paragraphs; he perhaps did it with his tongue in his cheek.

The chapters dealing with various groupings of food are well balanced; perhaps the section on bread is slightly too long, and in the section on milk the references to the unpasteurized versus pasteurized controversy would appear, in these days, to be archaic.

The author repeatedly stresses the difficulty of feeding a population such as that of the British Isles, with its congested urban districts, and gives full credit to the food technologist for making it possible to supply the people with food.

It is probable that the population in Great Britain has the purest food in the world, not excluding the United States, and one can agree with the author that the motives which stimulate the large food-manufacturer are (p. 203) "firstly honesty, and secondly enlightened self-interest".

The book is worth reading, if only to decide whether the reviewer is right or wrong.

L. H. LAMPTT

THE GLASS-POLISHER'S ART

Prism and Lens Making

A Textbook for Optical Glassworkers. By F. Twyman. Second edition. Pp. viii+629. (London: Hilger and Watts, Ltd., 1952.) 58s. net.

THE earlier edition of Mr. F. Twyman's book was one of the first important works in English to appear on the subject. Its value derived from the record of his wide experience; its weakness was that it was almost entirely confined to the methods of one factory. In the second edition the author has taken advantage of the co-operation he has received to extend its scope; in addition, there are a number of chapters (more or less connected with the subject-matter) contributed by experts. The size (and cost) have increased nearly fourfold.

Since the first edition the industry has become increasingly mechanized, and to this the diamond-bonded tool has largely contributed. The applications of this are well covered. The work of W. Taylor has been recognized, and the production and working of new materials have received adequate attention.

There are still a few (perhaps unavoidable) defects in the presentation of other manufacturers' methods. A little more information would be welcomed on the round-stroke polishing machine (only one type is illustrated) and the method of controlling figure, as is done for the straight-stroke machine. There is still rather much on the largely academic question of air-conditioning; though most firms find this unnecessary, and even in the working of the 200-in. mirror the elaborate plant devised was eventually abandoned.

There is much valuable discussion on grinding and polishing materials, and the author has endeavoured to introduce scientific precision. It would have been even more valuable if information about the sizes of abrasive powders of other manufacturers had been given. A new section deals with aspherical work, though this again is not quite complete as to range of work or methods of testing.

Two statements call for remark. One is that the author does not know of any machine on the market specifically designed for trepanning. Such a machine (of British make) was on sale between the two World

Wars; the second is that an American surface generator has been constructed in which the whole sequence of operation is automatic. A British machine has also appeared (possibly while the book was in the press).

There are a few misprints and some omissions from the bibliography; the rather scanty section on tool-making could have been enriched by reference to the machines for milling optical tools, illustrated in W. Ewald's "Das Optische Werkstatt" (a work mentioned in the text). Surprisingly, no mention is made of the trichlorethylene degreasing plant for cleaning lenses, nor of the method of supporting lenses in recessed tools.

These are all minor matters in comparison with the wealth of information made available. The book is throughout delightfully seasoned by the author's personality, and he will be forgiven for riding his hobby-horses so hard.

H. W. LEE

THE AVIAN PITUITARY

The Structure and Development of the Avian Pituitary from a Comparative and Functional Viewpoint

By Karl Georg Wingstrand. Pp. viii+316. (Lund: C. W. K. Gleerup, 1951.) 18 kr.

DURING the past three decades there have appeared hundreds of papers dealing with the microscopic structure and the functions of the pituitary in various Chordates; but, comparatively speaking, little attention has been paid to the pituitary of birds despite its fundamental role in the evergreen study of migration and the timing of breeding seasons. This most acceptable volume from Sweden will be the standard work on the subject for many years to come, for Dr. K. G. Wingstrand has been at great pains to attain a comprehensive view of the class—from Rattites to Passerines—as a whole rather than draw conclusions from a single species: that is, the atypical, non-seasonal egg-laying machine, the common fowl, which is usually put forward as an adequate representation for 'The Bird' in biological literature.

The work comprises fourteen chapters and covers the anatomy and embryology of the adenohypophysis and neurohypophysis and compares them, in various aspects, with those of reptiles and mammals. The innervation, and blood vascular relationships, of the pituitary are considered at length, including the hypophyseal portal system which, though studied intensively in various groups during the past few years, has been curiously neglected in birds prior to the contemporary publications of Benoit, Walter and Assenmacher.

Dr. Wingstrand has seemingly confirmed the validity of the 'avian pituitary pattern' of Rahn and Painter and has, in fact, found the caudal and cephalic lobes of the pars distalis to be recognizably different in representatives of no less than fifty genera. He adopts a most conservative attitude in regard to the distribution of the various α and β cell-types and, it follows, to their probable functions. It is further noteworthy that although the subject of neurosecretion is briefly dealt with, the Golgi 'network' (whatever, precisely, it is) is not considered, nor is it dealt with in Dr. Wingstrand's lengthy cytological discussions.

A. J. MARSHALL