under both short and long wave ultraviolet light. X-ray powder-diffraction data for the Brazilian sample is virtually identical to that for the original gaidonnayite, described from Mont. St. Hilaire, Quebec, Canada (Chao & Watkinson, Can. Mineral. 12: 316-9, 1974). EDS analysis showed the presence of Zr, Si, O, Na and K. Flame emission spectrometry analysis gave Na_2O 10.24 and K_2O 1.81 wt.%. Other rare Na and/or K and/or Ca, Ti and/or Zr silicate minerals were identified in the Poços de Caldas alkaline rocks, mostly by optical properties: aenigmatite, astrophyllite, catapleiite, eudialyte, fersmanite, lamprophyllite, låvenite, mosandrite, rinkite, rosenbuschite and the problematic "rinkolite", "giannettite" and "pennaite". Complete mineralogical data are lacking for all of these minerals. — (*14 de dezembro de 1993*).

ALUMINOCOPIAPITE, ALUNOGEN AND OTHER SUPERGENE SULFATES FROM POÇOS DE CALDAS, MINAS GERAIS, BRAZIL

DANIEL ATENCIO, LILIANA S. OSAKO AND M. RONDANI

Presented by A. C. ROCHA-CAMPOS

Instituto de Geociências, Universidade de São Paulo, São Paulo, SP, Brasil.

The Osamu Utsumi uranium mine, at the "Campo do Cercado", within the large Poços de Caldas alkaline massif, is located 25 km to the south of Poços de Caldas city, Minas Gerais, SE Brazil. The mine area is a more or less irregular, complex breccia pipe, enclosed by phonolites and nepheline syenites. Small bodies of pseudoleucite phonolites and some dikes of biotite lamprophyres also occur (Garda, Ms. Thesis, Inst. Geociências, USP, 1990). A strong hydrothermal alteration, related to the formation of the breccias, has resulted in the potassic alteration and pyritization of the phonolites and syenites (Garda, *op. cit.*; Waber *et al.*, J. Geochim. Explor. 45: 53-112, 1992). As a result of supergene weathering, pyrite readily alters to a variety of sulfates, identified by us by X-ray powder-diffraction data and EDS as rozenite, aluminocopiapite (and perhaps other copiapite-group minerals), alunogen, coquimbite, a mineral of the halotrichite-group and gypsum. A botryoidal aggregate of aluminocopiapite and alunogen was analyzed and the following data (wt.%) were obtained: Fe_2O_3 18.92%, FeO 0.30%, Al_2O_3 4.50%, SO_3 34.56%, H_2O 40.64%, Total 100.20%, Mg^{2+} 29 ppm, Ca^{2+} 96 ppm, Zn^{2+} 228 ppm, Mn^{2+} 6 ppm, Cu^{2+}, Co^{2+} and Ni^{2+} were not detected. Ideal chemical composition of aluminocopiapite, $Al_{2/3}Fe_4(OH)_2(SO_4)_6.20H_2O$, is Fe_2O_3 26.4%, Al_2O_3 2.8%, SO_3 39.6%, H_2O 31.2%. Excess of Al causes crystallization of alunogen, $Al_2(SO_4)_3.18H_2O$. These minerals form water-soluble, powdery white and yellow crusts and yellow botryoidal aggregates. In addition, Waber *et al.* (*op. cit.*) also found tiny white and bluish needles of kalinite, pickeringite, bilinite and tschermigite. — (*14 de dezembro de 1993*).

HOHMANNITE AND OTHER SUPERGENE SULFATES FROM QUEBRA-OSSO GOLD MINE, SANTA BÁRBARA DISTRICT, MINAS GERAIS, BRAZIL

DANIEL ATENCIO, IVANIR LUCHESI AND HANS D. SCHORSCHER

Presented by A. C. ROCHA-CAMPOS

Instituto de Geociências, Universidade de São Paulo, São Paulo, SP, Brasil.

The gold-bearing unit of Quebra-Osso mine, located 15 km south of Santa Bárbara, Minas Gerais, is composed by quartz-muscovite schists with graphite, abundant pyrite and subordinated chalcopyrite and arsenopyrite, with some banded iron formation to metachert (Luchesi, Ms. Thesis, Inst. Geociências, USP, 1991). Supergene weathering alters the sulfides, mainly pyrite, to a great variety of sulfates, identified by X-ray powder-diffraction data and EDS as melanterite, römerite, aluminocopiapite (and perhaps other copiapite-group minerals), alunogen, coquimbite, minerals from the alunite and halotrichite groups, gypsum, hohmannite, fibroferrite, botryogen and butlerite. These minerals form powdery white, green, rose, yellow and orange crusts, most of then water-soluble. The occurrence of these minerals is very common and was described in several world and Brazilian localities. Hohmannite – $Fe_2O(SO_4)_2.8H_2O$, triclinic –, is apparently described in Brazil for the first time. The mineral is associated with minor fibroferrite, botryogen and butlerite in orange botryoidal crusts of anhedral microscopic crystals. — (*14 de dezembro de 1993*).