

flush the spark chamber of a direct reading instrument) increased the impurity-levels of oxygen and water vapour in the gas and this contamination could cause erroneous results in the analysis of steels containing more than 1 per cent of silicon. Replacement by copper tubing and purification of the argon over heated magnesium reduced impurity-levels to 7 and 1 parts per million of water vapour and oxygen respectively, and these levels allowed satisfactory analyses for carbon, silicon, phosphorus, manganese and tin in the steels.

The chairmen during the symposium—E. H. S. van Someren (British Welding Research Association),

F. R. Bareham (Aluminium Laboratories, Ltd.), H. T. Shirley (Brown-Firth Research Laboratory) and W. Ramsden (Applied Research Laboratories)—successfully supervised the discussion which arose after the papers. Both the comments made then and at more informal sessions showed the values of such a gathering as a means of exchanging information on common problems, but some disappointment was expressed that very few of the more junior analysts were present to profit from hearing the various points of view. It is expected that the papers and comments will be published by Hilger and Watts later this year.

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## THE ONTARIO RESEARCH FOUNDATION

THE annual report for 1961 of the Ontario Research Foundation\* includes the reports of the director, Dr. A. D. Misener, and the director of research, Dr. A. E. R. Westman, together with the accounts, lists of scientific and technical papers published in 1961 and of professional and technical staff. Dr. Misener claims that in all categories the growth of research and development in Canada is substantial and compares favourably with the rate of growth in the United States and the United Kingdom. During 1956-58, that financed by industry itself in Canada increased by about 20 per cent per annum; in the same period the Foundation's contract research for industry increased by 22 per cent per annum, but research expenditure by both Government and industry is low by a factor of 3-4 when expressed as a percentage of the gross national product, and in research performed by industry but financed by Government is low by a factor of 11 compared with the United Kingdom and 19 compared with the United States.

Dr. Westman notes an overall expansion in sponsored research in 1961, particularly in chemistry, a reduction in science activities, particularly in engineering and metallurgy, and difficulties in recruiting junior staff. The Department of Biochemistry

\* Ontario Research Foundation, Annual Report, 1961, Pp. 64. (Toronto: Ontario Research Foundation, 1962.)

concluded a study of the effect on the serum cholesterol-level in rats of a diet containing hydrogenated sunflower oil, but a new investigation was commenced on the effect of agitation on the isomeric fatty acids produced in hydrogenation. Basic research was continued in the Department of Chemistry on the study of stereo-specific catalysts for polymerization and the mechanism of the polymerization of butene by the heterogeneous catalyst aluminium triisobutyl-titanium trichloride, as well as work on phosphate glasses, while in physical metallurgy, unsponsored research included studies in metal physics, the magnetic properties of iron ore and copper alloy surfaces. The Department of Parasitology completed a study of the throat bots of deer and established the mode of transmission of 'brain worms' of deer with certain land snails as intermediate hosts. A survey of fish parasites in lakes was extended, and a new study on a warble fly, the larvae of which live under the skin of certain wild animals, showed that the activity of the animal is reduced if it harbours many of these parasites, which may cause death directly or make the animal unable to escape predators. The Department of Physiography made further examination of the Algonquin Lake plain, and in the Department of Textiles unsponsored research was concerned with the chemical modification of cotton cellulose, wool and hair to give improved fabrics.

## ENGINEERING DEVELOPMENTS IN THE BRITISH BROADCASTING CORPORATION

THE excellent series of monographs describing the work of the Engineering Division of the British Broadcasting Corporation (*Nature*, 191, 1355; 1961), has been supplemented by five further issues\* since September 1961.

As their titles indicate, these monographs deal with a range of subjects from basic research in the

techniques necessary for a high-quality broadcasting service, to the actual design and development of the equipment installed at the steadily increasing number of transmitting stations in Britain.

In Monograph No. 39, the director of engineering, B.B.C., Sir Harold Bishop, presents a comprehensive review of the development of the television service in Britain, starting with a reminder of the early history of the subject, thus: "Although all the fundamentals of an electronic transmitting and receiving system were put forward by A. A. Campbell-Swinton in his famous letter to *Nature* as far back as June 1908 [Vol. 78, 151], no practical realization of his proposals was attempted until the early 'thirties'".

The earliest B.B.C. television transmissions started in 1926 when pictures from John Logie Baird's

\* B.B.C. Engineering Monograph No. 38: "Operational Research on Microphone and Studio Techniques in Stereophony", D. E. L. Shorter. Pp. 23. No. 39: "Twenty-five Years of B.B.C. Television", Sir Harold Bishop. Pp. 41. No. 40: "The Broadcasting of Music in Television". Part I, Introduction, R. F. A. Pottinger. Part II, Sound and Vision, L. Salter. Part III, Operational Technique, E. G. M. Alkin. Part IV, Acoustic Treatment of Television Studios, C. L. S. Gifford, pp. 23. No. 41: "The Design of a Group of Plug-In Television Studio Amplifiers", K. J. Austin. Pp. 19. No. 42: "Apparatus for Television and Sound Relay Stations", F. A. Peachey, R. Toombs and D. L. Smart. Pp. 22. (London: British Broadcasting Corporation, 1961 and 1962. 5s. each.)