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BOOK REVIEWS

The Photo-Atlas of Minerals. By Anthony Kampf and George Gerhold, editors. Gem and Mineral Council, Los Angeles County Museum of Natural History, 900 Exposition Boulevard, Los Angeles, California 90007, U.S.A., 1998, CD-ROM format requiring PC486-33 or better, and Windows 3.1, 95, 98, or NT. US$49.95 plus $7.50 shipping and handling.

There is much to be said for the concept of a CD-ROM mineral database. Computers can do wonders for a subject that relies heavily on one's ability to cross-search a database at various levels from the simple alphabetical to the cation content. Above all, such a search is at its most useful when it can be accomplished in a simple, intuitive manner. It is unfortunate, therefore, that the creators of this CD chose to restrict it to the awkward interface of the Windows operating system. While initial setup is not difficult, it does involve the creation of a folder or directory at the root level of the hard drive, a non-intuitive process foreign to those accustomed to the ease of use of the Macintosh. A trip to the web site reference on the cover of the CD-ROM reveals that the application used to create the Photo-Atlas (SuperLink) does not have Macintosh capability, and offers the suggestion that the Mac user should buy a PC emulator to gain compatibility. That's a little like suggesting that if your car doesn't run on hay you should buy a horse to tow it from place to place.

Once installed, the CD may be accessed using standard point-and-click mouse techniques, but the lack of a menu bar, and a concentration on linear repeated steps to navigate from one area to another, give it the look and feel of an older, more cumbersome design. It is much simpler to go to a menu bar and select an option than to navigate backward through a series of screens that offer ever less detailed menus until one arrives at the desired location. The current interface gives the impression that the design of the CD was begun several years ago when operating systems were more limited in scope, and that it was not revised when their capabilities improved. In addition, although the advertising claims that the photographs are of high resolution, use of a 640 × 480 screen does not imply high-resolution performance in 1999.

Taken at first glance, the contents of the CD are comprehensive. The opening screen offers the user six options: *Introduction*, *The Minerals*, *Glossary of Mineral Terminology*, *Identification Game*, *Slide Show*, and *Credits*. Clicking on *Introduction* takes the user into a step-by-step tutorial explaining the functions of various buttons and screens, and the methods of navigation. A second tutorial, once the basics have been grasped, explains how to add user notes (the reason for the installation of that root-level folder) or bookmarks, or how to set up lists and compare photographs. The tutorials are necessary, for the navigational pathways are not intuitive. For example, after one has spent some time admiring a nice photograph of a mineral specimen and reading the screens brought up by the buttons for *General Information*, *Physical Properties*, or *Crystallography*, it is not intuitive to have to click on the button for *Photo Gallery* to bring up another button saying: *Select Mineral*, which allows the user to proceed to the next choice. Once learned, however, the process for going from one screen to another becomes a relatively simple matter of repetitive clicking.

The CD claims to have 6,500 high-resolution images and some 4,000 mineral species. Unfortunately, the image files cover only 800 species. That, in itself, is not surprising. After all, many mineral species are non-photogenic. There isn't much point in showing shot after shot of white or brown powders or metallic grains locked in rock. However, one scarcely needs 43 photographs of adamite, of which some 28 are from one locality, the Ojuela mine. In this CD, some species suffer from severe illustration overkill.

The photographs themselves are a mixed bag. For the most part, those taken by Wendell Wilson, editor of *The Mineralogical Record*, are excellent, in keeping with his reputation as an artist with the camera. Unfortunately, the same cannot be said for many of those taken by Louis Perloff. I have admired Perloff's work for more than 25 years, and can state plainly that he is not well represented on this CD. There is no question that photomicrography is immensely difficult. The photomicrographer is faced with a vanishingly small depth of field, little choice of background, long exposures that lead to reciprocity failure in the film, specular reflections that cannot be avoided, and specimens that are often at the bottom of a hole or shielded by other crystals. I have taken many thousands of photomicrographs and have only a few dozen that I like. Perloff has taken thousands more, and succeeded better. I've seen them. That is why it is surprising to find that so many of his photomicrographs on this CD are cursed with muddy, grainy color, and appear to have the contrast cranked up well beyond acceptable levels. Part of the problem may lie with the scanning conditions employed. Unfortunately, normally, "acceptable" flaws common to photomicrography seem to have been emphasized. For

example, one image of genthelvite has a huge reflection that overpowers the entire photograph. Crystals taken at high magnification often have blue haloes, made even more visible by the extreme contrast. Most of these faults could have been minimized by judicious application of a corrective application such as Adobe PhotoShop before the image was graded as being acceptable for burning to the CD.

After one has taken the introductory tour, and mastered the procedures, the *Mineral Indices* screen offers two choices: one may proceed to *All Minerals* or *Illustrated Minerals*. Whatever the decision, one can then select a particular species by *Name*, *Synonym/Variety Name*, *Strunz System*, *Metallic Element*, *Location*, *Crystal Class*, *Hardness*, *Specific Gravity*, or *Luster*. In the version provided for review (Version 1.0), searches must be made on the basis of a single variable. The web site states that Version 1.1 allows multiple combinations of search variables. Choice of a given variable brings up a series of screens, each screen being one "step" more detailed than that preceding. For example, *Location* brings up a screen with countries; choosing a country brings up a list of localities within that country, and choice of a locality brings up a list of minerals found there. Unfortunately, choosing *Location* also brings up a dialogue box indicating a 261 error. Clicking "OK" in the dialogue box does make it go away, so that one can carry on with the selection, but it is annoying. I tried this on two different computers and got the same result each time, so it is an idiosyncrasy of the CD, not the computer itself. There are also some minor typographical errors in the lists. For example, Madoc, Ontario, is given as "Modoc", and for Mont Saint-Hilaire, the mineral labuntsovite is spelled "labuntsonite". They are minor errors, but they do indicate a lack of attention to detail not in keeping with quality work. Similarly, the locality Mont Saint-Hilaire is written as Mont St. Hilaire. That's half English, half French. Also, although it is legitimate to list only a few of the more than 320 minerals found at Mont Saint-Hilaire, it is odd that eudialyte should be one of those omitted from what is essentially an alkaline complex.

In spite of my quibbles, the CD has many good points. Calling up one of the illustrated minerals brings forth a green "card" with a photograph of the mineral. Beneath the photograph is an identification of the specimen illustrated, including its locality. At the top of the "card" is the mineral name in bright yellow. Clicking on the name (assuming the PC is equipped for sound) results in its pronunciation by a slightly mechanical masculine voice. I didn't check some of the trickier ones such as högbomite, but those I did check were reasonable, if a little stiff. With respect to the names in general, however, the CD is uneven. Högbomite does have the diacritical marks preferred by the IMA, but sérandite does not. It should be all one way or the other. If there is more than one photograph of a species, a button for *Photogallery* appears at the bottom right of the "card". Clicking here brings up a layout of thumbnails of the other illustrations. If there are several from one locality, the thumbnails may be layered to indicate availability. Thumbnails can be enlarged to the standard size, or moved for comparison purposes.

Alongside the *Photogallery* button are others for *General Info*, *Physical Properties*, and *Crystallography*. Clicking on *General Info* brings up a small table at the right hand side of the mineral photograph containing information such as: Formula, Strunz Number, Origin of Name, Synonym, Variety, and, if necessary, Series. *Physical Properties* gives Color, Streak, Luster, Hardness, Tenacity, Specific Gravity, and Cleavages, while *Crystallography* reveals System, Class, Twinning, Unit Cell and Habit. Many of the titles, and some of the descriptive words, are highlighted in blue. The color indicates linkage to definitions or to further information. For example, clicking on highlighted "Specific Gravity" brings up a glossary definition of the term. For scheelite, on the *Crystallography* screen, clicking on "Class" provides a definition of the term itself, whereas clicking on "4/*m*" brings a screen with diagrams illustrating the forms of the tetragonal dipyramidal class and their Miller indices. Unfortunately, the Miller indices are given with minus signs instead of the traditional bar. It has taken computers a long time to come to grips with some symbols, but the technology is available today and could have been used.

Actually, the blue-highlighted links can lead to considerable time diversion, since they appear in each screen and the tendency is to follow from one to the other in a sort of paper chase. It's fun and undoubtedly highly educational, but one can suddenly find oneself a long way from the original aim of checking on a particular mineral.

Although the "card" itself applies to the species in general, the identification of the particular specimen illustrated is given in a caption underneath. Clicking on the locality shown in the caption brings up two thumbnail maps in the upper left of the screen. The top map shows the continent in question, with the country or state marked in red. The bottom shows an enlarged version of the country or state with the locality (accurate to about 20 km or so) marked as a red dot. A subsequent version ought to include something like the GEOLOC coordinates developed by Louis Moyd (1990: Proc. Fourth Int. Conf. On Geoscience Information; *Geol. Surv. Can., Open File Rep.* **2315**, vol. 2, p. 321), which place localities within 100 meters.

The *Print* button allows printing of the photograph itself or of the accompanying descriptions. Version 1.0 will print only one of the descriptive screens at a time, but Version 1.1 claims to be able to combine them.

For minerals that lack illustrations on the CD, the display is considerably simpler. *Selection* brings up a screen with the look and feel of a Rolodex card. This time, clicking on the name elicits no response. Apparently only those minerals graced with photographs are worthy of a spoken name. Other than that, the screen displays essentially the same information as before.

The glossary is an excellent idea, and on the whole is well done, although it suffers from the occasional lapse. Where possible, it includes photographs and drawings to illustrate features like twinning and crystallographic forms. Its occasional lapses may be the result of attempts to compress information too much, or to do things in a hurry. Like the rest of the CD, it shows a lack of editorial acuity. For example, it contains the word "quatravalent", defined as: "Cation having a charge (valence) of 4". "Quatravalent", to my knowledge, is not a legitimate term. I suspect that whoever was creating the glossary became confused between "quadrivalent" and "tetravalent". The glossary contains a disclaimer stating that some definitions have meanings special to mineralogy and are not necessarily the same as those used in other disciplines. However, it's fair to say that a definition isn't worth much unless it's a universal definition, especially in the sciences.

So far, my quibbles have been about design, ease of use, or minor glitches. What about the information itself? Clearly, one can't do an item by item comparison with Nickel and Nichols or Fleischer and Mandarino. Random sampling attests to reasonable accuracy, but there are some doubtful areas. For hochelagaite, for example, it states that the name is: "After locality, Hochelaga, Algonquian name for Montreal." Well, Hochelaga was the name for Montreal, but the locality itself is the Francon quarry in the Saint-Michel district of Montreal. There are more flagrant lapses. The description of manasseite says that it is a bluish white mineral crystallizing in the dihexagonal dipyramidal class *6/m2/m2/m*. However, the photographs show an orange-yellow mineral, with distinctly trapezoidal faces. They fit neither the physical description nor the symmetry. Furthermore, the locality is Jacupiranga, Brazil. That the material from Jacupiranga was not manasseite was known well before 1992. This CD is dated 1998, indicating that someone hasn't been paying attention.

Searching through the *Synonyms/Variety names* yields bambiccite as a synonym for hartite, sapparite as a synonym for kyanite, and oligonite as a synonym for siderite; all things interesting to know, and useful to have at hand. The game, while intriguing for a while, is really an exercise in recognizing photographs rather than minerals. In many instances, the photographs are representative of the species, but in others they are not, and so fail to really add to one's knowledge, although they could add an element of confusion.

In summary, *The Photo-Atlas of Minerals* is a great idea with some very useful attributes, and a lot of mostly excellent photographs. It also has some major flaws and many minor editorially annoying ones. It has an out-of-date feel and a quirky interface, but it does work. Currently being updated, it is relatively cheap. Although not a product for professionals, the *Photo-Atlas* should certainly prove useful for schools and amateur collectors who can use it as part of a learning process.

Quintin Wight
525 Fielding Drive
Ottawa, Ontario K1V 7G7, Canada

Tsumeb. By Georg Gebhard, 1999. 328 pages, hardbound. GG Publishing, Grossenseifen, D-51545 Waldbröl, Germany. $149 (US).

This impressive English-language volume is sometimes referred to as *Tsumeb II* in contrast to the earlier published German version, which also is called *Tsumeb*. Nowhere in this book or on its dustcover did I see the title *Tsumeb II*. I do not own a copy of the earlier version, so I was not tempted to write a comparison of the two. In any case, this volume deserves a review on its own merits. The translation from the author's original German to English is generally good. There are a few errors in the Table of Contents, mostly in terms of pagination, although there are four subsection titles that are not listed. The major sections of the book (and the number of pages within them) are: From a Green Hill to a Mine (44), The Deposit (6), The Ore-Body (10), Life in Tsumeb (30), Collecting and Dealing (32), Discovery of Minerals (20), The World-Famous Minerals (93), The Rarities (29), Other Minerals (14), Still Unknown (6), Pseudomorphs (4), Curiosities (10). These are followed by seven tables (occupying 10 pages) and a three-page bibliography. For the philatelically minded, the last page of the book shows stamps and postmarks pertaining to the mine and its minerals.

No book is perfect, and those in search of errors will find some here. For example, the table listing the species in alphabetical order has 242 entries, but the table listing them according to chemical composition has 243 entries; the name missing from the first table is calciovolborthite which, incidentally, needs more study. I discovered several misspelled mineral names while comparing these two tables. Although the tables are not numbered, I have placed 1 or 2 after each name to indicate the alphabetical and composition tables, respec-

tively: betechtinite (2) instead of betekhtinite (1), glaucodote (2) instead of glaucodot (1), linneite (1 and 2) instead of linnaeite, metacinnabarite (1 and 2) instead of metacinnabar, hydrozinkite (1) instead of hydrozincite (2), devillite (1 and 2) instead of devilline, agardite(Y) (2) instead of agardite-(Y) (1), andyrobertsite-(Ca) (1 and 2) instead of calcio-andyrobertsite, andyrobertsite-(Cd) (1 and 2) instead of andyrobertsite, lavendulane (2) instead of lavendulan (1), o'Danielite (1 and 2) instead of o'danielite, kaolite (2) instead of kaolinite (1), palygorscite (1 and 2) instead of palygorskite, plancheite (1 and 2) instead of planchéite. In addition, chalcophyllite is given as chalcophyllite ? in (1) and chalcophyllite in (2). Oligoclase is treated as a species (which it is not), and quartz is placed under oxides rather than silicates in (2). There is a table of Varieties that probably should have been omitted, as it contains names that are best ignored.

The Tsumeb deposit in Namibia is without doubt one of the most prolific mineral localities on record, with 242 characterized species and another 38 probable new species currently under study. But Tsumeb's fame lies not only in such numbers, for it has produced the world's finest specimens of some of these species. It is also the only known source for 42 species. It is fitting that Dr. Gebhard gives the subtitle as "A Unique Mineral Locality".

To say that this book is profusely illustrated is akin to saying that the Taj Mahal is a nice-looking building! Color photographs of many of the more spectacular specimens appear with some of them as double page features. By and large, most of these photographs are of excellent quality. On the negative side is the absence of photographs of many of the rare species such as fleischerite, gaitite, prosperite, *etc.* Inclusion of photographs of these species would have enhanced the book. In addition to the color photographs, there are many black and white photographs, some taken near the turn of the century, mostly of the mine workings and of many of the people associated with the mine. Several engravings are reproduced as well. As a person with a great interest in morphological crystallography, I was pleased to see about 40 crystal drawings. Unfortunately, most of these appear to have been taken directly from the original publications in which they appeared, and the quality of the lines is not good. Also, about one-fourth of the drawings are incorrectly positioned on the pages; the original drawings are correct, but they have been placed in "skewed" positions. This is made more apparent by the letters on the faces, which are not "right side up". The most glaring example involves two drawings of dioptase on facing pages: on 198 the drawing is correct, but on 199 the drawing is upside down. One of the features of this book that enhances the color illustrations is the quality of the paper used. This paper is so thick that several times I had the impression I was turning more than one page.

The aim of this book is *not* to give in-depth scientific information on the minerals of Tsumeb, but it presents a fascinating and extremely readable history of the deposit. I freely admit that I read the entire book (all 328 pages) in two sittings. A bibliography of 221 entries points the reader to most of the descriptions of the rarer species. Another interesting feature of the book is the reproduction of many old specimen labels, which add to the history of collecting at the locality.

In spite of the few negative comments given above, I heartily recommend this book to anybody interested in minerals.

Joseph A. Mandarino
Toronto, Ontario, Canada