

Acceptance of the Mineralogical Society of America Award for 1996

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President Brown, Dave, members, and guests:

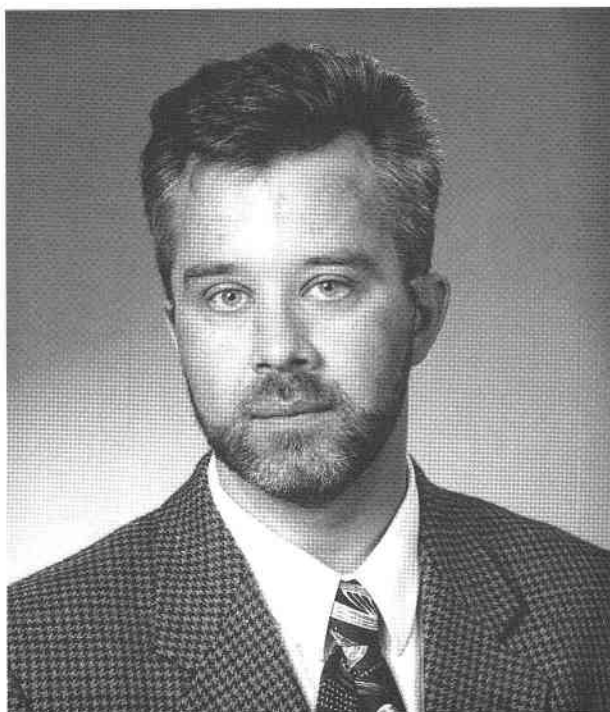
For me this occasion was launched by my wife, Anke, receiving a phone call in broken German from a noisy hotel room in New Orleans. Rather than turning out to be a bad film plot, she duly managed to convince me it wasn't a joke by naming the callers—names she could not have invented.

My parents, Phyllis and Bruce, demonstrated from my earliest memories that two people with very different natures, but agreeing on a few basic points, make a stimulating environment. Their approach to the challenges of life was very well-suited to my nature. They also gave me three wonderful sisters and a great brother. Mom provided the emphasis on perseverance, debate, creativity, and achievement. With Dad it was learning by doing: how to land a salmon, how to fell a tree when necessary, and how to quarter a moose and get it out of the woods. All in all—a nice blend for an academic career.

From my early schooling, several educators lifted our spirits by giving us significant challenges and making it clear that something was expected as a result of our education. To all of them who put their backs into good teaching at all levels go my belated thanks.

I should remind you that to grow up in Newfoundland is to be surrounded by rocks. In fact, the petrological inspiration in that northern slice of the Appalachians verges on being obscene in its richness. Thus, upon entering university as a physics and chemistry major, and being unable to schedule a place in German, I signed up for Introductory Geology instead. At the end of three semesters Hugh Miller greeted me in St. John's, all abuzz with the message that Geophysics was f-a-r more interesting than Physics. There I was exposed to the Department of Earth Sciences—an exciting time and place. Rapidly I was convinced that I could become a much better geophysicist with a good grounding in petrology. The result was, to quote a compatriot, an "ill-assorted mixture of geology and classical physics courses." Toward the end of my undergraduate studies I was adopted by Dave Strong for an undergraduate thesis. I headed off to apply geophysical, geochemical, and geological methods to the mapping of the Port Aux Basques Granite. I've had a soft spot for silicic magmatism ever since.

I have told the story of my first contact with Chris Scarfe previously. The package that the chopper pilot tossed out to me at Grandys Lake was from Chris. Its contents affirmed my desire to become an experimentalist. Arriving at the University of Alberta, I made a deal with Scarfe to head off to the library and come back within three months, with a thesis topic. I stumbled on a 1977 paper on Fluorine in Granitic Rocks by J.C. Bailey that inspired me for my Ph.D. topic. My years in Edmonton were a great experience. We in the Experimental



Petrology Laboratory soon developed a team spirit intent on putting Edmonton "on the map." We also worked on our own stickhandling on the ice, and it was ice hockey that invariably got us into trouble in American bars around playoff time at the Spring AGU. The experience and knowledge of Chris Scarfe, Toshi Fujii, and my co-students were very useful, and my friend and colleague Mark Brearley made it a fruitful period. To Chris I owe more than I can explain here. He would have greatly enjoyed this day.

Nearing completion of my Ph.D. thesis, Scarfe prodded me to consider the Geophysical Laboratory for a postdoctoral fellowship. During a Baltimore AGU meeting I made what felt like a pilgrimage to that remarkable Institution to meet Hat Yoder. I got my chance in the form of an interview there during the great D.C. blizzard of 1984. At the Geophysical Lab it dawned on me that accurate property determinations were going to be increasingly important for the development of structure-property relations for silicate melts, to my mind the ultimate justification for structural studies of geo-relevant melts. It was the tolerance of this notion, as well as the support and hospitality of Dave Virgo and Bjorn Mysen that enabled a productive stay at the Geophysical Laboratory. My postdoctoral

experience there drove home an essential point. There must always be Institutions dedicated to the pure scientific pursuit of knowledge. The atmosphere at the Geophysical Laboratory oozed this philosophy of scientific enquiry. My ears are still ringing from the sound of Dave Virgo bellowing the importance of the "academic calm" and the pursuit of "big science." The Carnegie Institution of Washington cemented my recognition of the legitimacy of pure research—an essential consideration in my later move to Bayreuth.

Around 1984–85 the rumours that had been trickling out, of a new experimental institute in Germany, were thick on the ground on Upton Street. Nevertheless, duty-bound, I headed off to Toronto to take up my appointment at Erindale College. There I tasted teaching responsibilities across a spectrum of undergraduate Earth sciences. Some phone chats in the Fall of 1986 prodded my application to Bayreuth and an interview was quickly arranged. After a discussion with Fritz Seifert at the Toronto airport during his "world-tour" of that year, I arranged to go to Bayreuth. Given the generosity with which NSERC and the University of Toronto had greeted me I could only hope that they would forgive me. Failing that, I set to work to ensure that they could at least understand me! My coming to the Bayerisches Geoinstitut shortly after its founding turned out to be the opportunity for research support that I had hoped for. A remarkable opportunity presented to people with the combination of experience and naiveté to exploit it in an uninhibited and energetic fashion usually works out well. In Bayreuth it certainly did and I am very pleased and fortunate to have been part of the team that placed this brand new Institute on the research map in the short space of a few years. Working with a young international group of powerful minds and talented scientists at Bayreuth and elsewhere has and continues to be my extraordinary good fortune. Obviously, the work being recognized with this award is a model of successful collaboration.

My work has been concentrated on the physico-chemical behavior of melts and magmas. Some of you may have the impression that the main questions surrounding this description of melts and magmatic systems are settled. If you do, you are gravely mistaken. Every week, in our labs, we determine properties of molten and partially molten silicate systems that are not predicted by existing models. These events tell us clearly that the description of melts must be based on a sufficiently complete understanding to be reliable. I do not know why, but mineralogists appear to grasp this better than most other disciplines within the Earth sciences. Quite apart from developing generalizable models for melt properties we must understand the way these Earth materials work. Mineralogists all over the world, I suspect, have the nagging feeling that until they understand melts, and the amorphous state, all is not quite "in order." Geoscientists are joined by considerable numbers of

materials scientists, glass scientists, physical chemists, and condensed-matter physicists who are similarly perplexed, intrigued, and inspired to study melts, liquids, glasses, and the amorphous state.

It seems appropriate here to mention that fences between disciplines can be very practical. In the hands of experienced people they can be used to justify research, to obtain funding and to inflate the significance of the results, all with the deadly consequence that a group of people merely end up speaking to themselves. We all have colleagues who are quite eager to swat down original ideas on the basis of conventional wisdom. Be on guard when you find yourself listening to them! In contrast, interdisciplinary approaches carry the day at times of rapid advances in science. The historical leaps in science have been exemplified by the fact that new fields were being defined at the same time. The history of science (a lot of it European) is full of such examples. Leaning over from my desk in Europe, however, it is easy to observe that this has been a classic strength of Earth sciences in America. Given the above, I am certain you will understand why I have very little respect for boundaries between scientific disciplines. If you want to study melts, glasses, magmas, and partially molten systems, you have no choice but to cross such boundaries every day of your active scientific life. This is the main goal of the silicate melts workshops that I am involved with in Europe and the flavor of many short courses in which I have been involved on this continent. I like to think that the fences between disciplines are fairly well trodden down in our work and the recognition of this work by the MSA today underlines the highly interdisciplinary nature of its membership.

Now it should be commented upon that the Mineralogical Society of America Award Committee and Council have yet again gone outside the boundaries of the United States of America in agreeing to give this Award to a Canadian for work largely accomplished in Germany. In doing so they have kept with the truly international spirit and stature of this Society and its members. I am moved by the recognition and deeply impressed by the generosity of the research community that stands behind such a choice.

In closing, I have to comment on the sobering prospect that I shall, by virtue of this award, receive issues of *American Mineralogist* until the day I die. On the occasion of the first MSA Award, Norman Bowen reminded those in attendance that the life subscription to *American Mineralogist* was to serve as a prod for further achievement. I suspect the rest of my career shall be composed of the delicate balance between maximizing on that expectation and making the subscription last as long as possible. Thank goodness I do not face this challenge alone but rather with that remarkable person I am fortunate to have as my wife.