

Memorial to Gerardo Botero-Arango

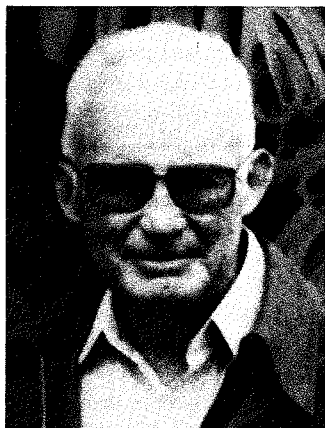
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When a large and wealthy nation loses an outstanding geologist to the grim reaper, others can compensate for the loss. The pool of talent in the field is so ample that the filling of the breach may pass largely unnoticed. In a small and relatively poor country, on the other hand, the passing of a great geologist is a serious loss felt for a long time. Such indeed is the case in the death of Emeritus Professor Gerardo Botero-Arango in Medellín, Colombia, on July 21, 1986, following a short illness. Professor Botero, holder of many national and regional distinctions, was a Fellow of GSA, having held membership since 1947.

Gerardo was born on February 27, 1911, one of five children, on a farm nestled 1500 m above sea level in a green valley bounded by the great forest-clad mountains of Colombia's central Andean Cordillera, at Envigado, in Antioquia Department. In childhood, he preferred the peace and solitude

of the farm to the hubbub of the nearby industrial city of Medellín, a preference that he held throughout his life. In those early years, Gerardo learned the scientific names of local plants and animals and made numerous drawings of them. He assembled a fine collection of native butterflies.

Gerardo's father, Roberto Botero-Saldarriaga, was a graduate in engineering, although his real interest lay in politics. He was elected to the Senate of the Republic of Colombia where he served with distinction as a major political figure. Later in life, on countless occasions, he made available important political positions to Gerardo who, in turn, refused them, pointing out that he could better serve his country working as a teacher, scientist, and engineer. Gerardo's mother, Luisa Arango de Botero, was a traditional *Antioqueña* whose practical views profoundly influenced Gerardo to put to use his hard-won scientific knowledge.

Beginning in 1920, Gerardo did primary and secondary studies in Bogotá, but returned to Medellín ten years later for university studies in civil and mining engineering, the closest field to geology, which by then had become his calling. He graduated from the School of Mines in 1935, having written a wholly paleontological thesis which allowed an early interpretation of the geological history of the Andes around Medellín.

In 1937, Gerardo was named Professor at the School of Mines, and a year later, at the age of 27, became the youngest Dean ever appointed. Here he really got to work. Under his direction, the present site of the National Faculty of Mines was purchased. Using his training in civil engineering, he personally undertook the design and supervised the construction of the new campus. Through his adept political maneuvering, the School became a Faculty of the Colombian National University in Medellín. Today, few Colombians have not heard of the *Facultad Nacional de Minas*. Gerardo's major accomplishment as Dean was to create the course of study in geology and petroleum engineering. He saw then (1940) that Colombia would make little progress without its own geologists and professionals in the fields of geotechnical and petroleum engineering.

As a teacher, Gerardo was dynamic and respected. He quoted Darwin widely, a nearly heretical deed in Colombia of the 1930s and 1940s, where Scopes would have been imprisoned as late as the mid-1950s. Although outwardly timid, Professor Botero would strongly defend points of science or

engineering. His field trips with students in the 1930s and 1940s are legendary. The most challenging were to the west—into the Urabá on the Panamanian frontier, or to Chocó Department. Delio Jaramillo Restrepo, a student on a 1934 trip to the Chocó, kept a diary which we've been privileged to read. An excerpt: "June 23, 1934. . . Gerardo Botero, who last night endured the frightening thunderstorm in the company of our group in the hut at Salado, today went ahead to La Granja, thus walking $9\frac{1}{2}$ leagues (48 km). That guy complains of nothing. That's why we call him Pinocchio, the man with untiring legs of wood." The Chocó is the wettest place on earth, with an average of more than 10 metres of rainfall annually. Only those personally familiar with that country, the archetypal "Green Hell," can appreciate this feat.

In 1942 Gerardo left his full-time position at the *Facultad*, although he was to continue his close association for 35 more years, teaching courses in paleontology, stratigraphy, and petrology, year in and year out. He now undertook a new full-time job: the expansion and modernization of PELDAR, a local, family-run glass factory that turned out simple products of uneven quality. Under his guidance and the technical stewardship of Owens of Illinois, PELDAR was to grow to become the major glass producer in northern South America. Gerardo was named Vice President for Technical Operations, a post he held for more than 20 years. His practical knowledge was much in demand, both in the factory and in the field. Always an active participant in the construction of new buildings and furnaces, he also trudged the field in search of good glass sand (he found a deposit at Zipaquirá near Bogotá and personally negotiated the exploitation rights for PELDAR), alkali feldspar (he found a workable deposit of this commodity, so scarce in Colombia, at Alejandría, near Medellín), and refractories (ah, the famous "bauxites" of the Llanos de Cuivá, a story unto itself).

Gerardo knew almost every nook and cranny of the country, perhaps better so than anyone before or since. He was a tireless walker, that Pinocchio; many of his excursions were on foot. He also enjoyed travel to other countries, to see local geology (of course, to take samples for the collections at the *Facultad*), to visit museums, and to meet new people. He would read up beforehand so that upon arrival in a new country, he would be well versed. His knowledge of English, French, and German was helpful. He attended many meetings of the International Geological Congress. A few months before the 1968 Prague IGC, however, he abruptly cancelled. He said to his friends, us included, that the political situation was poor and he feared something was going to happen. How prophetic he was!

In geology, Gerardo was a generalist. He was able to handle problems in hard-rock petrology, structure, mineralogy, and so on, but his preferred fields were geomorphology and paleontology. He made many contributions, from regional geologic maps to the identification of Ordovician graptolites in the central Andean Cordillera. Perhaps his most lasting additions to geologic knowledge were in geomorphology, through his studies of *peñoles* (inselbergs) on the Antioquian batholith, *organales* (concentrations of residual boulders in stream courses by downslope creep), and the role of the "erosion front" of the Magdalena River in shaping landforms in the central Andean Cordillera.

Stories about the feats of Gerardo Botero—in the field and in the classroom—are told and retold in Antioquia and beyond. Some may be apocryphal, but all are wonderful, entertaining, and deeply human stories, each a testimony to his strength of character and good nature.

Gerardo leaves his widow, *compañera* for half a century, Doña Helena Hoyos vda. de Botero; one of two daughters; and five grandchildren. He also leaves Colombia to seek a geologist and natural scientist of his stature, breadth, and depth, his ceaseless intellectual curiosity, his academic spirit and patience as a teacher, and his industrial experience. It will be a long search. He was an extraordinary man.

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