MISSING MINERALS

Two considerable tasks separate the (assumed) discovery of a new mineral and the final publication in a scientific journal. It is usually easy to decide whether a certain phase might really be a new mineral, at least if its chemistry and structure are known to a certain degree: just consult a good database (e.g. MINERAL of MDI, authored by Ernest Nickel and Monte Nichols), or simply ask the chairman of the IMA Commission on New Minerals, Nomenclature and Classification (CNMNC) to check his internal commission database, for example, to be sure that nobody else has made the same discovery a few days earlier.

Completing the checklist suggested by the CNMNC is the first hard job for the lucky finder(s) of a new mineral. Many data have to be gathered, often on tiny amounts of material, not only on composition and crystallogaphy, but also on physical and optical properties (where can you get nowadays the refractive indices of a non-opaque mineral or the reflectance values of an opaque one?). In some mineral groups, an extensive single-crystal study is mandatory (e.g. in the eudialyte group). Modern analytical techniques enable one to perform complete chemical and crystal structure analyses on nanometer-scale volumes, and several extremely small-sized minerals have been approved by the CNMNC in recent years. These mini-micro-minerals are in a way easier to describe than the big monsters of one cm and more: properties such as hardness and refractive indices of tiny minerals cannot be seriously required, although some hardliners within the CNMNC still consistently vote against such "partially described minerals." After the eventual approval of the new mineral by the CNMNC, a second time-consuming activity is asked of the author(s): preparing the manuscript for the final descriptive paper, and going (once more) through a peer-review procedure.

In a time when working on systematic mineralogy sometimes is compared with compiling a telephone directory (useful, but why should *you*, of all people, do it?), it should not be surprising that the process described above is not always successfully completed, or rather, is slowly brought to an end. The characterization of a new mineral may prove to be too difficult to finish (and I could list several reasons for that), or other scientific duties may be more compelling than writing a manuscript on some exotic phase (and the list of reasons would probably get even longer).

The CNMNC approves about 50 to 60 new minerals yearly, and authors are currently required to publish their data within two years of being notified of the approval. That period is probably too short—journals need considerable time for peer review and production of the hard copy—but most new minerals are published in due time. There are some exceptions—some new minerals indeed seem to get lost, although their number is not very large. Of all minerals approved between 1959 (start of the CNMNC) and 2000, only five are missing from the literature. Eleven minerals approved in 2001 to 2003 and about ten approved in 2004 have not yet been published. The five minerals in danger of being lost forever are 68-003 (but the CNMNC chairman is in a rescue operation with Carl Francis from Harvard), 77-006 (mentioned several times in the literature), 78-064 (but probably approved with fake data), 87-046 (also being rescued), and 98-018 (publication delayed because of discussions on a new nomenclature scheme for its group).

From time to time, other minerals (or their numbers) approved in the past pop up when sifting through the CNMNC archives, but such cases are solved through the dusty efforts of Bill Birch, the CNMNC secretary, responsible for a mountain of paper archives accumulated over almost 50 years.

Ernst A.J. Burke
CNMNC Chairman