

## ONTARIO RESEARCH FOUNDATION

### REPORT FOR 1953

**I**N the annual report for 1953 of the Ontario Research Foundation\*, by the director of research, Dr. H. B. Speakman, to which is appended a list of papers published during 1953 and the financial statement, attention is directed to the increase of almost 100 per cent in the research work performed for industry and under contract for government agencies during the five years 1949-53. Income from such sources increased from 277,777 dollars to 506,189 dollars, and the Provincial grant was increased from 167,904 to 260,230 dollars, the Federal grant remaining at 25,000 dollars. Dr. Speakman urges that these grants should increase in accordance with the demands made on the Foundation. While there was no increase in administrative staff during the period under review, the scientific staff increased from fifty-one to sixty-seven and technical staff from thirty-eight to forty-six. In biochemistry, the laboratory dealing with canning problems was closed; but the fellowship on the utilization of the hulls of rice has led to the commercial production of humidifier plates from rice hull ash and to a high-temperature, light-weight insulating refractory now under study by a large manufacturer of fire-bricks in the United States. The possibility of utilizing whey with inorganic and cheap ammonium salts for the production of a yeast high in complex proteins of nutritive value in the diets of domestic animals is being explored, and considerable progress has been made in the production of tanning materials from waste sulphite liquors and the waste phenolic liquors from petroleum refineries, as well as in the development, in the oils and fats laboratory, of formulae and methods for a butter-like spread, with good keeping properties, which can be used by the Armed Services under a wide range of climatic conditions.

In chemistry the Air Pollution Laboratory is making a systematic study of atmospheric conditions in the Sarnia area, in which several refineries and chemical plants are operating, under varying climatic conditions, and similar surveys are in progress in Maitland and Millhaven. The Electroplating Laboratory made important progress in studies of the influence of the physical metallurgy and mechanical processing of the basic metal on the subsequent electroplating process. Encouraging results have been obtained with a tanning agent prepared by the Organic Section from lignin, and similar compounds are being tested as dispersing agents, while a similar product has shown promise as a relatively cheap thermo-setting resin with water-repellent properties for use in the manufacture of boards from sawdust and other wood waste.

The Department of Engineering and Metallurgy, which is still in urgent need of more space and facilities, has continued its fundamental work in physical metallurgy, and investigations in ferrous metallurgy have been extended to include the pre-treatment and concentration of ores to provide concentrates for the basic process. The hypothesis that changes in the lay-length of a wire rope in service may provide reliable indications of weakness and ultimate failure has received considerable support

\* Ontario Research Foundation. Annual Report, 1953. Pp. 32. (Toronto: Ontario Research Association, 1954.)

from results obtained on experimental machines. The Department of Research Services continued to increase its contacts with industry and also the number of repeat requests for service.

In the Department of Parasitology more attention was given to basic research. Work on the tapeworms occurring in carnivorous animals, especially foxes, continued, that on a hydatid disease in moose and wolves was concluded, and the life-history of the bot fly which lives parasitically in chipmunks has been determined. The survey of the Algonquin plain by the Department of Physiography was carried forward from Espanola to Saulte Ste. Marie, but the mineralogical study of soils in southern Ontario was temporarily halted. An ecological study of the growth of soybeans in southern Ontario and the adjoining States of the United States has been started.

In the Textiles Laboratory the emphasis has passed to problems connected with product development, including fabrics for wearing apparel, household furnishings and industry. Pressing temperature studies of the maximum temperature to which fabrics may be submitted have included a comparative study of viscose and acetate rayon, cotton, linen, nylon and orlon. Under the Nylon Fellowship of Canadian Industries, Ltd., a study of available methods and instruments for measuring resistance to abrasion supports the view that abrasion resistance and wear cannot be correlated with confidence. The influence of chemicals and temperature on the tensile strength and bursting strength of filter cloths was being investigated, and apparatus and experimental techniques were being developed to investigate the influence of cloth construction on the efficiency of a filter press.

## BRITISH ELECTRICAL AND ALLIED INDUSTRIES RESEARCH ASSOCIATION

### ANNUAL REPORT FOR 1953

**T**HE report for 1953 of the British Electrical and Allied Industries Research Association\*, the thirty-third year of its operation, records, in addition to summarizing the results of the year's work, the inception of an important new development. This is the commencement of the erection at Leatherhead of buildings which will ultimately completely re-house the Association's laboratories, at present situated at Perivale. The cost of this project, amounting to some £400,000, will be met for the most part by special capital contributions from the members, together with a grant from the Department of Scientific and Industrial Research which will probably amount to £100,000.

The main fields of activity of the Association necessarily form a fairly stable pattern over a period of years. Work on high-power switch gear and on dielectric materials have long occupied prominent places in the research programme, and continue to do so. Both these branches illustrate a feature which is characteristic of much of the work of the Association, namely, that the investigation of problems of direct

\* British Electrical and Allied Industries Research Association. Thirty-third Annual Report—1st January, 1953, to 31st December, 1953. Pp. 160. (Leatherhead: The Association, 1954.)