

statistician class, working normally under the direction of members of the principal class and with a career value comparable with that of the executive class. Superannuation should be provided on terms comparable with those available to the rest of the Civil Service, and in addition to facilities for post-entry training and for opportunities for widening experience by seconding for limited periods to statistical posts outside the Government service, the Institution emphasizes the desirability of transfer of statisticians to administrative posts, as well as of transfer between departments and with the Central Statistical Office. The views of the Royal Statistical Society on the value of mechanical aids are endorsed.

With regard to the qualifications and recruitment of statistical staff, the memorandum welcomes the scheme to set up a certificate and diploma in statistics proposed by the Royal Statistical Society, and although the syllabus appears to demand a rather higher standard of mathematical statistics than would in general be required for entry into Government service, possession of the diploma is suggested as alternative qualification to a university degree with first- or second-class honours in the relevant subject, including statistics, for eligibility for appointment to the principal statistician class. For the executive statistician class, the higher school certificate with distinction in statistics, or the Royal Statistical Society's certificate is suggested. A central recruiting body for statistical officers should certify the candidate's eligibility for appointment, and appointments should be made by a selection board from eligible candidates on the basis of interview, the Board including representatives of the central recruiting body, the Establishment Department, the Institution of Professional Civil Servants and the head of the statistical section of the department concerned. These conditions are not intended to apply to existing members of the Government statistical service or to persons who have done outstanding statistical work elsewhere.

With regard to the transition to the post-war period, sufficient of the existing personnel should be retained to ensure the immediate establishment of the comprehensive statistical service envisaged, and an immediate decision on the questions of post-war organization, recruitment, salaries and promotion is a matter of urgency. With regard to statistical raw material, it is important to ensure that existing collections and compilations are preserved, and pressure from commercial firms in favour of discontinuing the making of returns necessary for statistical continuity should be resisted. Statistical branches should collect basic data from the source.

With regard to the relation between statistical branches and the Central Statistical Office, the Institution examined the suggestion for a Government statisticians' department, but decided that the type of organization recommended by the Royal Statistical Society would give a more efficient statistical service, and accepted the recommendations of the Society's memorandum with regard to the functions of the Central Statistical Office. That Office should maintain a central library and records office staffed by people competent to give advice. It should contain a full record of confidential statistics compiled by all the various Government departments, and available to authorized persons in the Government service. The library would also be the depository for statistical records of Government departments which close down.

TOXIC SPRAY SUBSTANCES AND PLANT GROWTH

ONE result of the continued use of sprays containing toxic inorganic constituents may be the accumulation in the soil of substances deleterious to plant growth. Of practical interest, therefore, are experiments described by N. F. Childers¹, who found that the presence of sodium arsenate in the soil had a stimulating effect on 'Delicious' apple seedlings when the concentration was not more than 20 parts per million. Between 60 and 160 parts per million, toxic effects were apparent, and if the concentration was more than 100 parts per million the seedlings died. Equivalent amounts of arsenic in the form of lead arsenate were less toxic, and lead chloride even at 160 parts per million exerted no deleterious effect. More carefully controlled experiments with plants in gravel culture showed that 20 parts of arsenic per million of culture solution stimulated the growth of apples and of rye but depressed the growth of grapes. Both apples and grapes were tolerant of 200 parts of lead per million of solution and both showed a progressive decrease in growth as the copper content of the solution rose from 10 to 30 parts per million.

Different fruits show differing tolerance of arsenic, but R. C. Linder² reports that peaches are especially susceptible, and if the arsenic content of the leaves exceeds 2 parts per million of dry matter, marginal and interveinal burning and shot-holing of the leaves occur, with, in severe cases, defoliation. Apricots show a similar effect, but plums, pears and apples are more resistant, and plum foliage containing as much as 13 parts of arsenic per million of dry matter appeared healthy.

¹ *Proc. Amer. Soc. Hort. Sci.*, **38**, 157 (1941).

² *Proc. Amer. Soc. Hort. Sci.*, **42**, 275 (1943).

FORTHCOMING EVENTS

Saturday, April 28

NUTRITION SOCIETY (joint meeting with the BIOCHEMICAL SOCIETY) (at the London School of Hygiene, Keppel Street, Gower Street, London, W.C.1), at 11 a.m.—Discussion on "The Vitamin-B Complex".

INSTITUTE OF PHYSICS (ELECTRONICS GROUP) (joint meeting with the MIDLAND BRANCH) (at the University, Edmund Street, Birmingham), at 2.30 p.m.—Dr. H. Kuhn: "Atomic and Molecular Beams".

Sunday, April 29

ASSOCIATION OF AUSTRIAN ENGINEERS, CHEMISTS AND SCIENTIFIC WORKERS IN GREAT BRITAIN (at the Austrian Centre, 69 Eton Avenue, Hampstead, London, N.W.3), at 11.30 a.m.—Dr. B. Burzryn: "On Recent Applications of Thermo-setting Resins on Paper and Textiles".

Monday, April 30

ROYAL SOCIETY OF ARTS (at John Adam Street, Adelphi, London, W.C.2), at 1.45 p.m.—Sir Frank Smith, G.C.B., F.R.S.: "Chemicals from Petroleum" (Cantor Lectures, 3).

NORTH-EAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS (Mining Institute, Newcastle-upon-Tyne), at 6 p.m.—Sir Amos Ayle, K.B.E.: "An Approximate and Simple Formula concerning Four-Bladed Propellers of Single-Screw Cargo Ships".

Tuesday, May 1

SHEFFIELD METALLURGICAL ASSOCIATION (at 198 West Street, Sheffield 1), at 6.30 p.m.—Dr. N. P. Inglis: "Some Views on Materials of Construction and their Fabrication, in the Light of Present Research and Likely Requirements".

INSTITUTION OF ELECTRICAL ENGINEERS (LONDON STUDENTS' SECTION) (at Savoy Place, Victoria Embankment, London, W.C.2), at 7 p.m.—Discussion on the Report on "Education and Training for Engineers" and a subsequent Report on "Part-time Further Education".

Wednesday, May 2

SOCIETY OF PUBLIC ANALYSTS AND OTHER ANALYTICAL CHEMISTS (at the Chemical Society, Burlington House, Piccadilly, London, W.1), at 5 p.m.—Mr. G. W. Osborn: "A Rapid and Simple Method for the Determination of Calcium in presence of Strontium and Barium"; Mr. W. B. Wragge: "Lead Printing" of Ferrous and Non-Ferrous