

The completeness of the statistical information varies considerably for different countries and crops; it covers production, the timing of harvest periods, levels of consumption, imports, exports and distribution costs. For the economist this last set of information is the most interesting, but it is tantalizingly deficient. The Italian data seem the most detailed and accurate, whereas for most other countries the evidence shows the inadequacy of our present knowledge. Yet the intra-European comparison of marketing costs is a most fruitful point of departure for any study of the relative efficiencies of the various systems described.

A real deficiency of the report is its tendency to reflect excessively official thinking. For example, the Dutch price insurance scheme has one serious defect, namely, that prices to growers are maintained by restricting total sales in the fresh fruit and vegetable markets and by destroying surplus supplies in some instances. This is not made clear. Similarly, the discussion on grading programmes in the British section contains no reference to the extremely successful private grading schemes that have been introduced by individuals or by groups of growers, particularly in apple and pear production. Yet the private development of fruit and vegetable grading has achieved more than has the public sponsoring of it, and there are good theoretical reasons for expecting such a result in Britain. Another important omission is the lack of reference to the 1950 Census of Distribution in the discussion of British costs of marketing. Therefore, the high value of the present survey must not hide the fact that it is not a complete guide to the many and diversified facets of horticultural marketing in various parts of Europe.

GEORGE ALLEN

THE FUSED SILICA INDUSTRY IN BRITAIN

THE fascinating story of the birth and progress during the past fifty years of the fused silica industry in Great Britain is told in an illustrated volume produced by the Thermal Syndicate, Ltd., in commemoration of the jubilee of incorporation of the company*. The three parts into which the volume is divided deal respectively with the history of the Thermal Syndicate, Ltd., during 1906-17; the Silica Syndicate, Ltd., a parallel organization, during the same period; and the post-1917 company, the Thermal Syndicate, Ltd., formed from the amalgamation of the two earlier syndicates.

In 1902, Mr. (later Sir) Richard Paget, a London barrister, when on a visit to the home of the first Lord Rayleigh, was shown a small quartz tube which Lord Rayleigh's son was building-up by fusing together little pieces of quartz crystal, a process evolved by Mr. W. A. Shenstone, a master at Clifton College. His interest thus aroused in fused silica, Paget together with Lord Armstrong, and C. Merz and W. McLennan who were on the look-out at the time for new uses for electric power, formed a private syndicate in order to carry out research, with Dr. F. Bottomley in charge, on the electric fusion of silica (sand). Bottomley, in 1903, successfully produced his remarkable 'Ostrich Egg', and the manufacture

of fused silica tubes and ware for sale was begun. Finally, on August 3, 1906, the Thermal Syndicate, Ltd., was incorporated as a private company with an authorized capital of £10,000.

The Syndicate's factory consisted of a small wooden building and office space was provided by Merz and McLennan in their Wallsend Laboratories. A quite separate but parallel organization, the Silica Syndicate, Ltd., was formed also in 1906. This had the backing of Johnson, Matthey and Co., Ltd., and was to exploit the manufacture of the 'transparent' form of fused silica made from quartz (rock crystal) as distinct from silica material made from sand. The growth and development of this syndicate were particularly associated with the mercury vapour lamp and the silica radio transmitting valve. In 1917 the two syndicates were merged into the Thermal Syndicate, Ltd., and with the transfer of the Silica Syndicate's plant and key workpeople to Wallsend in 1920 the whole of the fused silica industry of Britain became concentrated in one place.

The basic Thermal Syndicate patents expired in 1921 and several factories for manufacturing fused silica were established in Europe, but, in general, the British processes were copied. 'Optical quality' transparent fused quartz for use as lenses and prisms was first developed during the 1930's, and in addition at this time the company decided to enter the field of high-temperature refractories in materials other than silica, alumina and magnesia being chosen as the first to be developed. The demand for both the new products and fused silica equipment in the chemical and electrical industries and other projects during the Second World War rose to new heights, and since the War new output records have been achieved.

New agencies have been created, notably in Australia and Belgium, and the Thermal Syndicate, Ltd., has now many accredited agents in all parts of the world, including the subsidiary Thermal American Fused Quartz Company in the United States of America. It is interesting to note that the connexion with Johnson, Matthey and Co. is still maintained, with G. C. H. Matthey as the present chairman of directors of the Thermal Syndicate, Ltd.

MESOANALYSIS IN METEOROLOGY

RESEARCH Paper No. 39 of the United States Weather Bureau, entitled "Mesoanalysis: an Important Scale in the Analysis of Weather" (pp. 84. Washington, D.C.: Government Printing Office, 1956; 50 cents), by Tetsuya Fujita, H. Newstein and M. Tepper, describes an investigation into the detailed structure of a depression in the Middle West of the United States using observations at stations spaced at distances of the order of 25-30 miles. This is termed analysis on the meso-scale as distinct from the macro-scale of the ordinary weather map, on which the spacing of stations is at distances of hundreds of miles, and the micro-scale, on which the spacing is less than ten miles. This work, carried out by the Severe Local Storms Research Unit of the Weather Bureau, is stated to have shown that local weather is more closely connected with features on the meso-scale than those of the macro-scale. 195 stations in ten States centred on Kansas were used, 67 of them regular reporting stations and 128 subsidiary stations, partly voluntary observing ones.

* The Story of the Thermal Syndicate, Limited. Pp. xiv+48+13 plates. (Wallsend: The Thermal Syndicate, Limited, 1956.)