

woollens, arranged by the Australian Wool Board. The last two, together with the many scenic tours possible from the three centres, proved of great interest to visitors who had not previously seen the Australian way and place of life. Post-Symposium tours to north and south Queensland and to New Guinea are now in progress—the last-named being for

men only and at the invitation of the Commonwealth Government and the New Guinea Administration.

The lectures mentioned above will be published through the Publications Committee of the International Union of Pure and Applied Chemistry by Butterworth's Scientific Publications, London.

R. J. W. LE FÈVRE

WARREN SPRING LABORATORY

IN planning the Warren Spring Laboratory at Stevenage, the Council for Scientific and Industrial Research decided that it should be a versatile station free to carry out research which cannot be fitted into the programme of another research body, especially work involving pilot-scale investigations of any subject of national importance.

As a result, the Laboratory's research programme includes a number of important investigations in several different fields*.

In chemical engineering, for example, the work is concerned mainly with providing the chemical plant designer with basic information. Considerably more knowledge is required to achieve greater precision in design work. The basic programme is confined to the study of mass transfer in gas-liquid systems, and these investigations will provide data for the precise design of large-scale equipment without the need for costly pilot-plant studies. For example, the investigation should enable more accurate prediction of the performance of gas-liquid contacting equipment to be made and thus facilitate the design of equipment such as distillation columns and gas absorption towers.

Much of the work of the Mineral Processing Division is undertaken for mining companies and other organizations, on repayment. Three main subjects of basic research are being studied: (a) grinding in the presence of additives such as surface-active agents; (b) the composition of surface minerals and the kinetics of bubble attachment to mineral surfaces; (c) the behaviour of mineral particles in a high-tension field and the modifications of this behaviour by various surface treatments. There have been indications during the year that automation may become important in mineral processing plants and an experimental programme is being considered.

In the Process Development Department, work has continued on the Fischer-Tropsch synthesis,

which provides a method of obtaining liquid and gaseous fuels from carbon monoxide and hydrogen, which are produced by the complete gasification of low-grade high-ash coal. Basic research on catalysis has included work on the catalytic and other physico-chemical aspects of fuel cell operation.

A small human sciences research team is being formed at the Laboratory, and the Human Sciences Research Sub-committee, under the chairmanship of Mr. H. Briggs, labour adviser to Unilever, Ltd., is now considering the programmes of research in this increasingly important field.

Current research into air pollution concerns both methods of abatement and assessment of atmospheric pollution throughout Britain, with relation to the effects of clean air legislation. Estimates made during the year have shown that, in general, smoke from the burning of industrial coal has ceased to be a serious problem although in some instances it creates a local nuisance. The Laboratory has co-operated with the Port of London Authority and owners of tugs in demonstrating methods of reducing smoke emission from ships in coastal waters.

Smoke from Diesel exhausts provides another research problem. While a well-maintained and correctly operated Diesel vehicle need never produce black smoke, the fact remains that large numbers of lorries frequently do. Methods of removing smoke from exhaust gases are being studied. A 10-ton Diesel lorry fitted for road tests with various proprietary devices is being used for this purpose.

The Laboratory has continued to collaborate with local authorities on the measurement of pollution, and this is providing "a wealth of background information against which future improvements can be assessed".

Methods of measuring low concentrations of oxides of nitrogen (known to be emitted by practically all fuel-burning appliances) are being examined. These emissions may be significant factors in air pollution.

* Report of the Warren Spring Laboratory, 1959. Published for the Department of Scientific and Industrial Research. (London: H.M. Stationery Office, 1960.) 3s. net.

U.K. ATOMIC ENERGY AUTHORITY

THE sixth annual report of the Atomic Energy Authority, the first to appear over Sir Roger Makin's signature and also the first to be submitted to the Minister for Science, covers the period April 1, 1959–March 31, 1960*. During that year, those major projects undertaken primarily to support the

defence programme were completed, and all main plants constructed for that purpose were operating successfully. New capital projects approved during the year were on a relatively small scale. The Authority continued to devote a major effort in support of the civil power programme of the Central Electricity Generating Board and the South of Scotland Electricity Board. The report includes as an appendix the observations of the Minister for Science, in con-

* United Kingdom Atomic Energy Authority. Sixth Annual Report for the period 1st April, 1959–31st March, 1960. Pp. vi+72+4 plates. (London: H.M. Stationery Office, 1960.) 5s. net.