

A Passion for geology, carbonatites and Neapolitan Songs...an Interview with Dr. Anthony Mariano



Dr. Anthony Mariano speaking
in front of the Boston
Mineral Society

Geologists study the Earth (''Geo') and the matter that makes it up; they are the ones who try to determine the Earth's age and all that has formed it. Geologists draw insights from chemistry, physics, biology, logic and much intuition; geologists typically are multi-talented and have many interests; they love the outdoors, travel, and plenty of adventure. According to this definition, then, Dr. Anthony ('Tony') Mariano can be described as the quintessential geologist.

I spoke to him on the phone and promptly appealed to our common Italian heritage – his parents came to the United States from the region of Abruzzo, known for its mountains, great outdoors and, ironically, geological importance. Dr. Mariano would be proud to know that his parents were born in a region of Italy, where thorium and rare earth deposits have been identified; indeed, one of Italy's few rare earth research centers is located not far from his ancestral roots. Having heard about his reputation as a lover of Neapolitan songs, and having been born in Naples myself, I promptly asked him about his favorite singers and songs: "Giuseppe di Stefano" he said and he starts to hum some lyrics-and in tune: "Quanno spunt'a luna a Marechiaro, pure li pisce nce fann'

ammore...Se revòtano ll'onne de lu mare"...I realize I'm dealing with an expert, and a bright mind. Rather than ask about the obvious 'O Sole Mio', I reply with 'Dicitincell a sta cumpagna vosta..." and showing a remarkable memory, he starts filling in the lines "a vogli'o bene, a vogli ben' assaje..."

I learned that Dr. Mariano is also a great cook and loves food; however, he does not advise ordering the mutton when prepared using a Tuareg recipe in the Sahara Desert: "best to stick to a gazelle, rather a delicacy in that part of the world", he recommends. When you find yourself in the region of the Tilemsi – between Niger, Mali and Algeria, the best meal comes in the form of a gazelle. Dr. Mariano traveled often in the Tilemsi, investigating the territory's geological potential in the 1980's on behalf of the United Nations. Dr. Mariano was "fascinated by carbonatites", he said. It was a passion that started at Boston University, where he went to study after returning from serving as a Marine in Korea (Dr. Mariano was keen to note that his grandfather was a soldier himself, fighting in the mountains of northeastern Italy as an Alpino in WW1). "There are many interesting minerals contained in carbonatite" and Dr. Mariano got a chance to develop this fascination while working for Kennecott Copper at Oka in Quebec.

Dr. Mariano has researched carbonatites in Africa, South and North America. I made a remark about his travels, incidentally, and Dr. Mariano responded that the one place he hasn't been to is Antarctica. Dr. Mariano's interest in carbonatites eventually led him into the path of Molycorp in the 1960's – thanks to John Bryant, a former Kennecott geologist himself. It was Bryant who would invite Dr. Mariano – who had acquired considerable experience in crystallography while pursuing graduate studies at MIT – to visit Mountain Pass. It was there that Dr. Mariano developed a veritable passion – the kind that is best expressed through one of his beloved Neapolitan songs – for rare earths mineralogy and

geochemistry, leading to further expertise in granites, some of which contain rare elements. As for the present day rare earth market; Dr. Mariano seems to regret the transfer of rare earth technology and production to China.

He spoke with some wonder of the 1960's when Mountain Pass was the world's main supplier: "Europium was the element in most demand; it was needed to produce the rich reds in color television sets". But Dr. Mariano is also objective, praising some of China's own innovations in the rare earth processing field and the ion-absorbed-clays, "very important in today's rare earth market" and one of the main contributors to China's success in the rare earth market now. In the 1960's and 1970's; Molycorp had the market "all to itself". And then Dr. Mariano had to take another call, probably from one of his various clients but we look forward to presenting him with the Technology Metals Summit *Lifetime Achievement Award* on Sunday, April 21, 2013.