant Percents, etc., for Forest Plants in India", by J. N. Sen Gupta (Ind. Forest Records, New Series, Sylvic., 2, No. 5, Government of India Press, New Delhi, 1937). In this paper the author gives data for the date of collection, seed weight, germinative capacity and germination per cent of 505 tree species, including 52 exotics, from all parts of India. In the botany section, Mr. C. E. Parkinson published two numbers dealing with Indian tree species in the *Indian Forest Records*, New Series, Botany (Govt. of India Press, New Delhi, 1937). The first (1, No. 1) deals with the important Indian *Terminalia* of the section *Pentaptera*, comprising trees of forest and economic importance. Four species with three varieties and nine forms are recognized. No. 2 of vol. 1 is devoted to part 4 of "Illustrations of Indian Forest Plants", the paper dealing with five species of the family *Dipterocarpaceæ*.

Broadcasting Station LS-I, Buenos Aires

THE broadcasting station LS-1, belonging to the municipality of Buenos Aires and situated about 20 miles from the city, has recently been re-equipped and is now one of the most powerful in South America. The antenna is the tallest vertical broadcast radiator in South America, being 778 feet high. It uses the new shunt excitation method developed by the Bell Telephone Laboratories, a full description of which is given in their quarterly *Journal* of July. The ground system consists of 120 buried radials, each 670 feet long, with an equal additional number of radials each 280 feet in length. Power is fed on to the antenna system through a 62-ohm nitrogen gas filled, concentric copper tube transmission line, 640 feet long. The station is operated under the administration of the Colon Theatre of Buenos Aires, which is one of the world's finest opera houses, where many of the world's leading artists are heard each season. There are 16 hours of transmission daily, with a varied programme of widely international flavour and cultural and educational subjects. Its main feature is the complete transmission of the opera and other musical activities of the Colon Theatre. The Colon season was officially opened this year by the President of the Republic on May 23, and can now be heard by the great majority of the population of Argentina as well as by listeners in Chile, Uruguay and southern Brazil. A wide repertory of classic Italian, German and Russian opera has been presented in addition to a few modern Argentine works. The new studios are built below ground-level and close to the Colon Theatre and are completely sound insulated. From the broadcasters' point of view the economy and ease of operation have set up new standards. The audio-frequency response does not vary more than one decibel between 30 and 10,000 cycles. The audio-distortion is less than 5 per cent even at complete modulation. Provisions have been made for increasing the output of the 50 kilowatt transmitter to 500 kw. by the addition of a 500 kw. amplifier. The results obtained have more than equalled expectations.

The Smithsonian Institution

THE report of the secretary of the Smithsonian Institution for the year ended June 30, 1937, refers to the improvement of the National Zoological Park by the completion of three new exhibition buildings, a machine shop, a garage and new heating and electric installations. An expedition to Sumatra to obtain specimens of the interesting animals of that region for the National Zoo was still in the field, but reports indicated that it was highly successful. In the Division of Radiation and Organisms, notable advances have been made in the studies of photosynthesis, phototropism and the action of ultra-violet rays on plant growth. The Astrophysical Observatory has continued its measurements of the solar constant of radiation, and a new method has been devised in place of the 'short method' reduction of observations, used since 1923, in which a flaw was discovered. The Smithsonian radio programme, a weekly half-hour presentation of the Institution's researches and activities, continued with undiminished popularity, and accessions to the Library for the year number 11,469, mostly in exchange for the publications of the Institution. Appendixes include the report of the United States National Museum, the National Collection of Fine Arts, the Freer Gallery of Art and of the several divisions of the Institution.

Smallpox Vaccination in an Indian Epidemic

A STRIKING instance of the protection against smallpox afforded by vaccination is given in the annual report for 1936 of the All-India Institute of Hygiene and Public Health, Calcutta, recently published. During the smallpox epidemic that occurred in the first quarter of 1936, there were 604 infants and children less than five years of age on the roll of the Maternity and Child Welfare Section of the Institute. Of these children, 434 were vaccinated before or during the epidemic, and 170 were not vaccinated. Of the unvaccinated, 42 developed the disease, a case incidence of 24.7 per cent, of whom 17 died, a mortality of 10 per cent for the group, or of 38.5 per cent of the cases. In the vaccinated group, 10 developed the disease in less than a week after vaccination and before protection had developed, of whom 7 died. Excluding these cases, of the remaining 424 vaccinated efficiently, only 3 contracted the disease and all recovered, an incidence of 0.7 per cent with mortality *nil*.

Gastro-Enteritis Conveyed by Raw Milk

AN outbreak of food-poisoning occurred at Wilton, in Wiltshire, in October 1936 and was limited to consumers—chiefly children—of a particular supply of bottled raw milk ("A Report on an Outbreak of Food Poisoning due to Salmonella, Type 'Dublin' and Conveyed by Raw Milk". By E. T. Conybeare and L. H. D. Thornton. Repts. on Pub. Health and Med. Subjects, No. 82. Ministry of Health, 1938. H.M. Stationery Office. 2d. net). The attack of illness commenced in 12-24 hours after consumption of the milk, the chief symptoms being headache, nausea and vomiting, and later diarrhoea, persisting for 1-3 days,

and though the attacks were severe, there were no deaths. As the outbreak was not recognized for some days, bacteriological examination of the patients proved negative. However, from a specimen of the milk delivered on October 29, a *Salmonella* food-poisoning organism was isolated, afterwards identified as being a 'Dublin' type, and four days later, the same organisms was again isolated from milk supplied by the same producer. Confirmatory evidence was obtained by serological tests of the blood of nine convalescents, whose blood showed specific agglutination for type 'Dublin' in high dilution. Examination by agglutination tests of the herd of 51 cows supplying the milk picked out three cows with a high agglutination for the 'Dublin' type. Specimens of milk and dung from these three cows were examined. The milk from all three, and the dung from two, were negative, but from the dung of the third animal a heavy growth of *Salmonella*, 'Dublin' type, was obtained, and this 'carrier' cow was removed from the herd, and no further trouble ensued. It is remarked that no amount of care in milking and distribution of such a raw milk could prevent it from being a danger to the consumer.

Insulators

A SEVEN-PAGE article on "Recent Developments in Electrical Insulating Materials" by Dr. L. Hartshorn (*J. Sci. Inst.*, July) will prove of great use to constructors of electrical apparatus and will serve as a base from which research on the properties of insulating materials advocated by the Radio Research Board may operate. The author describes the properties of ebonite, of 'loaded' ebonites, of synthetic resins which can be readily moulded or used to bond laminated material into insulating boards, and when of the hydrocarbon type have dielectric constants little more than 2 and power factors so low as 2×10^{-4} . Ceramics provide insulators of the stearite group depending mainly on magnesium silicate, and of the rutile group, principally titanium dioxide, used in the construction of condensers. After shaping, both are fired and cannot afterwards be worked without difficulty. They are apt to absorb moisture which alters their properties. Certain waxes, for example, the chloronaphthalenes, have high dielectric constants and fairly low power factors. A table of dielectric constants, power factors, resistivities, mechanical and electrical strengths and softening temperatures for nearly thirty insulators is given.

Photography in X-Ray Departments

THE brochure on "X-Ray Materials and Accessories", published by Messrs. Kodak, Ltd., might well contain the word 'photographic' did not the name of Kodak at once conjure up the word; its forty pages are devoted to a description of photographic supplies for medical and dental X-ray work. Routine work demands rigid control of variables for its quick effectiveness, and this firm has realized that, provided the actual exposures are reasonably correct, the development of X-ray films can be standardized by the use of reliable reagents, proper timing and regulation of the working temperatures. In the

planning of X-ray departments, insufficient attention is sometimes given to the developing and printing rooms, where laborious hours are spent in semi-darkness. Efficient planning should reduce these hours to a minimum, and the experience of Messrs. Kodak is at the service of those planning and being responsible for the photographic work in X-ray departments.

Handbook of International Organizations

AN English edition of the Handbook of International Organizations has now been issued by the Secretariat of the League of Nations. This volume of nearly 500 pages gives the particulars of nearly 760 international organizations, including addresses, names of officers, notes on finance, objects and activities. International bureaux under the direction of the League, official central bureaux and private associations and federations in so far as they have international objects and are not run for profit are included. These organizations are classified in the following groups to facilitate reference: politics and international relations; religion; arts and sciences; education; students and university organizations; medicine and hygiene; law and administration; press; feminism; labour and professions; agriculture; economics and finance; trade and industry; communications and transit; sport and touring; and miscellaneous. The utility of the volume is increased by the provision of a subject index, an alphabetical index and a geographical index. The latter indicates that 183 of the organizations have their seats in France and 140 in Switzerland, Great Britain coming next with 78 organizations and Belgium being fourth with 77.

Recent Earthquakes

THE violent earth tremors which were experienced on Monday, September 5, over a considerable area about fifty miles south of Algiers (*The Times*, Sept. 7) cannot be said to have affected an area where earthquakes of destructive intensity are usual. Small tremors are, however, quite common, especially where the land shelves steeply to the ocean deeps. Between 1911 and 1931, Mme. A. Hée listed 586 tremors, distributed in twenty-two different zones, only four of which reached destructive intensity. The observatory of Alger-Bouzaréah is actively engaged in recording and studying these local earthquakes, and we anticipate more information at a later date. An earth tremor shook Colombo, in Ceylon, early on Sunday, September 11, but no damage is reported (*The Times*, Sept. 12). In this zone severe earthquakes are practically unknown. Slight earthquakes are common along a line through Madras passing south-south-west near the southern edge of the Deccan of India, and these are often in sympathy with larger ones occurring in northern India, a fact which may be attributable to the strained condition of the peninsula. The Ceylon tremor was most probably a local surface shock due to slipping along a fault. Another strong shock was recorded by the Stuttgart Seismological Station on Sept. 7 d. 4 h. 15 m.

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