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The northern Dvina Valley, at the village of Permogore.
Linocut from a drawing by Evgeny Milanovsky, 13 August 1939.

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EDITORIAL

FROM LINNAEUS AND HUTTON TO ARGENTINA AND RUSSIA

GREGORY A. GOOD

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This issue of **EARTH SCIENCES HISTORY** bursts at the seams, with seven articles, a long letter to the editor, ten book reviews, and another installment of "Interesting Publications" by Gerald Friedman. There has been such a full in-basket recently that I even toyed with the idea of finishing my last year as editor with a supplementary third issue. Rather than that, I decided to increase the size of the two normal issues. Number 1 is big; number 2 will be even bigger, as the back cover indicates. I also wanted to reserve some good material for the Editor-Elect, who I am pleased to introduce to you at this time. Patrick Wyse Jackson, of Trinity College, Dublin, was elected to a three-year term as editor in balloting among members of the History of the Earth Sciences Society (HESS) at the end of 2003. His term will begin on 1 January 2005 and continue through 2006 and 2007. I cannot adequately portray to you how happy I am to know that the journal will be in such capable hands. I also want to thank the nominating committee (Martina Kölbl-Ebert, Ken Taylor, and David Oldroyd), who undertook this most important job, and the other candidates whom they interviewed while making their selection. All of the candidates would have maintained and expanded the quality of the journal, and perhaps one or more of them will someday succeed Patrick.

A short word about my next adventure might be in order. After fourteen years as an editor, with inadequate time for writing, I will be guarding my time much more carefully. I will be taking an eighteen-month research leave from university teaching to work on several book manuscripts. "Magnetic Explorers: The Scientists who Mapped the Magnetic World" will aim at a broadly educated and curious audience, telling the story of the study of Earth's changeable magnetic field, from Edmond Halley to MAGSAT. The companion volume, "Magnetic World: Consensus, Separation, and Re-connection in Disciplinary Transformations of Geomagnetism," will dig more deeply into research programs, field and laboratory work, and theory. So if I seem a little distracted for the next few years, you'll know why!

For now, though, we return to the current issue of **EARTH SCIENCES HISTORY**. Two articles address the early years of geology, with Daniel F. Merriam looking at the Swedish naturalist Carl von Linné, Linnaeus (1707–1778), as a geological traveler and Cyril Galvin analyzing James Hutton's geological ideas through a systematic sampling of several of his works. Galvin challenges us to think differently about both Hutton and about how to read a text. Linnaeus is best known as a botanist, but as Merriam shows, he conducted a significant amount of geological field work, beginning in Lapland in 1832 (aged 25), continuing to Norway and to several Baltic islands, and ending in 1749 (aged 41, but not well) with a trip through southern Sweden.

Most of the remaining articles concern geology and paleontology in the nineteenth century. The lead article, Ken Aalto's treatment of the investigations of the American Southwest by Clarence King (1842–1901), dissects those investigations

and illustrates them profusely with plates and maps taken from King's publications. The map of the Uinta Basin, with a cross-section, is in color, thanks to support from Humboldt State University. That seems appropriate! Aalto places King, too, in his political and social contexts, making clear some of the obstacles that he faced. However, Aalto reserves most of his attention for King's treatment of the orogenies of the western mountains and their implications for catastrophism, actualism, and evolution.

William R. Brice keeps the focus on the relation between geology and evolution in his exploration of Henry Shaler Williams (1847–1918), who taught at Cornell University from 1879. Williams's special interest was Devonian brachiopods, and in them he saw evidence not only of evolution, but evidence of rapid change followed by long periods of organic stability. While he reached this conclusion in the 1880s, and taught it to his students, he "did not formally publish his ideas," according to Brice. Brice also traces possible influences on Williams, including Clarence King's version of catastrophism.

All the other articles are based outside the United States. Martina Kölbl-Ebert continues her investigation of British "lady-geologists" with a sensitive portrait of Barbara Marchioness of Hastings (1810–1858). Lady Hastings skillfully collected fossils and conducted detailed stratigraphic fieldwork, sharing her collections and insights with numerous well-known scientists, including Richard Owen, Henry De la Beche, and Charles Lyell.

Efgenji E. Milanovsky, an eminent participant at every meeting of INHIGEO (the International Commission on the History of Geological Sciences), shares with us his memories of his first geological expedition in the north of European Russia in 1939. He provides a wonderful glance inside Russian geology and graces the article with his own accomplished sketches and prints, one of which provides the cover of this issue.

Lastly, Eduardo Ottone brings us back to South America for a second article on Aimé Bonpland (1773–1858). In his first article on Bonpland (*EARTH SCIENCES HISTORY*, 2002, 21:150–165), Ottone examined his paleontological work in the border region between Brazil and Argentina. In this one he focuses on Bonpland's geology. These two articles fill out our appreciation of a scientist too frequently recalled merely as Humboldt's companion.

ANNOUNCEMENT

GSA HISTORY OF GEOLOGY DIVISION INITIATES STUDENT AWARD

The History of Geology Division of the Geological Society of America is soliciting proposals for a student award for the amount of \$500 for a paper to be given at the annual GSA meeting. It may be either a history of geology paper or a literature review of ideas for technical work.

Are you interested in where the ideas that you work with came from? How do you know your research is original? What ideas have been prominent in the literature review you have done for your thesis/dissertation? Were there ideas that didn't work out? Why? Is your portion of our science "refining the numbers" and extending observations, or are you working on a novel theory? Is there part of geology whose origins you would like to investigate?

The History of Geology Division would like to hear from you! Mentors are available to help you with this process, or you may work with your own faculty. Proposal guidelines and an application form follow. These are also available online at <http://gsahist.org/HoGaward/studentaward.htm>, or from:

Professor William Brice
Geology and Planetary Science
University of Pittsburgh at Johnstown
Schoolhouse Rd.
Johnstown, PA 15904
wbrice@pitt.edu

DEADLINE: Due date for proposals and application for the 2005 GSA meeting is May 1, 2005, so that content and the official GSA abstract can be refined. The Division award committee will make the selection.

AWARD LOGISTICS: The award shall consist of \$500 to be applied to student expenses to attend the national GSA meeting and present a paper in the History of Geology Division disciplinary session. It is open to all students regardless of discipline, provided the proposed paper is related to the history of a geological idea/person/etc. After the applications have been received and reviewed by the Award Committee, the winner will be notified. The winner should then register for the GSA Annual Meeting and present his or her paper at the History of Geology Division disciplinary session. A ticket to the History of Geology luncheon will be provided. The \$500 award will be presented at the time the paper is presented, and the student will also be recognized at the annual luncheon.

PROPOSAL GUIDELINES: The student will prepare a proposal as noted below, including a tentative abstract of the paper to GSA specifications. These will be sent to the award committee, who will make the selection and return the materials to the student in time to possibly re-write and send the abstract to GSA by the yearly due date.

The student will prepare a short proposal for his/her paper, to be sent to the award committee. It will consist of:

- 1) The completed application form;
- 2) A sentence or two about how the projected paper fits into the student's senior or master's thesis, or his/her dissertation. With the exception of history of science

students (who are welcome to apply) it is expected (but not necessary) that the paper will be fairly early in their work;

3) A short statement about the department and field within which the student works;

4) A tentative abstract for the GSA Annual Meeting; (after acceptance, the student will prepare and submit an abstract according to GSA guidelines, to the History of Geology Division.)

Please send these materials to:

Professor William Brice, wbrace@pitt.edu
Geology and Planetary Science
University of Pittsburgh at Johnstown
Schoolhouse Rd.
Johnstown, PA 15904

Please contact Dr. Brice by e-mail or letter before you send in your materials. An application form is available on the next page of this message.

APPLICATION FOR STUDENT AWARD, GSA HISTORY OF GEOLOGY DIVISION

Deadline for submission: May 1, 2005. See below for contact information.

Name: _____

Address: _____

School & department attended: _____

Level: _____ Major: _____

Advisor*: _____

Topic of paper: _____

*If you are working with an advisor who can help with the historical content of your paper, use his/her name. Or, you may indicate if you would like to work with someone from the History of Geology Division to help you explore the historical aspects of your topic.

LETTER TO THE EDITOR

To the Editor:

The Warren Hamilton/Naomi Oreskes exchanges are not only entertaining but also illuminating. For myself, the history of the growth of (and opposition to) crustal mobilism has some overlap. It has been accompanied by a succession of extraordinarily fortunate experiences, official appointments, and chance meetings. Now in my ninetieth year, I must thank Bruce Rose (at Queens University, Canada) who first required me to read Wegener. And then W. J. Arkell (at Oxford), who encouraged me to write a thesis on the collision-zone klippen and low-angle thrusts of the Slovak-Polish Carpathians. And colleagues in the pre-Saddam Hussein Iraq Petroleum who argued (against) the strike-slip nature of the Dead Sea faulting system with its splayed branches in the Palmyra Ranges. By 1939 I was a convinced mobilist (though a wise colleague counseled me to forget all that rubbish, otherwise, he said, I would never get to be a full professor).

World War II took me to the southwest Pacific (MacArthur's outfit) and I was set to study Indonesian geology (Brouwer, Van Bemmelen, Kuenen, Vening-Meinesz), although I did get to meet them all after the war. Warren Hamilton put it all together.

Then a full professorship tempted me to Columbia, where Maurice Ewing and dear-old Walter Bucher were massively opposed to mobilism in every shape and form (see also Gerald Friedman's article in **EARTH SCIENCES HISTORY**, 2003, 22:146–155). But one day, I took the train to Princeton and Harry Hess pulled out his charts. Then Bob Dietz showed me the work of Arthur Holmes (and confirmed by Oreskes). It was Bob Dietz who created the cartoons with little fingers pulling plates apart. His genius was in his creative analogies and warm-hearted ability to listen and learn. In the light of my early fieldwork, it all seemed to fit.

It was in 1947, soon after World War II, that I was in Western Australia on a field trip. We stopped for lunch, but one of the students pointed to an odd-shaped hill. "What gives?" We walked across and found it was packed with silicified plant fossils that I took to be Jurassic. A box of them were mailed to the Geological Survey in India. Back came the reply. They were all identical, genus and species, with those of the east coast Gondwanas of India. Other field trips took us to the Permian glacials in every state in Australia and later to India, Africa, and Brazil. This was good preparation for the late Ordovician glaciation that did not emerge till 1970 (see *Geotimes*, volume 15, no. 6). It was just as big as the Permian, but slow to catch on. A recent paper in *GSA Today* (March 2004) grossly distorts their relations.

New material was coming in fast and furious. With the artistic aid of Marie Tharp, one of our students, Bruce Heezen, a darling if ever there was one, covered the world's oceans with his "physiographic maps." Armin Lobeck, my predecessor at Columbia, had me prepare one for Australia in his continent-by-continent series. So we were talking the same language. To the present generation, let me point out that this was long before satellite-guided global positioning. I recall one day on a Scripps Expedition to the South Pacific and we had two ships at anchor side by side in a quiet lagoon. Sextants were out and highly competent observers reported: we were allegedly two miles apart. So it was with the Heezen-Tharp maps. I was often called on to advise.

The history of science has always been a “battle” between extremes, the pros and cons. That makes for the fun. I myself am always grateful (in hindsight) to those anonymous reviewers who have knocked back my “brilliant” manuscripts. Often their objections were based on either ultra-conservatism or ignorance. Either way, the rejections gave time for thinking. When my students and friends get their papers rejected, too, I often suggest another journal, published perhaps in Paris or Prague. Not for nothing was the first work on continental separation by an Italian and published in French (Antonio Snider, 1858).

On the question of mobilistic orogeny, the forerunner of the subduction process, one must go back at least to the Vienna meeting (1901) of the International Geological Congress with the triumph of the low-angle nappes. I recall a wonderful paper, “Für den Fixism, gegen den Nappismus,” but my memory is weak (it may have been vice versa). In 1906 and 1911, Otto Ampferer, the director of the k.u.k. Geologischen Reichsanstalt in Vienna, came out with the “Verschluckungs theorie” (underthrusting), way ahead of any “subduction” models. He was the first of the A.A.A. pioneers (Ampferer, Argand, and Amstutz).

But the younger generation does not always relish the ideas of some fuddy-duddy Methuselah. Even Bruce Heezen was not amused when I showed him the 1923/1928 maps of Leo Kober (reproduced in *A.A.P.G. Memoir* 23, 1974), depicting a round-the-world, mid-ocean ridge. Granted that Kober’s mechanism was due to a contracting Earth (the paradigm of that day), whereas Heezen’s version was associated with expansion. Alas, both were wrong.

The opposition sometimes carries things too far. I recall the valiant but unsuccessful effort by the oil geologist W. A. J. M. van Waterschoot van der Gracht, to persuade his fellow AAPG explorers towards drift (1928). And when Lester King, a New Zealander shifted to South Africa, tried lecturing on drift in the United States, George White (of the University of Illinois) came to me and protested: “Rhodes, I have never been so insulted in my life! He takes us for a bunch of hicks!” And when Sam Carey visited this country, overwhelmed by enthusiasm for his theme, his lectures would carry on for 3–4 hours. Nevertheless, some of his ideas were extremely good. His “Tethyan Megashear” has not been universally adopted, but his rotations of Iberia and the western Mediterranean mini-continents (Heezen’s term, I think) are universally accepted, although his “sphenochasm” has been passed by. The opposition was partly religion, as emerged in the Galileo trials and persists world-wide in some circles to this day (the fundamentalists of all three great Western and Middle Eastern faiths).

The “Iron Curtain” was successful in isolating the Russians from our “contaminating” thoughts most of the time. But Vladimir Beloussov, head of their National Academy geophysics institute, was sufficiently powerful to come visiting. Influenced by his own field work in the Caucasus and Urals, he was loyal to the “fixist” school. He found a friend in Maurice Ewing and spent a couple of weeks at Lamont talking freely to our students, but they were all “mobilists” and could not be seduced. He was scheduled to speak at the annual AGU meeting in Washington and supposed to go by train. Instead I took him and Mrs. Beloussov (a curator at the Hermitage) on a zig-zag course through the Appalachians. At one limestone quarry we met a most elegantly dressed lady, the owner, who was very well informed and wanted to invite us to lunch. But time was pressing and we had to push on. Beloussov leaned over and with a twinkle in his eye, observed: “Another blood-sucking capitalist!” He published a lot on structural geology, but always stuck to the established line. Apparently unknown to him, some Russian oceanographers were just then exploring the “black smokers” in the Pacific, key evidence for sea-floor spreading. Dietz and I were chuckling, “Little do they know that we know . . .”.

Sir Edward Bullard, once professor of geophysics at Cambridge, and devel-

oper of oceanic crustal heat flow studies, would often stop by our strategically located Manhattan apartment. Of course, we were happy to see him, and one day we asked him: “Teddy, what is the magnet that brings you so often to these shores?” He replied: “The English always put one down, saying that Lord Kelvin, or someone, disproved that long ago. The Americans are invariably polite, make one feel welcome, and give one a fair hearing.”

Yours sincerely

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