

PRINCIPAL EDITORS

IAN PARSONS, University of Edinburgh, UK
(ian.parsons@ed.ac.uk)
E. BRUCE WATSON, Rensselaer Polytechnic
Institute, USA (watsoe@rpi.edu)
SUSAN L.S. STIPP, Københavns Universitet
(stipp@geol.ku.dk)

ADVISORY BOARD

RANDALL T. CYGAN, Sandia National
Laboratories, USA
ROBERTO COMPAGNONI, Università degli Studi
di Torino, Italy
JAMES I. DREVER, University of Wyoming, USA
ADRIAN FINCH, University of St Andrews, UK
JOHN E. GRAY, U.S. Geological Survey, USA
JANUSZ JANECEK, University of Silesia, Poland
HANS KEPPLER, Bayerisches Geoinstitut,
Germany
DAVID R. LENTZ, University of New Brunswick,
Canada
MAGGI LOUBSER, University of Pretoria,
South Africa
DOUGLAS K. McCARTY, Chevron Texaco, USA
KLAUS MEZGER, Universität Münster, Germany
JAMES E. MUNGALL, University of Toronto,
Canada
TAKASHI MURAKAMI, University of Tokyo, Japan
ERIC H. OELKERS, LMTG/CNRS, France
HUGH O'NEILL, Australian National University,
Australia
NANCY L. ROSS, Virginia Tech, USA
EVERETT SHOCK, Arizona State University, USA
DAVID J. VAUGHAN, The University of
Manchester, UK
OLIVIER VIDAL, Université J. Fourier, France

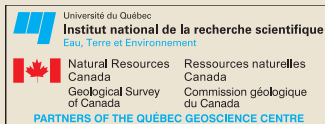
EXECUTIVE COMMITTEE

FRIEDHELM VON BLANCKENBURG,
Deutsche Mineralogische Gesellschaft
ROBERT BOWELL, Association of Applied
Geochemists
GIUSEPPE CRUCIANI, Società Italiana di
Mineralogia e Petrologia
JEREMY B. FEIN, Geochemical Society
RUSSELL S. HARMON, International
Association of GeoChemistry
JOHN M. HUGHES, Mineralogical Society
of America
CLIFF JOHNSTON, The Clay Minerals Society
DANIEL J. KONTAK, Mineralogical Association
of Canada
CATHERINE MÉVEL, Société Française
de Minéralogie et de Cristallographie
MAREK MICHALIK, Mineralogical Society
of Poland
MICHAEL J. WALTER, European Association
for Geochemistry
PETER TRELOAR, Mineralogical Society
of Great Britain and Ireland
MICHAEL WIEDENBECK, International
Association of Geoanalysts

MANAGING EDITOR

PIERRETTE TREMBLAY
treblpi@ete.inrs.ca

EDITORIAL OFFICE



490, rue de la Couronne
Québec (Québec) G1K 9A9 Canada
Tel.: 418-654-2606
Fax: 418-654-2525

Layout: POULIOT GUAY GRAPHISTES
Technical editor: THOMAS CLARK
Copy editors: THOMAS CLARK,
DOLORES DURANT
Printer: CARACTÉRA

The opinions expressed in this magazine are
those of the authors and do not necessarily
reflect the views of the publishers.

www.elementsmagazine.org



E. Bruce Watson

Risking the Future of Geoscience

Earlier this year, the University at Albany (New York) moved to terminate its undergraduate and graduate degree programs in the geological sciences. Those of us who know “UAlbany” as the former and current base of some notable Earth scientists look upon this decision with bewilderment. Before passing judgment, however, we should note that the move was initiated by academic staff in the Department of Earth and Atmospheric Sciences and does not include elimination of the UAlbany Earth sciences curricula altogether: courses and degree programs in atmospheric and environmental sciences will continue.

UAlbany is not unique. About five years ago, the University of Connecticut made a similar decision to close the Department of Geology and Geophysics and disperse the faculty to other departments.¹ George Washington University also disbanded its small but energetic Geology Department in 2003, an action that left the District of Columbia with no undergraduate program in the geosciences at any college or university.

To those of us in the field, these decisions are unsettling and seemingly counter to societal and educational needs. Geoscientists are the only scientists knowledgeable about the Earth and its key systems, many of which “serve” humankind in some manner and most of which are impacted by human activities. Knowledge of Earth systems carries with it the unique perspective of vast timescales whose record informs us about our planet’s history—key for predicting Earth’s short- and long-term futures. The Earth systems perspective now permeates our educational programs and much of the research we do, and this perspective is vital on college and university campuses today. Our students will make decisions in their lifetimes for which Earth systems knowledge is fundamental and essential, whether in the fields of resources (water, minerals, energy), global climate change, CO₂ sequestration, disposal of nuclear materials and other hazardous waste products, or in the area of natural hazards such as earthquakes and floods.

Perhaps we can benefit from the UAlbany example. The developments on that campus resulted from a series of administrative decisions made over a 20-year period that essentially predetermined “failure” of the geological sciences. The number of solid-Earth scientists was allowed to fall below critical mass. This led to the diminution of the graduate student population and the inability to offer competitive degree programs at any level, which had a negative feedback on enrollment. As funds from the state government diminished, deans and provosts at individual campuses in the

university system sought to augment existing, academically strong programs where student interest was high, while at the same time limiting duplication of talent and expertise among the four public university research centers in the state: Stony Brook University is strong in the Earth and environmental sciences—why duplicate that strength at the Albany campus 250 kilometers away? From the standpoint of New York State taxpayers, this is a valid point. But from it follows the next question of how well a non-duplication policy fulfills the needs of the students at any given campus—not necessarily within their chosen degree field, but in terms of what they need to know for their own lives and for developing informed opinions on societal issues. The non-duplication policy also leads to specialization of campuses, which makes them vulnerable to shifts in student interest and societal needs.

Academic administrators face the challenge of balancing the budget and responding to the perceived immediate and “global” needs of their institutions. This inevitably means that institutional priorities do not coincide with those of all academic departments. Interestingly, administrative views of the Earth sciences vary enormously: some major U.S. universities see our field as central to addressing the human aspirations and challenges of the 21st century and are building vigorously. Many are taking a less aggressive approach by maintaining a viable base in the Earth sciences, appreciating the importance of stability, and leaving open the possibility of future growth. A few are taking the UAlbany route. Why is there such a disparity of attitudes toward the Earth sciences among administrators of institutions of higher education? Part of the answer may be rooted in the history, location, and culture of the institution: for example, the importance of the geosciences is taken for granted in places like Texas and Alberta, whose economies run on oil and gas. Other factors are more complex. Leading technological universities like MIT preselect for qualities in their undergraduate student populations that naturally lead to few students taking degrees in the Earth sciences. Most Earth scientists are consumers of technology—as opposed to being leaders in the development of technology—so in technological circles we are not perceived to be positioned on any research frontier. This perception misses the point, of course, but among students it is exacerbated by a lack of exposure to modern Earth science in secondary schools. If student interest is the primary measure of the importance of a discipline, some geoscience departments will remain in a weak position no matter how compelling the argument for the presence of Earth systems awareness on campus.

Another factor that unquestionably affects the attitudes of university administrators toward geoscience departments is the limited availability of external funds for research. In the present funding climate, even a strong geoscience department does not have access to the research dollars that

¹ Interestingly, the UConn decision was reversed before it was executed, when a newly appointed administrator acted quickly to establish a Center for Integrative Geosciences.