

reflecting surface produces a heterodyne whistle on the lower frequency side of the carrier wave.

The only known phenomenon with which sufficiently high velocities are associated and which could cause a Doppler effect of this nature is a meteor entering the earth's upper atmosphere, and confirmation of this was obtained by observations in the early morning hours when the appearance of meteors in the sky coincided with the heterodyne whistle produced in a receiver. The article discusses briefly the number, size, height, and velocity of meteors, the mode of dissipation of meteor energy, and meteor ionization, remarking that the summary provided of some of the known properties of meteors gives ample confirmation of the experimental evidence and deduction that the weak heterodyne whistles observed are due to the Doppler effect caused by the rapidly moving ionized area produced by a meteor. It is evident that, (a) the ionization produced by meteors can be sufficient to reflect waves of the frequencies concerned, (b) the number of whistles observed is at a maximum in the early morning when the number and velocity of meteors entering the earth's atmosphere is greatest, and (c) the velocity of meteors, determined by visual means, is of the same order as that calculated from the Doppler effect observed.

The article concludes with descriptions of the experimental procedure adopted and the results obtained.

NEW DESCRIPTIONS OF SOME INDIAN PLANTS

SOME interesting botanical notes have recently been given by Dr. N. L. Bor, forest botanist, Forest Research Institute, Dehra Dun (*Indian For. Rec.*, Botany, 2, Nos. 2, 3 and 4; Govt. of India Press, Delhi, 1941).

In No. 2 the bamboo *Thyrsostachys Oliveri* Gamble is dealt with. This species, the author writes, flowered in the Katha district, Upper Burma, in 1891. Specimens were sent by J. W. Oliver, conservator of forests, to the late Mr. Gamble, who published a description under the above name in the *Annals of the Royal Botanic Garden, Calcutta*, in 1896. Seeds of the species were also sent and these were planted at Dehra Dun in several places, and also in the Royal Botanic Garden, Calcutta. All those who have known Dehra Dun during the last forty years will remember the magnificent clumps of this bamboo. All the Dehra clumps commenced to flower towards the end of November 1938, the first indication being the fading of the leaves, which soon began to fall off. In the first week of December the flowering shoots, pale purple in colour, were quite evident, and by December 12 the lower sheaths of the flowering shoots were beginning to show the tip of an emerging spikelet. By December 23 two spikelets had completely emerged from each sheath, and the six stamens, pendulous at the ends of long filaments, were visible from each of the three florets of the spikelets. Seed was ripe by January 31, 1939. Dr. Bor says that with fresh material to work upon and unlimited quantities of it, it became evident that the description given by Gamble, prepared from dried material, required modification in several respects.

A lapse of twenty-four hours is quite sufficient for the features of the structure of the delicate palea to

be lost, and no amount of boiling will restore them. This fresh material enabled a revised description to be drawn up which corrects some minor inaccuracies in Gamble's description. Two plates portray the details of the inflorescence and spikelets. This reads like a botanical romance, and foresters in Burma and botanists are likely to be equally interested.

For No. 3, Dr. Bor redescribes Dunn's *Vatica Shingkong*, placing it in the genus *Hopea*. The original description was based on incomplete material, especially the flowers. I. H. Burkill, who accompanied the expedition into the Arbor Hills of Assam in 1911, discovered the species. He notes: "no general flowering took place during the expedition, and it was with great difficulty that one flowering tree was found". This flowering specimen was not, however, sent to Dunn, who notes in his description "*flores ignoti*".

In No. 4, Dr. Bor describes three flowering plants new to science: *Gleditsia assamica* Bor, *Garnotia puchiparensis* Bor and *Strobilanthes andamensis* Bor. Illustrations are given of each species. Dr. Bor had collected the *Gleditsia* in the Aga and Naga Hills and Sadiya in Assam without flowers or fruit. He received these collected in Sadiya in March 1938. It is a small deciduous tree about 10 metres in height.

The *Garnotia* is a grass and was found growing thickly in the clefts of a large rock just west of the Puchipara rest house, Silent Valley, Madras (alt. 3,000 ft.).

The *Strobilanthes* is a wiry shrub up to 60 cm. tall, gregarious in habit. The species was collected in flower by the silviculturist of the Dehra Institute during a visit to the Andamans. It was noted that "the species was abundant in regeneration areas on limestone rocks, growing in crowded bushes 1'-2' high".

DRUG CONTROL IN INDIA

THE problem of drug standardization and drug control in a country of the size and population of India is a vast one. In Great Britain, the United States and other progressive countries a general consciousness of the evils of food and drug adulteration on community health and national well-being was aroused nearly fifty years ago, and the authorities took up the responsibility of safeguarding public health and money by instituting adequate control of the spurious drug trade. In India, on the other hand, although the possible injurious effects of the adulteration of foods were recognized early enough, the seriousness of the situation arising out of the indiscriminate adulteration of drugs and chemicals for the treatment of diseases received comparatively little attention, and India came to be considered the dumping ground of all kinds of substandard, misbranded and poor-quality drugs and pharmaceuticals.

Realizing the need for both legislative and executive action the Drugs Enquiry Committee 1930-31, appointed by the Government of India, recommended that All-India legislation should be passed for the control of the importation, manufacture, sale and distribution of adulterated and under-strength drugs, and that machinery should be established for the regular collection and testing of drugs to ensure conformity to proper standards of purity and strength. It was suggested that for the standardization of drugs a well-equipped central laboratory should be set up with a competent staff of experts

in various branches and that this should be supplemented with provincial laboratories working under the guidance of, and in close liaison with, the central laboratory.

In January 1937 the nucleus of a central laboratory (Biochemical Standardization Laboratory) was established, under the direction of Sir R. N. Chopra, in Calcutta, at the All-India Institute of Hygiene and Public Health. The Laboratory has now made satisfactory progress in the limited number of studies undertaken and has trained adequate personnel and laid sure foundations for future work in this field as evidenced in the triennial report (Report of the Biochemical Standardization Laboratory 1937-40. Government of India Press, Calcutta, pp. 92). During the three years preceding the introduction of the Drugs Bill in February 1940 it was thought that the best course for the Laboratory was to undertake a general survey of the quality of medical drugs in the Indian market and an examination of the specimens of drugs both imported and manufactured in India which were suspected to be of inferior quality.

Many drug manufacturing firms in India do not maintain properly equipped pharmacological laboratories with trained personnel capable of undertaking the standardization of chemotherapeutic preparations, and it was natural that ethical manufacturing concerns interested in the quality of their products should approach the only Government organization available with requests to have their products standardized.

In the initial stages the Laboratory had necessarily to restrict itself to certain definite drugs of comparatively greater importance to the pharmaceutical and medical professions. Routine analytical work was therefore largely concentrated on surveying the quality of tinctures of digitalis, strophanthus and squills, extract of posterior pituitary gland and adrenaline hydrochloride solution. In addition to the routine activities a good deal of interest in research problems on subjects which have a direct or indirect bearing on drug work was consistently maintained. For example, one of the first group of drugs which the laboratory investigated was the cardiac drugs of the digitalis series. Liquid preparations of these drugs deteriorate at a fairly rapid rate when stored under the climatic conditions existing in India, and factors leading to this deterioration and loss of potency have been the subject of investigation. Again, the estimation of the antidiuretic potency of pituitary extract in rats was given an extensive trial and found to be quite reliable and to compare favourably with the results obtained by the oxytocic method. In addition, the Laboratory has the responsibility of acting as the national centre for the maintenance and distribution of certain international biological standards.

FORTHCOMING EVENTS

(Meeting marked with an asterisk is open to the public)

Monday, April 13

ROYAL GEOGRAPHICAL SOCIETY (at Kensington Gore, London, S.W.7), at 5 p.m.—Discussion opened by Colonel Sir Charles Arden-Close, F.R.S.: "The Map of the Pacific".

SOCIETY OF CHEMICAL INDUSTRY (JOINT MEETING OF THE YORKSHIRE SECTION AND THE FOOD GROUP) (at the Hotel Metropole, Leeds). Subject: "Colours in Foods". 3 p.m.—Mr. D. J. T. Bagnall: "Comments on Coloured Foods". 3.45 p.m.—Prof. J. W. Cook, F.R.S.: "Physiological Aspects". 5.15 p.m.—Dr. D. A. Harper and Mr. N. Strafford: "The Rapid Spectrographic Determination of Minute Amounts of Arsenic, Lead, Copper, and other Heavy Metals in Food-Substances Colours and Medicinals".

Tuesday, April 14

CHADWICK PUBLIC LECTURE (at the Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1), at 2.30 p.m.—Mr. D. C. Graham: "Dangers from Rainfall in Urban Areas; Prevention of Flooding of Buildings and of its Insanitary Consequences" (Bosson Gift Lecture).*

SOCIETY OF CHEMICAL INDUSTRY (CHEMICAL ENGINEERING GROUP) (Joint Meeting with the Institution of Chemical Engineers) (at the Geological Society, Burlington House, Piccadilly, London, W.1), at 2.30 p.m.—Discussion on "The Development of New Chemical Processes" to be opened by Mr. H. W. Cremer.

ILLUMINATING ENGINEERING SOCIETY (at the E.L.M.A. Lighting Service Bureau, 2 Savoy Hill, London, W.C.2), at 5 p.m.—Mr. J. N. Aldington: "Fluorescent Light Sources and their Applications".

Wednesday, April 15

ROYAL SOCIETY OF ARTS (at John Adam Street, Adelphi, London, W.C.2), at 1.45 p.m.—Mr. J. C. Dawes: "Making Use of Waste Products".

SOCIETY OF GLASS TECHNOLOGY (at Elmfield, Northumberland Road, Sheffield 10), at 2 p.m.—Annual General Meeting.

INSTITUTE OF CHEMISTRY (LONDON AND SOUTH EASTERN COUNTIES SECTION) (at 30 Russell Square, London, W.C.1), at 6 p.m.—Dr. Hugh Nicol: "What the Plant does with its Materials".

Thursday, April 16

TOWN AND COUNTRY PLANNING ASSOCIATION (in the Dome Lounge, Dickens and Jones, 224 Regent Street, London, W.1), at 1.20 p.m.—"Planning for the Family".

CHEMICAL SOCIETY (at the Royal Institution, Albemarle Street, London, W.1), at 4.30 p.m.—The Rt. Hon. Lord Rayleigh, F.R.S.: Sir Joseph J. Thomson Memorial Lecture.

Friday, April 17

ASSOCIATION OF APPLIED BIOLOGISTS (at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1), at 11 a.m.—Symposium on the Pathology of the Hop (Speakers: Dr. W. Ware, Dr. W. G. Keyworth, Dr. A. M. Masee). 2 p.m.—Discussion on the Interpretation of Toxicity Data. (Speakers: Dr. H. Martin, Mr. A. F. P. Parker Rhodes, Dr. C. Potter, Mr. D. J. Finney.)

APPOINTMENTS VACANT

APPLICATIONS are invited for the following appointments on or before the dates mentioned:

LECTURER IN THE DEPARTMENT OF MATHEMATICS—The Registrar, University College of Swansea, Singleton Park, Swansea (April 22).

HEAD OF THE ENGINEERING DEPARTMENT AND VICE-PRINCIPAL OF THE WEST HARTLEPOOL TECHNICAL COLLEGE—The Chief Education Officer, Education Offices, Park Road, West Hartlepool (endorsed "T.C.") (April 25).

LECTURER IN BIOCHEMISTRY IN THE DEPARTMENT OF PHYSIOLOGY—The Secretary, The University, Edmund Street, Birmingham 3 (April 25).

ASSISTANT PHYSICIST in the Physics Department of the Radiotherapeutic Research Unit of the Medical Research Council—The Director, Radiotherapeutic Research Unit, Hammersmith Hospital, London, W.12 (April 27).

SKILLED WORKSHOP INSTRUCTOR familiar with modern machine tool practice, at the Medway Technical College, Senior Departments, Gillingham—The District Education Officer, Fort Pitt House, New Road, Rochester.

FEMALE ASSISTANT PHYSICISTS—The Ministry of Labour and National Service, Appointments Department, Section B/E, Sardinia Street, London, W.C.2 (quoting B673E).

FEMALE ASSISTANT CHEMISTS—The Ministry of Labour and National Service, Appointments Department, Section B/E, Sardinia Street, London, W.C.2 (quoting B667E).

REPORTS and other PUBLICATIONS

(not included in the monthly Books Supplement)

Great Britain and Ireland

National Institute of Economic and Social Research. Report for 1940-1941. Pp. 15. (London: National Institute of Economic and Social Research.) [103]

Other Countries

Forest Research Institute, Dehra Dun. Forest Leaflet No. 1: Synthetic Tall Oil. By T. P. Ghose and B. S. Verma. Pp. 4. (Dehra Dun: Forest Research Institute.) 2 annas; 3d. [33]

U.S. Department of Agriculture. Circular No. 606: Observations on the Biology and Control of the Treehopper *Heliria praealta* (Fowler) in Orchards of the Pacific Northwest. By M. A. Yothers and Paul B. Allen, Jr. Pp. 13. (Washington, D.C.: Government Printing Office.) 10 cents. [63]

Smithsonian Miscellaneous Collections. Vol. 101, No. 6: Beetles of the Genus *Hyperaspis* inhabiting the United States. By Th. Dobzhansky. (Thomas Lincoln Casey Fund.) (Publication 3642.) Pp. ii+9+6 plates. (Washington, D.C.: Smithsonian Institution.) [63]