drawings. Woven through these foundation strands, however, is a very modern exposition of horticultural science. This is, of course, particularly adapted to Chinese conditions; but is a graceful blend of simple, age-old methods with modern scientific achievement. One learns how to compost organic matter with human urine and also the use of D.D.T. for pest control. 'Canton mud' settling from ponds where fish are fed on human excrement still provides a source of garden fertility, and yet weeds are now controlled by 2 : 4 dichloro-phenoxyacetic acid.

Horticulture in Hong Kong brings its own special problems. Seeds must, in general, be kept dry until planted, being packed in lead envelopes, and even stored in a desiccator. Periods of dormancy and of seed life are very short; parsnips and rhubarb provide good examples, while *Hippeastrum* seeds should be sown within a day or two of dehiscence from the capsule. New Zealand spinach seeds, on the other hand, germinate more vigorously after a year's storage. Hong Kong soils vary from porous lateric sand to an impermeable clay, but all are poor in major plant nutrients and most are too acid for good growth of vegetables. Several pages are accordingly devoted to the improvement of the physical and chemical nature of the soil. Temperature limits the growth of some plants, as the English cabbage, to the winter in Hong Kong, but tropical warmth from May until September permits the growth of many plants from the torrid zone. Periods of high humidity in March and April provide good conditions for the spread of fungal diseases in those months. The relatively short day makes it impossible to grow European varieties of onions for bulb formation. Seed potatoes from England do not grow well in Hong Kong, but several short-day potatoes from the Empire collection at Cambridge have been flown there and are now under trial. Other adaptations to special conditions are discussed in this book.

Many English friends of Dr. Herklots will value this publication, not only for its scientific and horticultural worth, but also as marking a vigorous return from the trials of internment. It seems possible to read between the lines, to imagine the difficulties at Stanley camp, and to admire the persistence which produced this most useful book. It would have been a credit to a similar study made in freedom.

JOHN GRAINGER

AMERICAN METHODS AND PRACTICE IN AIR SURVEY

Manual of Photogrammetry

Edited by P. G. McCurdy, L. A. Woodward, J. I. Davidson, R. M. Wilson and R. E. Ask. Pp. ix+819. (New York, Chicago and London: Sir Isaac Pitman and Sons, Ltd., 1944.) 45*s*. net.

THIS manual has been produced by the American Society of Photogrammetry, some sections having been previously published in *Photogrammetric Engineering*, the journal of the Society. The Society is a very active one, and its journal regularly provides valuable technical information. Its membership extends overseas, including some from Great Britain.

The manual is composed of contributions by some thirty eminent members, together with sections from official and commercial sources. It has been edited by a small committee and presents an up-to-date picture of aerial photogrammetry with reference to American practice.

The range of subject-matter is wide: from the principles of surveying, optics, photography, perspective, and stereoscopy, to the basis and practical application of graphical, analytical and instrumental methods of mapping from air photographs. The chapters in themselves are self-contained.

One of note is that on mapping from obliques, which is dealt with in some detail. Practice in Canada, where considerable areas have been covered by obliques for reconnaissance mapping, is described, as is that developed by the American Geographical Society, with particular reference to exploratory surveys. Most important, however, is the section on trimetrogon mapping, in which three wide-angle cameras are used—one vertical and two lateral high-obliques—so that a lateral strip is covered from horizon to horizon by each set of exposures. By use of primary trigonometrical control, or independent astro-fixes, a rapid and effective method is available of reconnaissance mapping at scales of 1/250,000 or 1/500,000. Many hundreds of thousands of square miles were mapped by the U.S. Army Air Forces during the recent War in connexion with the charting of air routes over undeveloped country.

Another important chapter is that on radial line plotting, where, in addition to the usual graphical method, descriptions are given of its 'mechanization', by slotted templates or by mechanical radial arms.

The chapter on American survey cameras, mostly of Fairchild manufacture, is in the nature of a catalogue. No foreign types are described.

The manual is a mine of information on practical detail, evolved as a result of lengthy experience in the methods described; but it suffers inevitably from its preparation by a large number of contributors. Some aspects are omitted altogether, others sketchily treated from a scientific point of view, while there is some overlapping between the chapters, due to different authorship and separate publication.

It can by no means be considered a text-book of the subject, since no attempt is made to present a balanced and logically developed treatment. It is surprising, for example, to find that there is no reference to precise three-dimensional instruments such as those of Wild, Zeiss and Poivilliers, or of British designs, since instruments of this class are now recognized as having important applications in air survey. Also the title should be more properly "Manual of Aerial Photogrammetry", since there is no reference to ground photogrammetry. The edition is, however, a provisional one, so it is to be expected that some of these anomalies will be omitted in subsequent editions.

The final chapter on nomenclature and definitions is particularly welcome, and although some of the terms are at variance with British practice, it is to be hoped that it will not be impossible in the future to standardize.

The manual will prove a valuable reference work to air surveyors so long as it is recognized that it refers to American methods and instruments only. There is little critical comparison between the various American instruments and methods, some of which have been described by those commercially interested in them. Neither is there any description of, or comparison with, methods and instruments used extensively outside the United States, in the British Empire and elsewhere.

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