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Crystals: Growth, Morphology and Perfection

By Ichiro Sunagawa, 295 pp., illus., publ. by Cambridge University Press, Cambridge, United Kingdom, 2005. US\$95.00

In this book, intended for crystallography students and specialists alike, Prof. Ichiro Sunagawa clearly explains the processes that control crystallography. In the first part of the book, physical processes are described from a theoretical point of view, though always illustrated by photos of natural crystals (often taken by the author) and by readily understood diagrams. The processes of crystal nucleation, crystal growth, selection of a growth type (e.g., dendritic, massive, or spherulitic), intergrowth, and polycrystalline aggregation are addressed from a thermodynamic point of view. Equilibrium, kinetics, driving force, heat and mass transfer, role of defects, and the like are often invoked to explain the magic of crystal morphology. Microtopography is also used to understand the influence of dislocations (spiral, circular, or polygonal) and dissolution on crystal morphology. The section on homogeneity explains how growth zonation, growth sectors, and dislocations are responsible for complex features in crystals.

In the second part, special cases are examined, often from the author's experience during his long career as a crystallographer.

- Diamond is described in detail, including its structure, physical properties, growth features, and morphology. Nevertheless, one

could say that the vocabulary used to describe crystals of nearly cubic shape is sometimes confusing.

- Quartz is the second well-studied example. Described are various forms of silica, crystal morphologies, prism striations, Japan and Brazil twins, curved vs. flat crystals, agate formation, and polycrystalline aggregates.
- Calcite and pyrite are also extensively described, with the author highlighting the role of formation conditions on the crystal morphologies.
- The last chapters describe the growth conditions of crystals formed by vapor growth (pegmatitic and post-volcanic deposits) and by metasomatism and metamorphism (kaolin minerals and trapiche crystals), as well as crystals formed through biological activity (e.g., in bones, teeth, and carapace).

In this reviewer's opinion, this is the most comprehensive book currently available on crystal growth and morphology.

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The Gem Merchant: How to Be One, How to Deal with One, 2nd Edition

By David Stanley Epstein, 158 pp., illus., publ. by Gem Market Publications, Piermont, NY, 2003, US\$20.00*

Gem merchant David Epstein accurately covers many of the details involved in the daily practice of his

profession. Every retail jeweler, manufacturer, and gemologist should read this book in order to better understand the responsibilities and risks gem merchants assume when pursuing loose stones for their clients. Although there is valuable advice for anyone considering a career in gemstone trading, Epstein aptly states that this book was written more for jewelers and manufacturers.

The book is divided into four major sections: buying, marketing, cutting, and general information. The discussion assumes a basic knowledge of gemstones and the industry, and the author's warnings and advice should deter those who are not willing to take the necessary risks. This is, after all, an industry that rewards the very few who have the endurance and patience to accept the learning curve that comes only with time and experience.

The book's first section focuses on buying and the need for product education and experience to accurately determine quality and value. Epstein also mentions the importance of keeping track of all purchases and expenses. Principles of gemstone trading and valuation are addressed, with tips on assessing such factors as cut, color, size, and pricing. The illustrations are accurate and easy to understand. This section also teaches the buyer to

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beware of supply and demand factors that dictate price and to always remember that gem supplies are finite. In one of the most important features of this chapter, Epstein gives sound advice on how to travel safely, stay incognito, keep goods close, use local assistants or contacts, and be aware of local trade customs.

The second section contains many useful strategies for successful marketing and sales. The first and most important step is to develop and write out a marketing plan. He explains the five steps of closing a sale by including excellent examples of evaluating and developing a customer's "attention, interest, conviction, [and] desire," and then closing the sale. The section devoted to purchase control sheets and order forms seems to focus more on Epstein's personal methods of inventory control and management than on the general idea of record keeping and good accounting practices. Epstein also gives sound advice on how to properly use the Internet as a communication and sales tool.

Section three, titled "Cutting (Manufacturing)," starts out with a strong warning to the uninitiated: Successfully buying and cutting rough takes practice, experience, and time. This section continues with valuable information on how to grade and value rough gems properly. Once again, the focus is on experience and exercising caution when venturing into the evaluation of rough. He addresses many of the basic tips that wholesalers apply by providing some useful examples and illustrations. This section ends with recutting (poorly cut, damaged, or worn gems) and contract cutting. In my opinion, however, these topics should have been featured at the beginning, since they are skills that one should acquire before cutting from rough.

The final section addresses general topics and is full of excellent advice. One of the best is the suggestion that one rely on comparison stones when buying gems for which subtle differences in color are important. Since

even highly trained graders have lapses in color memory, comparison stones can help the gem dealer avoid costly mistakes. Epstein also describes the ideal color range of some of the most commonly traded gems. This section continues with illuminating examples of shams, scams, and rip-offs, as well as what one should look for in a reliable and trustworthy gem merchant. The major international gem trading centers are also briefly described and put into context by tracing their historical development and significance.

My favorite part in this final section, however, is the author's historical analysis of the gem trade. In it, he addresses the conflicting views associated with gemstone grading, past and present economic trends, the fragmentation of the colored stone industry, advances in shipping and transportation, exploration breakthroughs, and gem prices and profit margins. Epstein concludes by predicting that, because of greater competition, the gem industry will become more specialized as gem merchants are forced to focus on particular areas of expertise. These merchants will have to take advantage of innovations and use them to their advantage to compete in the rapidly changing marketplace.

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Arts and Crafts to Art Deco: The Jewellery and Silver of H. G. Murphy

*By Paul Atterbury and John Benjamin, 183 pp., illus., publ. by Antique Collectors' Club, Suffolk, United Kingdom, 2005. US\$69.50**

Too often, the masters of our time are admired for great works during their lives, only to be quickly forgotten after their demise. Occasionally, though, definitive works find their rightful path back into the limelight to be appreciated by new eyes. Harry Murphy is such an artist deserving

our attention: His work from the early part of the 20th century has a distinct look, is outstanding in quality, and features a range of styles from Arts and Crafts to Art Deco with a modernist flair.

Published as a companion to a recent Goldsmith's Hall exhibition of items from Murphy's Falcon Studio workshop, this book can also stand alone as a reference for the aspiring artist. For the designer, silversmith, and goldsmith, studying Harry Murphy's work is a lesson in mastery of gold, silver, enameling, niello (black alloy used as inlay), and engraving.

An Englishman, Harry Murphy had a brush with greatness while still a child, when his artistic talent was recognized by William Morris, the famous British craftsman and designer. With that encouragement, Murphy pursued his talent and apprenticed with the prominent Arts and Crafts master of his time, Henry Wilson. There he learned the intricacies of enameling and niello, which he perfected to the point where it was sometimes difficult to tell the two artists' work apart. Later, Murphy studied briefly with the renowned German jeweler and silversmith, Emil Lettré.

But Harry Murphy was not a copycat. As he perfected each classic art form, he often married it with modernism, making his work fascinating and unusual. Many of his pieces featured the tree of life, signs of the zodiac, or elaborate finials. He kept pace with changing art trends as tastes moved from Arts and Crafts to the more modern Art Deco. Yet in other works, he was completely practical and tailored his designs to meet the needs of his commercial and ecclesiastical clients. Murphy always struggled to keep his studio profitable, so he recognized the importance of building business through civil and corporate works. The range of pieces he tackled is notable and evidence of his true talent as a craftsman.

This book serves as a valuable showplace for his works. Featured are various examples of the artist's jewelry and domestic silver, many of which

are amazing and intricate examples of enameling. There is a comprehensive biography, numerous color and black-and-white photos of works in silver and gold (many gem-encrusted), civil and corporate work, trophies, works for the church, studio memorabilia, fascinating illustrations and brainstorm sketches by the artist himself, and extracts from Murphy's writings on related subjects. The book is divided into six sections. While the storytelling meanders a bit, with some redundancy, overall this is a fascinating documentation of Harry Murphy's work. The reader gets a comprehensive picture of this talented man's life and creative output, drawing inspiration from it. I found myself saying "Wow!" aloud several times as I looked at this work, and I suspect any bench jeweler, enamel artist, or designer will, too.

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Daniel Swarovski: A World of Beauty

*Text by Vivienne Becker, produced under the direction of Markus Langes-Swarovski, 139 pp., illus., publ. by Thames & Hudson, New York, 2005. US\$75.00**

In 1895, a Bohemian craftsman named Daniel Swarovski (1862–1956) moved to the small Austrian village of Wattens to set up a factory specializing in the manufacture of cut crystals. Swarovski, a technical virtuoso who had already invented the first precision machines for cutting and polishing crystal, dreamed of unlocking the glamour of the material. The company he built became a renowned leader in the fashion and jewelry industries during the 20th century, and today it produces billions of cut crystals annually. The Daniel Swarovski collection, launched in 1989 as the company's couture signature, has continued the

founder's spirit with an assortment of innovative jewelry, watches, fashion accessories, and design objects.

Daniel Swarovski: A World of Beauty is a salute to the collection's 15th anniversary. At 10 × 13 in. (25.4 × 33 cm), the book is replete with large, radiant photos of creations from the eponymous collection. The lean text, written by jewelry historian Vivienne Becker (*Art Nouveau Jewelry, Fabulous Fakes, and Swarovski: The Magic of Crystal*), begins with the remarkable story of Daniel Swarovski. Subsequent chapters eloquently pay homage to the allure of glass crystal while offering a behind-the-scenes glimpse of the company's creative process today.

This exquisitely illustrated volume is sure to be treasured by connoisseurs of crystal jewelry and accessories.

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