

A Geological History in Progress

Being a geologist, I was assigned as a geologist to the Tanganyika Geological Survey by the Peace Corps in 1964. This foreign-work experience gave me non-competitive eligibility for a government job and led to my 34-year-long career with the U.S. Geological Survey (USGS). Having a friend at the USGS has also proven to be useful to, what is now, the Geological Survey of Tanzania (GST). The Peace Corps pebble was thus tossed into an ocean that carries waves into ever-expanding directions, only some of which have been revealed so far.

The reason this is not really a metaphor is that, in our field, one geologist can start a dialogue which continues generations into the future. You make an observation, you aren't quite sure what it means, you write it down into the professional literature, and years or sometimes decades later, another geologist figures out what you missed and explains it to future generations by placing your name next to the initial idea. This is heady stuff, talking to future generations.

Philip Momburi at GST and I have formed a scientific bond of this sort. I completed my Peace Corps Volunteer work in Dodoma, Tanzania in 1966. Years later, in 1987, Momburi contacted me at the USGS in Reston, VA. Obviously, someone there was still following my work. This puzzled me because it isn't as if the work I did there at the beginning of my career was wonderful; it was merely the best I could do, knowing what little I knew with a freshly-minted BS degree from Ohio State. But two years of prospecting for mineral deposits in Tanzania, and a month of mapping on my vacation at the Ologesailie Prehistoric site for Louis Leakey in Kenya, honed me into a formidable observer. Similarly, I had no writing skills at the beginning of my career, but the British Geological Survey which oversaw the Tanganyika Geological Survey when I arrived there in Dodoma, had an apprenticeship program for junior-grade scientists. This gave me a superb writer, Ray Pickering, as a mentor.

Momburi read my work in the literature, and being a brilliant scientist, he made the first contact. He said he was thinking along the same lines that I had published--the relationship between coal, petroleum, and mineral deposits course, one had to have training in both energy and minerals to understand that the relationship was based on active tectonism with earthquakes. Seeing that there are not many humans on earth with such training, we formed an immediate bond that served both the USGS and the GST well.

This direction kept me funded, because the USGS chose to focus on the geology of an ancient rift valley in North America that extended from Nova Scotia to Florida. This didn't keep Momburi funded, however, because Tanzania had other priorities. So Momburi next reached into the direction of geological issues with human health. Micronutrient malnutrition, i.e., the lack of iodine in the diet producing goiter, and the scarcity of iron in the diet producing anemia, was his next direction.

The United Nations was particularly interested in his research, so he was invited to attend a several-month-long course on micronutrient malnutrition that took him around the world, including Washington, DC. This was close to the USGS headquarters, so we finally got the chance to meet in 1992.

Once that funding dried up, Momburi branched off into fluoride deposits. Availability of fluoride in Tanzania meant that children there could easily build strong teeth if it was added to the public water supply. Momburi needed to read the technical literature on these deposits, and contacted me. At the USGS, I had at my disposal one of the largest geological libraries in the world. My summer technician that year (1999), Richard Pierre, was an enthusiastic college student from University of Virginia; his parents are from Haiti, and he was interested in medicine

as a career. I suspect that a summer of digging out references on health issues related to geology, and being in frequent email contact with a Tanzanian geologist interested in medical issues, will point this member of the next generation into directions we can only dream.

In 2000, I was invited to present a paper at a conference on Human Health and Geology in Uppsala, Sweden. This new field is called Medical Geology. I sent the meeting abstracts to Momburi and he was fascinated with the one written by a professor at University of Wales about geophagy, which means eating soil. For example, it is known that some women in Georgia eat clay, which geologists have determined contains the mineral potassium. Potassium is needed for healthy nerve function, and it is otherwise lacking from the diet of people in parts of the southern US. Momburi had been paying attention to geophagy in Tanzania and he immediately emailed the professor. I crossed my fingers, hoping that this might be the connection that Momburi needed to find funding for a PhD program.

Our latest collaboration came through the Peace Corps. A couple of the men in Ghana I, which was a group of geologists who were assigned to work at the Ghana Geological Survey (1963-1965), talked Geological Society of America into having a session on Geologists in the Peace Corps at the 2003 annual meeting (“Geologists in the US Peace Corps: The Contribution of Peace Corps Geologists to International Development and the Contribution of the Peace Corps Experience to the Development of the Geosciences in America”). I contacted Momburi and we wrote an abstract on Medical Geology and the role of Peace Corps in pointing both of us in this direction (“Geological Contributions to Biological Systems: The Peace Corps Connection.”) I presented our talk at that meeting in Seattle.

This is a story in progress, so it hasn't ended yet. Most recently, Momburi emailed me that his daughter was watching the Discovery Channel at home in Dodoma and he wanted my opinion about something they heard. TV in Dodoma, now isn't that something?