

Pierre Gouin, S.J. (1917–2005)

Pierre Gouin's unique personality touched all those fortunate enough to encounter him, for he was a warm and wise man of intense dedication equally to science and to the poor. In 1956 he founded the Geophysical Observatory of Addis Ababa (GOAA), and over the next 22 years he built up its remote facilities in seismology, geomagnetism, and gravity studies to recognized standards. Providence, too, arranged for his observatory to be located on a tectonic triple-junction, where the African Rift system meets with the Red Sea and Gulf of Aden seafloor spreading zones.

Pierre was born 13 September 1917 in Champlain, Province du Québec, Canada. Educated by the Jesuits in Montréal, he entered the Society of Jesus in 1937. In 1946, he commenced his two-year regency in Ethiopia, teaching physics at Tafari Makonnen Secondary School. In 1948 he commenced three years of theological studies at Weston College, during which he also obtained a diploma in electronics. Pierre was ordained a priest by Paul-Émile Leger, Archbishop of Montréal, 1 July 1951. He went on during 1953–54 to study for a M.Sc. in physics at Boston College, majoring in seismology under the tutelage of Daniel Linnehan, S.J.

Immediately afterward, Pierre was posted to teach physics in the newly founded University College of Addis Ababa (UCAA). Emperor Haile Selassie had decided that higher education in Ethiopia would be free of Cold War influences, and he selected French-Canadian Jesuits to administer his college. They scrupulously obeyed a strict stipulation against clerical dress and proselytizing. The Jesuit president and his professors, and Pierre in particular, responded to this unique educational challenge with vibrant dedication and buoyant enthusiasm.

Within the first year of Pierre's teaching at UCAA, in 1955, the International Geophysical Year (IGY) was activated, and a geomagnetic observatory was to be established in Addis Ababa in recognition of the city's location under the equatorial electrojet current. In 1957, the construction and outfitting of the Geophysical Observatory commenced on the college grounds. Pierre, appointed director, oversaw this process such that operations began in January 1958, and high-quality recordings have continued virtually unbroken to the present.

The first seismological set up, in February 1959, comprised a Willmore vertical seismometer and two Wood-Anderson horizontal seismometers. Diurnal tilting of the Addis Ababa hillside from solar insolation made the Wood-Anderson recordings unusable, and in April 1960 three Willmore seismometers

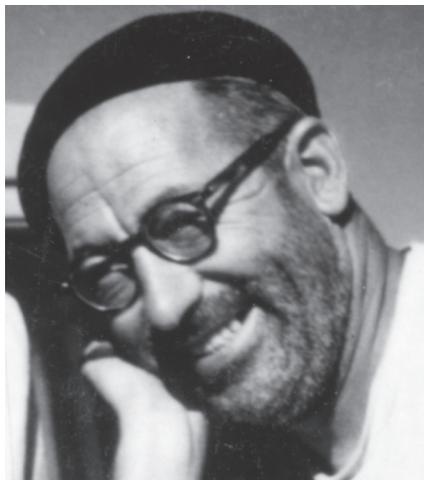
(Z, NS and EW) were put into operation, coupled to Tinsley galvanometers with time marks provided from a Riefler invar pendulum clock. In 1961 the U.S. Coast and Geodetic Survey (USCGS) installed one of their new World-Wide Standardized Seismograph Network (WWSSN) stations at the observatory. This revolutionized the capabilities of Ethiopian seismological studies, the aims of which became: (a) to provide the global seismological community with high-quality data; (b) to construct and refine a seismicity map of Ethiopia; (c) to produce a seismic-risk zone map; (d) to relate seismicity to the tectonics of the African Rift system and the Afar triple-junction; and (e) to initiate studies of crustal and upper mantle structure beneath the Ethiopian Rift system and the adjacent plateau.

In July 1961, a swarm of 3,500 earthquakes of M_L (AAE) ≥ 3.5 (maximum $M = 6.6$) occurred along the marginal graben of the Afar-plateau escarpment, centered on Kara Kore some 200 km northeast of Addis Ababa. Pierre was there within two days, negotiating the fractures in the Addis Ababa-Asmara highway in his VW Beetle, to make descriptions and photographs of the groundbreaks and landslips.

Eight years later, in March through May 1969, a related swarm demolished Sardo, 200 km northeast of Kara Kore, down in the young, highly faulted volcanic crust of central Afar. There were 250 shocks with $M_L \geq 3.0$, maximum $M = 5.9$. Accompanied by Frances Dakin and Roger Searle, Pierre made a thorough survey of the groundbreaks and damages in the stricken area. The observed transcurrent offsets within a rift zone came as a surprise to many and proved a vital aid to McKenzie *et al.*, Fairhead and Girdler, and Kebede *et al.*'s analyses and interpretations of the significance of the seismicity. During the latter half of his directorship, Pierre devoted his shrinking research time to compiling a list of historical earthquakes in the Ethiopian region. Reaching back to the 15th century and involving documents in a wide variety of languages and calendars, the effort resulted in his superb book, *Earthquake History of Ethiopia and the Horn of Africa*, published in 1978.

Pierre's Geophysical Observatory was always a place of warm welcome for visitors passing through Addis Ababa. More than that, it offered several visiting scientists a fieldwork base, and the lucky ones a university contract to assist Pierre (*e.g.*, Juliet Roquet, David Emilia, Pierre-Noel Mayaud S.J., Hartmut Porath, Peter Jones, Roger Searle, Ghebrehrehan Ogubazghi, and Laike Asfaw). Throughout, Yirga Tesfaye was the utterly reliable technician.

Over several years, Pierre, Paul Mohr, and Roger Searle employed the observatory's Sharpe "Canadian" gravimeter to



▲ Pierre Gouin in 1960

make survey loops along all the roads (and not a few imagined roads) radiating from Addis Ababa to the limits of the empire. This pioneering work into density anomalies and crustal structure in Ethiopia clearly outlined the nature of the rift valley and Afar, in parallel with numerous geological and tectonic field studies.

The Geophysical Observatory provided vital support to the Smithsonian Astrophysical Observatory (SAO) in establishing its Ethiopian satellite-tracking station for refining the earth's geoid. When Fred Whipple (then SAO director) learned from Pierre that his new station was sited on the edge of an actively spreading rift valley, he instigated a geodimeter-network survey that led to the first quantification of the rift widening-rate in Ethiopia 20 years later.

The astonishing fertility of first-class geophysical studies at the GOAA under Pierre's directorship gives a hint of the man himself. He was ever thoughtful of his staff and of the highest scientific and personal integrity, spiced with a Gallic bluntness that did not mesh easily with the ambiguities of "ishi nege" ("yes, tomorrow") bureaucrats. Keeping things going took a heavy toll on his health and increasingly required him to quit the day's work prematurely. "Why make things easy when you can make them difficult!" was one of his verbal releases.

Underlying everything for Pierre was his unspoken and unadvertised vocation as a priest of the Society of Jesus. Behind the lay dress, a disarming warmth and self-giving belied something deeper. He always brought his Mass kit on field surveys, and to assist at the Eucharist under God's sky was to know the heart of Pierre's labor of love.

In 1968, the Geophysical Observatory was awarded the Haile Selassie I Trust's Gold Medal for Ethiopian Studies. The

Emperor himself presented the award to Pierre in a formal ceremony in Africa Hall. Five years later, Pierre was awarded the University Chancellor's Gold Medal for Research, Teaching and Outstanding Service.

Pierre's directorship of the GOAA ended in 1978 when the new Marxist regime and its university administration blocked the renewal of his contract. He transferred to the Philippines to be director of geomagnetism in the Manila Observatory from 1979 to 1981. Pierre then returned to Africa to teach theoretical and applied physics at Kenyatta University in Nairobi from 1982 to 1986. Now nearly 70, Pierre's return to Brebeuf College in his native Montréal might have provided him the opportunity to retire to nurse his failing health. Yet he took up a new task: compiling a 1,400-page reference book, *Historical earthquakes felt in Québec: from 1534 to March 1925*, published in 2001. Pierre died peacefully on 18 December at the Jesuit residence at Saint Jérôme, Montréal. He was 88 years old.

In 2004, the 1969 Sardo (Ethiopia) Earthquake Archive was dedicated to Pierre Gouin for his studies of earthquakes in East Africa. This online archive contains bibliographic materials of Pierre Gouin and is available at <http://www.iris.edu/seismo/quakes/1969sardo/>. ✉

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