Mr. H. G. Harvey (British Food Manufacturing Industries Research Association) dealt with certain basic considerations in regard to flavour assessment from a somewhat different angle. In the well-fed human, the reaction to flavour is still primitive and largely confined to like or dislike, or preference of one food to another, though many separate sensory messages associated with colour, temperature, texture, taste, odour, obviously enter into any such judgment. Mr. Harvey emphasized the importance of visual appearance, quoting Moir's experiment where table jellies with colours not conforming to the flavours customarily associated with these colours were tasted by a large group of people, most of whom failed to allocate the flavours correctly. When food intended for sale to persons of normal vision is being tested for flavour, the normal association of colour and flavour should be allowed to operate.

Nearly every type of tasting test, Mr. Harvey pointed out, falls into one of two categories: (1) consumer preference and (2) grading, though the way in which particular assessments are made varies widely. A sound statistical planning is necessary, whatever method is used. Mr. Harvey compared, with examples, the 'paired comparison' method and the 'triangular' test, where three samples, of which two are identical, are presented to each assessor. He considered that assessors should, where possible, be given the simplest possible judgment to make. Assessors vary greatly in their discrimination for reasons that are usually obscure, though non-smokers do not seem to show any significant difference in tasting ability from smokers.

Mr. A. S. C. Ehrenberg (Institute of Psychiatry, Maudsley Hospital, London) and Dr. J. M. Shewan (Torry Research Station, Aberdeen), in a paper on the objective approach to sensory tests, illustrated their conclusions from a study of present-day methods of preserving fish in palatable form, using carefully trained taste panels for the assessment of qualities which go a little beyond simple flavour. They endeavour to measure 'eating quality', grading this variable on a ten-point scale, each point of which is given a detailed description. The panel is trained to agree on the association of the descriptive terms and the place on the scale. A major difficulty is to decide whether or not the level of assessment remains reasonably constant over a period of time; quick-frozen fish stored at low temperatures show little change over months of storage and have some value as standards; also, objective chemical measurements (total volatile bases) seem to agree fairly consistently with the position on the 'eating quality' scale given by the organoleptic assessments.

Mr. J. M. Harries (Ministry of Food) also spoke on specialist grading tests and consumer acceptance trials. The consumer acceptance or preference tests, the results of which vary with standards of living, have usually a wide scatter of individual results about an average. When attempting to forecast consumer preference, the scatter is as important as the average. The relation of this variation to the economic concept of elasticity of demand was discussed. In consumer preference tests, the food should be presented in the form in which it is normally used. One method employed is to offer five samples, three (identical) of one kind, two (identical) of another—a method useful in assessing the effect of alternative treatments on the flavour of a given food.

For specialist grading tests, a limited panel of individuals of trained acuity is used; such tests are not concerned primarily with likes and dislikes but are meant to effect a sensory analysis of flavour or other food characteristics, previously formulated in as precise a way as possible, and discussed beforehand by the panel. By such means, it is often possible to place different samples in a consistent order, or on a numerical scale. Mr. Harries reviewed some of the statistical methods of dealing with the test data.

Dr. J. O. Irwin (London School of Hygiene and Tropical Medicine) gave an interesting statement of the biometrician's point of view. There has been in the past a good deal of doubt as to the legitimacy of speaking of the measurement of sensation, and whether the only measurable quantities are the stimuli that evoke the sensation. His view is that the attempt to provide and classify such measurements has, nevertheless, to be made. He referred to the classification proposed by Chambers into (1) nominal, (2) ordinal, (3) interval and (4) ratio scales, and briefly described the use and limitations of each of these scales. The pragmatic approach to ordinal scales, not infrequently used in flavour assessment, is often better than a too pedantic use of a precise form of metric—an example was given of this from results on bacterial plate counts of milk. The biometric assessment of the properties of food, such as odour or flavour, is a type of assay not too dissimilar from, say, the biological assay of the amount of insulin in a given preparation.

Dr. Irwin directed attention to a valuable publication by the U.S. Department of Agriculture, namely, Bulletin No. 34 of the Bureau of Human Nutrition and Home Economics, 1950, in which a thorough examination of many aspects of the 'specialist grading' type of test is given. He ended his talk by scrutinizing from the biometric point of view some of the findings mentioned by the previous speakers.

A short discussion followed the conclusion of each of the five papers presented.

OBITUARY

Dr. Marc Daniels

Dr. Marc Daniels, a member of the Tuberculosis Research Unit of the Medical Research Council, died in London on March 3 at the age of forty-six. Educated in Manchester and Paris, he took his British medical qualification in 1937 and, a few years later, entered the public health field. After two years in Lincolnshire, however, he gained a scholarship at the Royal College of Physicians, a committee of which was directing a survey on the epidemiology and prevention of tuberculosis in young adults, under the Prophit Trust. From this point Daniels concentrated upon tuberculosis, and, after outstanding work in this survey during 1942–45, and in the preparation of its important report, which among other beneficial effects led to the official recognition of tuberculosis in nurses, laboratory workers and certain other categories as an industrial disease, he joined UNRRA as a consultant in post-war Europe. Some of his observations in this sphere were recorded in his Milroy Lectures to the Royal College of Physicians in 1949.

In 1946 Daniels joined the staff of the Medical Research Council, and thereafter was responsible for the practical co-ordination of two important lines of

inquiry undertaken by the Tuberculosis Research Unit under the direction of special committees of the Council. One of these was the controlled trials of BCG and vole bacillus vaccines in the prevention of tuberculosis in school-leavers, now being conducted in Birmingham, Manchester and the Home Counties; the other was the nation-wide trials of the newer chemotherapeutic agents in human tuberculosis (streptomycin, *p*-aminosalicylic acid and isoniazid, the latter being still under test). Although Daniels's most abiding interest lay in epidemiology, his reputation was most enhanced by these—the first strictly controlled—chemotherapeutic trials in tuberculosis; the reports, prepared by him for the committee, received highly favourable comments in many countries, as much for their methods as for their content. Indeed, one of his main scientific contributions was the successful application of statistical methods to group studies in clinical tuberculosis. With the services of Prof. Bradford Hill as statistical designer, and of Daniels as organizer, these trials constituted an advance in the evaluation of new drugs in acute and chronic disease. While occupied with this work, Daniels served on many missions concerned with tuberculosis, for the Foreign Office, the British Council, and the World Health Organization; he was a member of the Streptomycin Subcommittee of W.H.O.'s Expert Tuberculosis Committee.

Daniels brought enthusiasm, precision and modesty to all his work, and he developed many friendships at home and abroad. Having a world outlook on health problems, he was very conscious of the moral and social responsibilities of medical men and scientists in a world needing peaceful development, but subjected to increasing strains and the threat of destructive uses of medical and scientific skill; and he was interested in the Medical Association for the Prevention of War from its formation. He had for many years been a member of the Association of Scientific Workers. He had many other interests, showing discriminating appreciation of art and drama, in both of which he took personal part. Daniels had two daughters by his first marriage, to Anne Burgess. In 1949 he married Kay Graw.

P. D'Arcy Hart

NEWS and VIEWS

Geography at Oxford : Prof. K. Mason

Prof. K. Mason retires from the chair of geography in the University of Oxford at the end of this academic year, after twenty-one years service. He went to Oxford from the Survey of India, at a time when the last of many proposals for an Honour School in Geography was receiving favourable consideration from the University, and thus became heir to the Oxford tradition in geography. He wisely accepted the proposals without serious change and concentrated his efforts on making the new School work smoothly, on collecting a well-qualified staff, and, most successfully, on securing a building which could adequately house the growing number of students reading geography. The splendid lecture theatre, in the design of which he took an active part, is a fitting memorial to this side of his activities. Not least of his services was to induce the Drapers Company to provide three travelling scholarships. Under his administration the numbers have grown continuously from a mere handful in 1932 to about 180 in the present year. He leaves the Honour School of Geography at Oxford firmly established and well fitted for further expansion.

Mr. E. W. Gilbert

Mr. E. W. Gilbert, who succeeds Prof. Mason, is the first Oxford man since the days of Sir Halford Mackinder to direct the Oxford School of Geography. Like Mackinder, he began by taking the Honour School of Modern History—in 1922. He then gained all the distinctions possible at Oxford before the days of an Honour School of Geography, including the degree of B.Litt., for a thesis on the exploration of Western America, afterwards published by the Cambridge University Press (1933). Mr. Gilbert's first teaching post was at Bedford College, London. He next became joint head of the newly established Honour School of Geography in the University of Reading. He returned to Oxford in 1936 as Rockefeller research lecturer in human geography, and seven years later became reader in human geography. Most of his very large number of contributions to geography deal with the human and regional aspects of the subject, and this fact alone is some guarantee that the traditions of Oxford geography will be maintained. Moreover, Mr. Gilbert begins his career as professor with a full knowledge and experience of the Oxford School of Geography. Oxford is fortunate in retaining the services of one of her most devoted sons; the School of Geography has now an experienced and very competent staff; and Mr. Gilbert is fully qualified to maintain the high standards set by his predecessors.

Meldola Medal, 1952

The Meldola Medal is the gift of the Society of Maccabæans and is awarded each year to the chemist who, being a British subject and less than thirty years of age on December 31 in that year, is considered to have shown the greatest promise as indicated by his or her published work. On the recommendation of the Council of the Royal Institute of Chemistry, two candidates have been adjudged equal, and therefore two Medals have been awarded for 1952 to T. L. Cottrell and Dr. B. C. L. Weedon, respectively.

Mr. T. L. Cottrell

Mr. Cottrell graduated in 1943 from the University of Edinburgh and joined the Research Department of the Nobel (then Explosives) Division of Imperial Chemical Industries, Ltd. There he worked in the Organic Research Section until 1946, when he was sent to study in the Physical Chemistry Laboratory in Oxford and investigated the thermo-chemistry of the ionization of some organic acids and also some theoretical problems connected with molecular structure. On his return in 1948 to the Nobel Division, where he is now in charge of the Physical Chemistry Research Section, Mr. Cottrell became interested in the properties of gases at high temperatures and pressures, and in aspects of chemical kinetics. Using a simple quantum mechanical model, he investigated the effect of density on molecular energy and, in