

In this review no attempt will be made to evaluate the papers concerning cane, but the last paragraph of the chairman's address to the Agricultural Section, by H. Evans, well indicates the scope of the investigations being pursued in many cane-growing countries: "Summarizing, one may state that future progress from the agricultural side will depend on a steady stream of new superior varieties, better control of pests and diseases, a better understanding of the sugar cane plant in relation to its environment; . . . and finally the harvesting of the sugar that is produced in the field by most economical means and with the smallest possible unavoidable losses" (p. 65).

From the section dealing with processing one major theme emerges to which the majority of the papers are devoted, directly or indirectly, namely that of producing raw sugar of better 'refinability' (the word 'refinability' does not occur in any of the texts, but has been used for many years by me). This is clearly stated in the chairman's address to the Processing Section, by H. W. Kerr: "the problem is that of eliminating from the raw sugar those minor impurities which introduce refining difficulties . . .; in a highly competitive world market the producer (of raw sugar) clearly recognizes his responsibility in gaining acceptance of his product (by the refiner)" (p. 846). This recognition has come late in the cane industry compared with the beet industry, in which attention to the quality of raw sugar, for the ease of refining, has been directed since the beginning of this century; the importance of quality standards has, however, dwindled in the beet industry, owing to the fact that nearly all the sugar is now produced as direct consumption white sugar in the factory (not refinery) (see Honig, 3, 453; 1963).

For the cane industry 'refinability' or 'refining quality' (p. 950) is becoming increasingly important, and awareness of this is expressed by several authors: "raw sugar manufacturers in various cane growing countries are (now) prepared to spend not inconsiderable amounts of money in endeavours to supply a product which satisfies, as nearly as possible, the requirements of the refining industry" (p. 869); "a more realistic approach to the problem of deciding on the most economic raw sugar quality could be made possible by a joint effort of raw sugar manufacturers and refiners" (p. 871); "many raw sugar manufacturers (are now) anxious to provide refiners with a satisfactory product" (summary p. 876); "producers are quantity- but not quality-minded. It might become progressively more difficult to sell the product" (Discussion p. 877). The experiments described and the ideas expressed in the papers indicate that a concerted effort by raw sugar manufacturers and refiners is needed for evolving an economic method for improving the refinability of raw sugar. Some of the papers do not touch on this problem, but deal with other topics, and, on the whole, they do not appear to make a significant contribution to the advancement of the processing practice.

The section headed "Engineering" is in fact mainly devoted to "The Processing of Sugar Cane into Juice and Fibre", and this is the title of an excellent paper by J. H. Payne (p. 971). The trend of development is summed up in this paper: "Scientific examination seems to show conclusively that it would be more rational to apply persuasive (in the diffuser) rather than forceful (in the usual mills) means to induce the juice to leave its cellular abode" (p. 990). However, only two papers are devoted to the diffuser, namely that already mentioned, by J. H. Payne (p. 971), and the other by A. F. de la Calle (p. 991), and most of the other papers deal with problems arising from the operation of cane mills. This fact alone indicates that, despite much publicity given in recent years to various types of diffusers for cane, there is little to report of actual success with any diffuser (in contrast to the beet industry), the main difficulty still being that of adequately preparing the cane for the diffuser. Of the few papers dealing with problems of engineering proper, that on "Novel Ideas in Cane Mill Design" (p. 1052), by

P. M. Grandjean, deserves special attention, provided that designs of mills are still of interest in view of the imminence of the solution of the problems of the diffuser together with those of cane preparation and bagasse dewatering without recourse to any mills.

The section on by-products is a scanty one and indicates that little practical progress has been achieved in this field which seemed so full of promise a few years ago.

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BUILDING AND THE WEATHER

Design with Climate

Bioclimatic Approach to Architectural Regionalism. By Victor Olgyay. Pp. viii+190. (Princeton, N.J.: Princeton University Press; London: Oxford University Press, 1963.) 120s. net.

MUCH has been written recently of 'the two cultures', and of the need to bridge the gap between them. Building scientists may be regarded as being on one side of this 'gap' and architects on the other, and in this sense *Design with Climate* may be seen as an attempt to bridge the gap by making architects aware of scientific information which can help them to design better buildings, and by helping them to understand it.

In attempting to review this book, then, one must ask two questions—first, does it tell the architect how he can design buildings so that they take account of climate, and secondly, is the material that is presented scientifically correct?

There can be no doubt that the book could extend the awareness of architects to climatic problems—although all must already have some implicit knowledge of the subject or all their buildings would be failures. It contains in places summaries which emphasize the important factors to be considered; for example, at the end of chapter 9, "Wind Effects and Air Flow Patterns". The section on shading devices which control the amount of solar radiation entering windows is clearly written, as would be expected from one of the co-authors of an earlier work *Solar Control and Shading Devices*. However, I find much of the rest of the book obscurely written—one is brought up short, for example, by the sentence "evaporation decreases dry-bulb temperature" (p. 20), and by "the mean value (of the solar constant) is 1.94 cal/cm²/min, which is generally accepted as equivalent to 420 Btu/ft.²/hr." (p. 32).

The book is intended to deal with the design of buildings which will be comfortable to live in—and chapter 2, "The Bioclimatic Approach", tries to explain how the climate affects man's comfort, starting with some vague diagrams which do nothing to illuminate the text. The charts following this, showing the effects on human comfort of varying one element in the environment, may, in a work such as this, tend to give a misleading impression of a degree of precision which is not warranted by the existing state of knowledge in this field.

Many of the photographs and diagrams are poorly reproduced, often on too small a scale for legibility. One pair of diagrams (Fig. 78-9), purporting to show the diurnal and annual variation of wind speed and direction at two heights at one place, are not only almost illegible, but have different scales of wind-speed, neither of which is specified! Others are carelessly drawn—some wind-roses have arrows pointing inwards, others have them pointing outwards and in the absence of explanations in the text it is not possible to be certain what either means.

One could quote other faults, for example, some nonsensical 'equations', but enough has been said to indicate that, far from 'bridging the gap', a book like this deepens the gulf, by making scientific work and its results seem more obscure than the unfortunate reader thought they would be.

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