Life as a mineral economist

John E. Tilton¹

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No one as a child dreams of growing up and someday becoming a mineral economist. Yet, for some of us, as we finish our education and begin working, random but fortunate events conspire to guide us into this field.

In my case the first such event occurred in graduate school. I was searching for a dissertation topic in field of international trade. Béla Balassa, my thesis advisor, was not particularly thrilled by what I thought were several brilliant suggestions. He proposed instead that I examine international trade patterns in non-ferrous metals. Why non-ferrous metals? Apparently, he had done a bit of research on this topic the previous summer while working at OECD Headquarters in Paris. Otherwise, he had no particular interest in metals—non-ferrous or otherwise—but rather was intrigued by how former colonial bonds and corporate ownership ties distorted trade flows among countries. The topic allowed us to obtain funding for my thesis from Resources for the Future, a well-known non-profit research think tank in Washington, DC.

Once my thesis was finished, I left the mineral sector behind as I fulfilled a 2-year military commitment studying manpower problems in Pentagon, spent 3 years at the Brookings Institution writing a book on the international diffusion of semiconductor technology, and then 2 years with the Economics Department at the University of Maryland teaching industrial organization.

While at Maryland, John Ridge, the head of the Department of Mineral Economics at the Pennsylvania State University, called. He was looking for an economist interested in metals and other non-fuel mineral commodities to join his department. At that time, few academic economists were actually doing research on minerals, even the energy minerals. He had gotten my name from Resources for the Future and was clearly pretty desperate.

The move to Penn State was the next of those random but fortunate events. At first, it was somewhat tentative at least on my part. Did I really want to be a mineral economist rather than a more traditional economist specializing in the conventional field of industrial organization? Though not sure, I figured that focusing on the metal industries for several years would probably enhance my credentials as an industrial organization economist.

But, the tentativeness soon evaporated. The department attracted outstanding graduate students from around the world. As a junior faculty member, I was soon directing dissertations for five or so PhD students. I was expected to develop a strong research program, publish in peer-reviewed professional journals, and attract outside funding to support my research and the graduate students working with me. Fortunately, the Department and the College of Earth and Mineral Sciences provided generous support—startup funds, critical guidance from senior faculty (many in technical fields of relevance to mineral economics), and light teaching loads (one course a semester).

Some 15 years later, attracted by the offer of a faculty chair and the opportunity to live in the West, I joined the Mineral Economics Department of the Colorado School of Mines—a much smaller university more focused on minerals and earth resources but with many of the same advantages of Penn State. Officially I retired from Mines in 2001 but continued to teach and work with graduate students for the next 15 years, dividing my time between Colorado and the Mining Engineering Department of the Catholic University of Chile in Santiago.

Looking back, the critical event that led to my career as a mineral economist was the move to Penn State. And, of course, it would never have occurred had my PhD adviser suggested I focus on international trade patterns in automobiles or bananas. Nor would it have happened if I had not been (barely) flexible enough to consider a professional opportunity and career move somewhat outside my thinking at the time.

Was all this a good? Was it fortunate? To me the answer is clear. I look back fondly on my life as an academic mineral economist for many reasons.

✉ John E. Tilton
jtilton@mines.edu

¹ Division of Economics and Business, Colorado School of Mines, Golden, CO 80401, USA

First, it was thrilling to contribute to a small, relative new, yet important field and along the way to help develop quality graduate programs in mineral economics—first at Penn State, then at the Colorado School of Mines, and finally at the Catholic University of Chile. At each of these institutions, there were wonderful colleagues with similar interests, which allowed for some great discussions and the cross-fertilization of ideas. In this regard, I remember with particular fondness Dick Gordon, George Schenck, and Bill Vogely at Penn State; John Cordes, John Cuddington, Carol Dahl, Graham Davis, Rod Eggert, and Jim Otto at the Colorado School of Mines; and Juan Ignacio Guzmán, Joaquín Jara, Peter Knights, Gustavo Lagos, and Marcos Lima at the Catholic University of Chile.

Second, as noted, my life as a mineral economist has provided the opportunity to work with wonderful graduate students from around the world. While some sadly disappeared after they finished their degrees, others have remained friends and collaborators over the years. Among the authors who have so kindly contributed to this volume, I am proud to note that I served as the MS or PhD thesis adviser for Roberto Aguilera, Hamit Aydin, Gary Campbell, Fred Demler, Rod Eggert, Juan Ignacio Guzmán, Peter Howie, Joaquín Jara, and Ruthann Moomy.

Third, mineral economics is an applied field. Many academic economists, I know, strive to push back the frontiers of economics and write primarily for other economists. While I applaud such efforts, I personally have always been more interested in writing for those working in the public and private sector, providing insights that hopefully help both government agencies and private companies with interests in the mineral sector. I love to visit mines, smelters, refineries, and fabricating facilities; to observe how new technologies alter business practices; and to talk to mining engineers, geologists, metallurgists, and other specialists working to find and develop the mineral resources on which our modern civilization depends.

Fourth, mineral economics is also an interdisciplinary field. One needs a good understanding of the constraints imposed on this sector by existing technologies, economic considerations, governmental policies, and what is now widely recognized as the social license to operate. This requires some knowledge of geology and the earth sciences, finance, mining engineering, international relations and political science, and a host of other fields of relevance to mining and resources. In addition, many of the specialties of economics of particular interest to me—international trade, economic development, environmental economics, natural resource economics, and industrial organization—are often quite helpful as well in understanding the behavior of mineral industries and markets.

Fifth, most mineral commodities are sold on international markets. They are produced, traded, and consumed in countries across the globe. As a result, mineral economists often enjoy opportunities to work and travel abroad. Over the years, I have worked at the Commodities Division of UNCTAD in Geneva; Resources for the Future in Washington, DC; the École des Mines in Paris; the International Institute for Applied Systems Analysis outside of Vienna; Kyoto University in Japan; Curtin University in Western Australia; Luleå University of Technology in Sweden; and the Catholic University of Chile in Santiago.

Such opportunities have allowed me to get to know and work with interesting people from many different countries. Among the contributors to this volume, not counting those mentioned earlier, I have fond memories of working at one time or another with Phillip Crowson, Joel Darmstadter, David Humphreys, Philip Maxwell, Marian Radetzki, Patrik Söderholm, and Fred Wellmer. To these I should add John Cuddington, John DeYoung, Hans Landsberg, Carmine Nappi, Takashi Nishiyama, Merton (Joe) Peck, and Brian Skinner, with whom I have enjoyed collaborating on various projects over the years.

Finally, if we are really fortunate as mineral economists, we may find that former students, colleagues, and friends say a lot of nice things about us when we reach the age of 80. They may even prepare a special issue of *Mineral Economics* in our honor. In this regard, let me finish by simply noting how grateful I am to Carol Dahl and Magnus Ericsson for all their efforts in organizing this special issue of *Mineral Economics*—and as well to all my former students and other good friends who have taken the time to write the articles it contains.

What a lovely gift!

John E. Tilton

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