

BOOK REVIEWS

Anderson (B. W.). *Gem Testing*. London and Boston (Butterworths), 1980. xvi + 434 pp., 142 figs., 12 colour plates. Price £12 (hardback).

To have produced nine editions of *Gem Testing* (the internationally accepted standard work) over a period of 38 years is an achievement of no mean order and gives some indication of the perseverance and skill of Basil W. Anderson who founded the Laboratory of the Diamond, Pearl, and Precious Stones Testing Section of the London Chamber of Commerce in 1925. The present edition follows the general scholarly lines of its predecessor but since the previous edition there have probably been more changes in the science of gemmology than in any other comparable period and this is reflected in additional text which increases the pages from 384 in the eighth to 434 in the present edition. The enormous range of new materials needed for space programmes and its technology has speeded the development of crystal growing to a precise science and has provided a wide range of new synthetic gems and other hard synthetic materials which have found applications in gemmology.

Among the new diamond simulants, cubic zirconia is given detailed treatment, and other synthetics (such as GGG) are fully described. For the detection of these simulants new instruments have been developed; there are adequate descriptions of several new reflectivity meters and of the newly developed Riplus refractometer which has heated prisms and will read up to 2.21. The new Ceres Diamond Probe (a thermal conductivity meter) is described, as is the 'Gen Diamond Pen' which depends upon the well-known propensity of diamond for greasy substances and its reluctance to be wetted by water. However, the reader will search in vain for mention of some of these new instruments in the index.

Detailed tests are given for the detection of the Gilson synthetic opals which have been developed since the last edition and of the Slocum stone, a convincing glass imitation of opal. Descriptions of the synthetic turquoise and lapis lazuli produced by Pierre Gilson are given also. Other new materials described include synthetic alexandrite and corundum gems made by processes other than the well-known Vernueil method.

The detection of stones which have been improved in colour by oiling, impregnation, staining or radiation receives treatment in various parts of the book and attention is especially directed to irradiated 'aquamarine' which fades rapidly on exposure to sunlight and to blue topaz which appears to be permanently coloured after radiation.

Natural stones from new localities are described including rubies of fine colour from Kenya and Pakistan, fine-coloured emerald from Lake Man'yara in Tanzania, and the rich-green grossular garnets from the Tsavo area of East Africa. Fuller details are given of the blue zoisite (tanzanite) from Tanzania.

Another new feature of the book is a description of the methods used in the London Gem Testing Laboratory for checking the purity and grain size of diamond grits and powders.

For many years gemmologists on the respective sides of the Atlantic have rued the convention in absorption spectroscopy which put 'red' on the left of diagrams in textbooks in the UK but on the right in the USA. Anderson has neatly overcome this problem, by showing both styles on facing pages. To accomplish this the plates have been turned left to right and top to bottom which results in species 1 to 7 on the left-hand page appearing as 7 to 1 on the right-hand page. The system is captioned correctly for red, yellow, and blue stones but the plates have not been reversed (top to bottom) for the green stones (pages 188-9) and the spectra are wrongly labelled.

Other minor points which will catch the eye of the mineralogist are 'haematite' still retained and 'spessartite' for the garnet will offend some English readers, but it is unlikely to trouble many Americans. On page 106 the 'O' and 'H' in the Vernueil furnace diagram should be reversed.

In the tables at the end of the book cubic zirconia is shown in the SG table but not in the RI, and lithium niobate and carborundum appear in the RI but not in the SG table; all properties appear in the alphabetic list. These inconsistencies may be deliberate or related to lack of space on the page, but many readers might prefer to see entries in all three tables. Several new colour plates form welcome additions to the book, but some black and white photographs could be improved.

This revised edition, the best textbook in English, is an indispensable aid for all concerned with gemstones and their testing.

E. A. JOBBINS

Hurlbut (C. S., Jr.) and Switzer (G. S.). *Gemology*. New York and Chichester (John Wiley and Sons Ltd.: Wiley Interscience), 1979. xiv + 254 pp., 265 figs., 12 colour pls. Price £13.50.

It has always been accepted as appropriate that the authors of textbooks on gemmology should be professional mineralogists, as their training ensures that they possess the necessary scientific knowledge