

PREFACE

Petrologic Mineralogy—the study of minerals in context: A memorial in honor of Charles V. Guidotti

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This special issue of the *American Mineralogist* honors the memory and life's work of our friend, colleague, mentor, and consummate teacher of mineralogy and petrology, Charles V. Guidotti (1935–2005). These papers were largely derived from a special topical session held in his honor at the 2006 Annual Meetings of the Geological Society of America. The session provided an opportunity for mineralogists and petrologists inspired by Charlie's example and teaching to present their latest research. Topics presented both orally and in posters included the crystal chemistry of a variety of minerals, chemical composition of metamorphic and igneous rocks, origin of unusual metasedimentary rock bulk compositions and their relation to the minerals composing them, responses of mineral assemblages and compositions to variations in intensive variables such as pressure, temperature, and activities of fluid components, and behavior of minerals and rocks during deformation. In this special issue, we present 17 papers that reflect some of the breadth presented at that meeting, but represent only a part of Charlie's interests across the spectrum of field geology, mineralogy, and metamorphic petrology.

Charlie was born in Somerville, Massachusetts, but spent his childhood on the family farm in Hudson, where his love of horticulture first began—a talent amply manifested in his showcase home gardens wherever he lived. He graduated from Yale in 1957 and earned his Ph.D. from Harvard in 1963. He started out as a research assistant and then advanced to assistant professor at the University of Minnesota, University of California-Davis, and University of Wisconsin-Madison, where he became full professor in 1973. In 1981, he decided to move to the University of Maine in Orono in order to live close to the areas where he had been carrying out his fieldwork since the early 1960s.

Charlie's career-long involvement in the metamorphic geology of Maine began in the western part of the state where he mapped and studied the metamorphic rocks of the Bryant Pond 15 minute Quadrangle. He soon expanded to the Rangeley-Oquossoc 15 minute quadrangles, where he returned to collect samples periodically until the summer of 2004, his last field



Charles V. Guidotti most loved spending time in the field with colleagues and students. He is shown here in 1994 surrounded by students, bent over the bedrock geology map of Maine that he helped create.

season. Over the years his wife Barbara and children Gretchen, Amy, and Vincent often served as field assistants—even when Barbara was pregnant with their eldest daughter Gretchen. Amy seemed to enjoy the hiking most. Charlie would help Vincent get into “hockey shape” by starting the day with a full pack of float rocks and then systematically refill the pack with the day's samples. Barbara spent so many summers helping that Charlie started using her initials in his sample numbering scheme—some of us are still working on a suite of CG/BG samples!

For students and colleagues, time in the field with Charlie was always much anticipated. Such trips were full of surprises: timely handouts of apples and peanuts, tidbits of geologic knowledge, birds, stories about encounters with animals, and tales of people on similar trips in similar locations. Charlie especially liked to illustrate talking points with stories from his childhood. He took great delight in stumping his mineralogist colleagues in the field by identifying minerals that were nearly too small to see (recognizable solely on the basis of assemblage!). Charlie's intellectually stimulating, provocative, and challenging demeanor led to many lobster dinner wagers on the outcrop over the identity of

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minerals, rocks, fabrics, birds, etc. Given his notoriously frugal nature, he did not take well to losing such wagers!

One of Charlie's basic tenets was that minerals and rocks are chemical systems that should be studied in context, and not in isolation. He felt that the instrumentation and methodology now available to mineralogists and petrologists, such as Mössbauer spectroscopy, crystal-structure refinement, and element mapping and imaging with the electron microprobe, should be applied to rock-forming minerals of wide interest and relevant to the understanding of crustal processes such as orogenesis. His own research focused on micas, but was not confined to them; he had also worked on alkali feldspars, tourmaline-group minerals, ilmenite-group minerals, chlorite, and staurolite. He also enjoyed geologic mapping and authored several published quadrangle maps, all in the state of Maine.

Charlie's horizons gradually expanded to more general problems of the metamorphism of pelitic rocks, as did his international collaborations with specialists in petrology, mineralogy, crystallography, and mineral physics. His main research fields included:

- The regional metamorphism of Maine and northern New Hampshire, with particular regard to isogradic reactions and the metamorphism of medium- to low-pressure metapelites, and applied to interpretations of Appalachian geology;
- Sulfide-silicate phase relations and their relationship with metamorphic volatiles, including the implications of the deposition of black shales; and
- Petrologic mineralogy of solid solutions in metamorphic rocks, with particular regard to micas; here he supplemented traditional methods with new techniques as they were developed.

Charlie was active at conferences (he coauthored about 100 abstracts) and published more than 100 papers, at least 16 of them after he was 65 years old. Contributors to this special issue cite many of Charlie's papers. He was especially proud of the *Laurea honoris causa* in Geological Sciences that he received from the University of Padova, where he was a frequent visitor.

Charlie is remembered for his lively mind, insightful observations, quick wit, sharp and barbed tongue, unflappable honesty and integrity, self-deprecation, and humility, and his mischievous sense of humor. Most of all we miss the infectious enthusiasm and joy Charlie brought to the collegial pursuit of our science.

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