SHORT COMMUNICATIONS

MINERALOGICAL MAGAZINE, DECEMBER 1974, VOL. 39, PP. 889–90

Guanine and uricite, two new organic minerals from Peru and Western Australia

GUANINE and uric acid were first described from Peruvian guanos in the early nineteenth century but have been omitted from compilations of mineral lists. To correct this oversight the minerals and names were submitted to and accepted by the Commission on New Minerals and Mineral Names, I.M.A., in late 1973. The submission was made on a historical basis to give prior recognition to the original discoverers. The occurrence of these minerals in guanos from Western Australia substantiates the Peruvian occurrences.

Uric acid was first described by Scheele in 1776 from urinary calculi and from Peruvian guanos by Klaproth in 1807. Klaproth gives the composition of the analysed guano as 'ammonische Harnsäure 10, phosphorsäuren Kalk 10, kleesäuren Kalk 12·75, Kieselerde 4, salzsäures Natrium 0·5, sandige Beimengung 28, Wasser, verbrennlicher thierischer Ueberreste, und sonstiger Verlust 28·75'. Fourcroy and Vauquelin (1805) semiquantitatively analysed guano and found uric acid, probably as the ammonium salt. M. H. Hey (pers. comm. 1974) considers that there does not appear to be any clear evidence that free uric acid occurs in Peruvian guano. In Western Australia uricite occurs with minor biphosphammite, brushite, syngenite, and several unidentified compounds in a bird-guano deposit in Dingo Donga Cave (31° 51′ S., 126° 44′ E.). The deposit covers several square metres in two patches on high outcrops of limestone under the overhang of the cave entrance collapse. Here the guano forms large layered domes with fresher material being deposited sporadically on the outside. The guano is probably derived from kestrels or owls, which use the caves for shelter. The properties of uric acid have been described by Ringertz (1965). Uricite is the monoclinic, anhydrous form.

Guanine was discovered in guano from North Chincha Island, Peru, by Unger in 1844 when he isolated a compound he believed to be xanthine (= xanthic oxide = Harnoxyd), a purine base (Unger, 1844, 1845). Einbrodt (1846) showed this identification to be incorrect; (Unger, 1846*a*) agreed, later fully describing the base and naming it guanine (Unger, 1846*b*).

The guano minerals of Murra-el-elevyn Cave (31° 20′ S., 126° 0′ E.), and the occurrence of guanine in the phosphatic crusts have been described by Bridge (1973). Bugg, Thewalt, and Marsh (1968) described the crystal structure of guanine but there do not appear to be any published physical or optical data. The W.A. material was identified by powder X-ray diffraction but insufficient material remained for any further work.

Hutchinson (1950) has examined the literature on guano and is a useful reference in the absence of the original sources.

Specimens are preserved in the collections of the W.A. Government Chemical Laboratories.

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Hornblendites from the southern portion of the New Caledonian ultramafic belt

HORNBLENDE-BEARING rocks are rare members of the alpine-type, peridotite–gabbro–granodiorite complex of New Caledonia. They occur as bojite-gabbros (Rodgers, 1972), as hornblende diorites and granodiorites (Rodgers, 1973) and as hornblendites. The last-named rocks have been found in two regions of the southern portion of the largest ultramafic massif, the Massif du Sud, where both occurrences are probably dyke-like in nature but extensive laterization of the encasing harzburgite has obscured field relationships.

The first occurrence consists of small, isolated, remnant boulders seated in a ferralite road-cut about 1 km south of the Rau Pernod ford on Route du Carénage. The second locality is more substantial and forms a continuous series of waterfalls