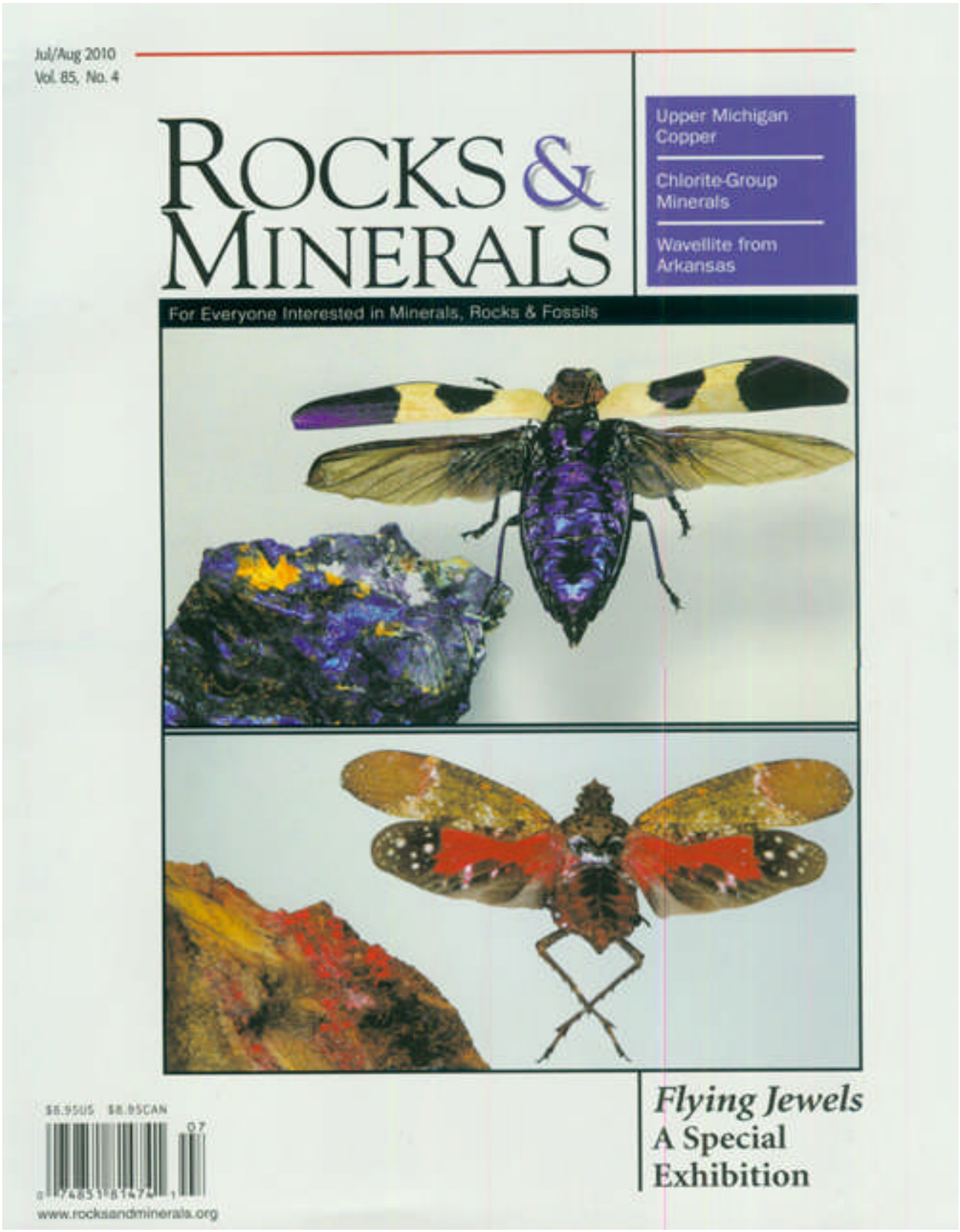
Rocks & Minerals Ausgabe Juli / August 2010



Flying Jewels

A Celebration of Color and Pattern in the Mineral and Insect Kingdoms

Many of us who are avid mineral collectors consider visual aesthetics to be a prime factor in the selection of our specimens, crystals, or polished rock slices. Who hasn't admired the beautiful colors of a fine tourmaline or wulfenite, the iridescence of polished labradorite, or the play of pattern and color in an agate slice? Even in more mundane rocks, the patterns formed by mineral inclusions, crystal structures, and layered sediments are often eye-catching in their symmetry and color variations. The insect world is equally beautiful and varied in color and form, perhaps no more so than in the wings of exotic butterflies and moths. The carapaces of tropical beetles, as well, can be jewel-like, and some of these "flying jewels" have indeed been worn by humans as ornaments.

In October 2009, the crowds at the annual Munich mineral show were treated to a first look at a very special collection that closely pairs the colors, textures, and patterns of the mineral kingdom to their counterparts in the insect world. The result is a beautiful and sometimes breath-taking exhibition of how form, pattern, and color are echoed throughout nature, as even the tarnishing and annealing colors of many ore minerals, sulfides, oxides, and metals are matched with nearly identical displays throughout the insect world.

Some butterflies and moths are camouflaged via the pigments and textures of their wings and bodies to blend into their surroundings or to mimic other species that are toxic or otherwise less attractive to predators. The matching of mineral and insect colors and patterns exhibited in the *Flying Jewels* display, however, go far beyond such survival

---

Joan Kureczka is a longtime mineral collector, writer, and partner in UK Mining Ventures.

Dr. Ulrich Burchard is an exploration geologist, dealer in minerals and historic scientific instruments, and author of Mineral Museums of Europe *(Walnut Hill Publishing, 1986) and various articles on mineralogical instruments.*

JOAN E. KURECZKA
PO Box 77774
San Francisco, California 94107
jkureczka@comcast.net

ULRICH BURCHARD
Schlossstr. 6
D 85354 Freising, Germany
ulrich.burchard@t-online.de

Figure 2 (above). Turquoise and *Eupholus browni* from Papua New Guinea; Peter Hirschberger photo, Munich.

Figure 3 (left). Aragonite from Steiermark, Austria, and *Zikade* sp. from Mexico; Peter Hirschberger photo, Munich.

Figure 4 (below). Labradorite from Labrador and *Morpho didius*; Herbert Bungartz photo, Freising.

Figure 1 (left page). Agate from the Korsakow Mountains, Bohemia, and *Marpesia coresia* from Equador; Herbert Bungartz photo, Freising.

Figure 5 (above). Uvarovite from the Saranу Mountains, Urals, Russia, and *Chrysophora chrysophora* from South America; Goran Nitschke photo.

Figure 6 (top right). Fuchsite from Happ, Austria, and *Mantis* (unknown species and location); Goran Nitschke photo.

Figure 7 (center center). Agate from Brazil and *Tosena albata*, Thailand; Goran Nitschke photo.

Figure 8 (right). Gypsum from Kyffhäuser Mountains, Germany, and *Thysianna agrippina* from Peru; Goran Nitschke photo.

strategies to illustrate a more fundamental phenomenon: the repetition of pattern and color throughout the natural world.

Patterns in nature result from the interplay of both structures and processes, directed by dynamic changes that occur over time. They reflect chemical or physical forces interacting according to scientific and mathematical principles. As such, these patterns provide a clear illustration of the underlying mathematical order in nature. That order leads to the repetition of many basic patterns and combinations recurring on widely different scales and in things as seemingly unrelated as butterflies and agates.

Figure 9. From left, coauthor Ulrich Burchard, collectors Markus Klein and Robert Jakob, and entomologist Eckhard Wierig; Goran Nitschke photo.

The Collectors

Robert Jakob, one of the two organizers of *Flying Jewels*, began collecting natural objects such as sea shells, bird eggs, fossils, and insects—as well as rocks and minerals—as a child. He recalls obtaining his first mineral specimen at the age of eight, when he exchanged some comic books for a specimen of synthetic silicon carbide whose large crystals displayed an iridescent array of colors. As a youth, collecting minerals gradually took priority over most other objects, with his collection including a great variety of polished agate and petrified wood slabs as well as rough metamorphic rocks and ore samples. Robert says his main impetus was the demonstration of different textures, figures, shapes, and color tints that could also be found throughout the biological world.

In 1998, a large part of Jakob's collection and a corresponding collection of orchids assembled by his partner, Markus Klein, was devastated by theft. Rather than attempt to replicate their original collections, the partners, both of whom are from Munich, embarked on a new course: to compare and contrast the aesthetic appeals and perceptions found throughout the geologic and biological worlds through a unique collection that closely pairs the colors, textures, and patterns of rocks and minerals to their matches within the insect kingdom.

Figure 10 (above). Agate from St. Aegidien, Saxony, Germany, and *Euhasia maja* from Kenya; Goran Nitschke photo.

Figure 11 (top right). Fluorite from Wölsendorf, Germany, and (small) *Argynnis pandora* from Kyrgyzstan and (large) *Heuschrecke* sp. from Africa; Peter Hirschberger photo, Munich.

Figure 12. (right) Crocoite from Tasmania and *Appias nero* from Indonesia; Peter Hirschberger photo, Munich.

Figure 13. Banded marble from Münsingen, Württemberg, Germany, and *Archaeoptreoma amphimochus* from Central America; Goran Nitschke photo.

Figure 14. Gypsum from San Luis, Argentina, and *Argema mittrei*, Madagascar; Goran Nitschke photo.

Figure 15. Aragonite with aurichalcite inclusions from Paramea, Spain, and *Actias selene* from India; Peter Hirschberger photo, Munich

This special collection grew slowly through the years, providing the collectors much enjoyment each time a new mineral and insect pair was added. Because both men are professional theatrical make-up artists with a trained eye in discerning shadows and tints of colors, their profession conveyed an advantage for recalling patterns and colors when hunting for a perfect match. They obtained rocks and minerals at various mineral shows and corresponding butterflies at entomological events. All of the butterflies and other insects are from far-flung worldwide localities, as are the minerals. In some instances, they found small butterfly collections through advertisements via the Internet or when an estate was broken up. Jakob notes that although putting together the collection took many years of careful hunting, it was assembled on a relatively low budget. So far, the collectors have acquired approximately 150 analogous pairs of rocks and insects that show startling similarity of colors and textures.

Until 2009, only a few of their friends knew about their hobby. It was then that Uli and Karin Burchard, longtime members of the mineral collecting community, proposed its exhibition at the 2009 Munich *Mineralientage*. A display of part of the collection was organized and shown to an overwhelmingly enthusiastic audience. Since that time, *Flying Jewels* has been the subject of several additional exhibitions throughout Germany.

This fall, a greatly expanded display of *Flying Jewels* will be one of the highlighted exhibitions at the 2010 Munich Show (29–31 October). Moreover, the collectors plan to release a book with both German and English text to bring their work to a larger audience; publication is planned for the book's availability at the 2010 Munich Show.

ACKNOWLEDGMENTS

We thank Markus Klein and Robert Jakob for providing the photos by Peter Hirshberger and for reviewing the manuscript, Johannes Keilmann for providing the photos by Goran Nitschke and Herbert Bungartz, Günther Neumeier for providing additional research assistance, and Karin Burchard and Jesse Fisher for reviewing the manuscript. ❑