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International Mineralogical Association

MINERALOGY IN BRAZIL

The image of Brazil as a fabulous place for minerals is a matter of fact, says IMA national representative Fábio Ramos Dias de Andrade in a letter describing the history and present scientific environment in Brazil. Mineralogists in Brazil are experiencing the best job market in 30 years.

The vast piece of land known as Brazil, the only Portuguese-speaking country in Latin America, was once called the giant asleep, the land of the future, referring to its potential to become an outstanding world economy. Although the country has not reached this status so far and its wealth is poorly distributed among the population, Brazil is an El Dorado for mineralogists and Earth scientists, a place where much has been done and much more is still to do.

The Brazilian autochthonous, pre-colonial population of the Tupi-Guarani culture did not use metals, in contrast to the coeval Incas, Mayas and Aztecs. Their artefacts were and still are made of wood, bone, ceramic, stone, vegetal fibres and leather. It was the European newcomers who triggered the gold fever that still burns today.

Natural resources attracted the colonial powers in the sixteenth century, starting with the arrival of the Portuguese in 1500 AD and followed by several incursions of Dutch, English, Spanish and French pirates. In the seventeenth century, expeditions into the continent from the Atlantic coast towards the Andes and in the Amazon region, in search of gold and gemstones, were important in establishing the borders of the country. Gold was a leading resource in colonial Brazil—gold was sent by ship to the Portuguese crown, mostly to pay off debts with the British Empire and Holland. Mineral exploration in Brazil took the lives of many African slaves and was an important cause of the genocide of its original population, the índios.

The image of Brazil as a fabulous place for minerals is a matter of fact. Brazilian gemstones, amethyst geodes, diamonds, the world's largest niobium reserves, huge iron, gold, copper and tin deposits, world-class oil fields and abundant industrial minerals, among other geological highlights, make the mineral resources one of the pillars of the Brazilian economy. A recent boom in the mineral sector owing to a decade of rel-



Paraiba tourmaline cut in oval shape (3.15 and 3.25ct), from São José da Batalha, Paraíba, Brazil. This tourmaline has a unique colour (neon blue) owing to its high copper content, and is one of the most expensive varieties of tourmaline. PHOTO: ANTONIO LICCARDO



Amethyst geode (3 kg) from Ametista do Sul, Rio Grande do Sul. Brazil is the leading amethyst producer, mostly from geodes in the Cretaceous continental flood basalts from Rio Grande do Sul. PHOTO: ANTONIO LICCARDO (WWW.GEOTURISMOBRASIL.COM)

ative economic stability has led to the best job market for geologists and mineralogists in more than 30 years. Some fields of applied mineralogy, such as ore processing and environmental mineralogy, are following this trend thanks to increasingly restrictive environmental laws. With the job market improving, mineralogy is attracting more students, and new research fields, from cultural heritage to medicine, from petrology to solid-state physics and from gemology to materials science, are being explored. Hence, mineralogy is no longer regarded merely as a subject for an elementary course in the geology undergraduate curriculum; it now receives attention as a key for professional advancement. As Brazilian universities do not offer degrees in mineralogy, the field is primarily occupied by geologists and a few physicists and engineers. Scattered throughout universities and corporations, mineralogists are grouped according to their research interests, rather than by associations or institutions. Therefore, it is difficult to establish the size and shape of the Brazilian mineralogical community, although it certainly counts a few hundred members. IMA national representation comes under the umbrella of the 2600-member Sociedade Brasileira de Geologia. There is no formal mineralogical group, and national representation for Brazil was reinstated following discussions between the author of this article and IMA officers at the International Geological Congress in Brazil in 2000. Additionally, few Brazilian journals publish papers on mineralogy, and most of our contributions appear in international journals in English. A milestone in this regard was the 8th International Congress on Applied Mineralogy (ICAM2004), held in Brazil in 2004 under the auspices of the International Mineralogical Association and its Commission on Applied Mineralogy (IMA-CAM), with Henrique Kahn from IMA-CAM in charge of the organising committee. This meeting brought together more than 200 people from around the world and contributed to knowledge on both traditional and unconventional fields of mineralogy (Pecchio et al. 2004).

About 50 minerals have been described for the first time from Brazil (Atencio 2000). One of the first was native palladium, observed in 1809 by W.H. Wollaston in samples from Brazilian gold mines given to him by the Portuguese ambassador. New minerals are still being discovered, in the last few years mainly by the team led by Daniel Atencio, the Brazilian member of the IMA Commission on New Minerals,

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