



Société Française de Minéralogie et de Cristallographie

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OBITUARY: GEORGES PEDRO (1929–2019)

Georges Pedro, emeritus Director of Research at the French National Institute for Agricultural Research (INRA), passed away 30 January 2019 in Paris (France). After graduating as an agronomy engineer in 1952, he joined INRA as a research associate in 1955 in the soil science station of Versailles and obtained his doctorate (Thèse d'État) in 1964. He was promoted to senior researcher in 1965, then Research Director of the INRA Department of Soil Science in 1974. A close friend of George Brindley and Jacques Mering, Georges himself was a major figure of clay mineralogy and soil science. Georges made pioneering contributions to clay science over a broad range of organizational scales, from the crystal structure of clay minerals to the spatial organization of weathering profiles and the global distribution of soils. Operating at the intersection between agronomy, crop science, and surface geoscience, he developed a general interpretation of pedogenetic processes. He was a pioneer in alerting society for the need to protect soil resources and was among the first to underline the major importance of soils in sustainable development issues. He always encouraged the combining of modern mineralogical and geochemical approaches with field and experimental studies. This allowed him to develop an overarching synthesis viewpoint on the structural organization and physico-chemical properties of clays, the associated minerals and organic matter in soils, and the constraining parameters that govern rock weathering and soil formation. His field studies in Europe, South America, and Africa allowed him to focus on the influence of climate on soil mineralogy and geochemistry. These



Georges Pedro

original research contributions were recognized by the CNRS Silver Medal in 1980.

While having a full research position, he invested a lot in teaching, in particular in the French national masters program on soils. He was an exceptional guide to clay mineralogy and soil formation and development, appealing to the intelligence of his students with a very mechanistic approach, captivating them with examples from all over the world and his wide knowledge.

A member of the Academia Europaea and of several French Academies (Academy of Sciences; Academy of Agriculture, of which he was Perpetual Secretary from 1998 to 2004 inclusive; and Academy of Technology), Georges Pedro received many major French distinctions. For many decades he was involved in French scientific life, chairing a large number of scientific committees and professional organizations, always curious and caring while simultaneously rigorous and demanding. In addition to his professional activities, he was a very generous man who possessed great culture. And he always had a smile that invited you to have a discussion. His death is a great loss to the mineralogical and soil science communities and to all of his friends and colleagues around the world. He is survived by his wife, Marie-Josèphe, and their children, grandchildren, and great-grandchildren. Our thoughts are with his family.

Georges Calas (Sorbonne Université, Paris)
and **Claire Chenu** (AgroParisTech, Paris)

FIELD TRIP TO THE ÎLE DE GROIX (BRITTANY, FRANCE)

The SFMC organized a two-day field trip (28–29 March 2019) to the Île de Groix (Groix Island) in Brittany in northwest France. The aim was to explore the famous greenschist to blueschist to eclogite metamorphic facies that outcrops all around the island. The 21 attendees came from all over France and included a range of academic post-doctorates, researchers and teachers. They specialized not only in petrology and mineralogy but also in geotechnics or paleontology. We were guided in the field by Michel Ballèvre (Géosciences Rennes), a longtime specialist in Île de Groix mineralogy and petrology who seemed to know by heart every stone.



Epidote–glaucophanite boudin (dark) embedded in mica schists, both covered by mineralogists and petrologists during the SFMC field trip to Île de Groix (France). PHOTO BY BERTRAND DEVOUARD

We observed numerous mineral species, including classics such as garnets (note the plural) and micas (phengite, paragonite) and, of course, the famous blue-to-violet glaucophane that makes Groix so famous. Also seen were lawsonite pseudomorphs; barroisite; the manganese-bearing minerals piemontite, tephroïte, jacobsonite, rhodochrosite; and the minerals acmite, omphacite, ilmenite, rutile, impressive multi-centimetric chloritoid crystals, and the very rare mineral deerite. In all, more than 60 mineral species have been documented on the island.



Field photo of lawsonite pseudomorphs in a fine-grained glaucophanite at Île de Groix. PHOTO BY BERTRAND DEVOUARD.

The mafic rocks (greenschist, garnet–epidote glaucophanite, eclogite) account for about 20 vol% of the island and are embedded in felsic rocks, mostly mica schists. All are deeply deformed in both ductile and brittle regimes, generating beautiful structural features. The most impressive of them are centimetre to decametre mafic sheath folds and boudinages hosted within the felsic matrix. We discovered how difficult it is to interpret the observed petro-structural features in terms of the regional geology of the Variscan Belt. At all stages of the trip, we appreciated the numerous hypotheses proposed by Michel to interpret the observed features, and we imagined the nature of the protoliths and the processes involved in their transformation. This generated among the participants numerous discussions and constructive debates, which were greatly appreciated.

We warmly thank Michel for his charismatic enthusiasm and willingness to impart information not only on the local geology but also on the botany, ornithology, and local history. We also thank Léa Trifault and Catherine Robert, curators in charge of the Île de Groix Nature Reserve, for their welcome, and the local people responsible for some gastronomic wonders on this fabulous island.