

ANALYTICAL CHEMISTRY IN THE INTEREST OF THE PUBLIC

THE recently published report of the Government Chemist* has given Dr. D. T. Lewis the opportunity to review the wide range of work done in his Laboratory during 1963. This annual publication by the Department of Scientific and Industrial Research always contains a good deal of material of interest particularly to analytical chemists, but much of its content is of more than passing interest to the general public whose interests the Laboratory exists to serve.

By far the largest amount of work, occupying at least half the total effort of the Laboratory, is for H.M. Customs and Excise, the requirements of which for the year have involved the Laboratory in the examination of more than a quarter of a million samples of various dutiable commodities, such as sugar, wines and spirits, beers and marked gas oils. This is the bread and butter work of the Laboratory and involves well-established and routine analytical operations. Occasionally, however, problems arise which involve some original research, and the report of this can provide an interesting facet of the work of the Laboratory.

The examination of brandies and whiskies by the techniques of vapour-phase chromatography is one such example. These new techniques would appear to provide much more reliable means for the determination of the higher alcohols in these spirits than the existing spectrophotometric methods. These higher alcohols—in the main, *n*-propanol, iso-butanol, iso- and active pentanols, with occasional appreciable amounts of *sec*-butanol—differ quite significantly in their relative amounts from one type of spirit to another; in general, brandy contains more of them than a blended Scotch. Gas-liquid chromatography has also been used to identify the 'secondaries' in brandy, and an interesting chromatogram of an ether-*n*-pentane extract of the spirit has shown the presence

* Department of Scientific and Industrial Research: Laboratory of the Government Chemist. Report of the Government Chemist, 1963. Pp. vi+119+4 plates. (London: H.M. Stationery Office, 1964.) 8s. 6d. net.

of a considerable number of individual compounds; twenty-three of these have, in fact, been identified by comparison with chromatograms of mixed higher alcohols and ethyl esters of the *n*-fatty acids. Obviously this work is of importance in characterizing various types of spiritous beverages; with the considerable increase in the number of samples of illicitly distilled spirits seized by the Excise men during the year, the Laboratory is anxious to have more satisfactory methods for the comparison of these illicit spirits and commercially produced duty-paid spirits. Dr. Lewis remarks that many of these illicit spirits now attain an unusually high quality and one is left wondering if this is in some way related to the more widespread scientific education now available in Britain since the Second World War. By all accounts, a more discerning 'hooch-maker' is now emerging, which makes the detection of illicit spirits all the more difficult.

The work of the Government Chemist does, however, extend to fields other than those of the Customs and Excise, and much general analytical work is done for various Government Departments. Matters of public health are dealt with by the Laboratory and particular attention is directed to the examination of water and sewage, and to the analysis of suspected foods and drugs.

The Laboratory has only recently acquired its new accommodation in Cornwall House, and for the first time for many years most of the major activities of the Laboratory come under one roof. As this report indicates, a good deal of research and development work is necessary for the satisfactory functioning of the Laboratory; centralization of staff and equipment is bound to have a beneficial effect not only on research but also on the general work of the Laboratory. The present report gives an informative and very readable account of the year's activities of the Laboratory and shows how well the interests of the public are safeguarded over an extremely wide range of subjects.

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SPECIAL PROBLEMS IN STUDYING WOODY PERENNIALS

AN unusual kind of conference was held at East Malling Research Station during July 20-24. The opportunity of the migration of scientists from many parts of the world to the tenth International Botanical Congress in Edinburgh in early August was seized to invite some forty of these, whose common interests related to some aspect of the growth and fruiting of woody perennials, to gather at the Research Station. The conference was unique in two ways; first the special nature of the common theme and, second, the fact that no set papers were given but discussion was wholly spontaneous and free throughout the five days.

Never before has the woody perennial, *per se*, been the theme of a single conference. Fruit crops, tropical crops, climatic groups, botanical or ecological relationships or physiological problems are the usual groupings, and thus workers on fruit crops, rubber, tea, citrus, or forest trees find their interests in a wide variety of sections at any one conference; rarely will they meet to discuss problems which are, in fact, closely allied. This was one of the outstanding features of the East Malling symposium; foresters, horticulturists, physiologists, biometricians, biochemists, ecologists, pathologists and entomologists all mingled in 'free association' to debate the common issues arising from investigations of a type of plant characterized

by a lignified, perennating structure, usually, though not always, formed from a sheathing meristem.

The second unique feature was the absence of prepared papers. A programme of themes for discussion had been arranged to provide a skeleton to be clothed but, at each session, after a brief and provocative opening statement by the chairman, discussion was free and open without time-limit. Since everyone talked without notes or prepared data contributions were brief and to the point, dealing mainly with essential principles rather than the finer details.

In order to make it possible for everyone to join in discussion and to allow of deeper consideration of aspects of especial interest, two half-days were devoted to group meetings of some six to twenty members. The four general discussions were on the themes of the special nature of investigations on woody perennials, modifications of the crop plant imposed by man (for example, pruning, spacing, plucking, tapping), the influence on the woody crop plant of other plants (for example, weeds, cover crops, rotations, replant problems, and pests and diseases), and the description and measurement of tree form, size, and efficiency. The group discussions ranged over such topics as growth and cropping, juvenility, differentiation and flower initiation, natural growth substances, absorption,