

## THE OCCURRENCE OF CINNABAR IN DUTCH GUIANA

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For some years past mineral collections have been supplied by dealers with unusual and very striking specimens of cinnabar in well rounded pebbles accompanied by the vague locality, Surinam River, Dutch Guiana. The writer has been supplied with accurate information concerning this occurrence of cinnabar and deems its peculiar character a sufficient reason for placing the known facts on record. He is indebted to Mr. D. V. Keedy of Melrose Highlands Massachusetts, for this information and for permission to publish it as well as for interesting specimens of the cinnabar.

The cinnabar occurs in the Nassau Mountains in the interior of Dutch Guiana, about seventy-five miles in an air line south and east of Paramaribo, the capital of the colony, but distant four days travel by boat and trail. The area where it is found, now known as the Keedy Concession, is in the Marowynne District near the headwaters of the Tempati River. It is reached either by ascending that river through its lower course, the Commewyne, or by a longer route up the larger Marowynne river, depending upon the season and the corresponding depth of water in the rivers.

The cinnabar pebbles were first found some twenty years ago in the gold placers of the region and the concession where they were most abundant had passed through many hands before the present owners took it over. The search for the primary deposits from which the cinnabar pebbles were derived has yielded interesting information as to their geological nature.

The cinnabar occurs in specks, grains and pebbles up to a pound in weight in the river gravels and surface soil. The pebbles are well rounded and are of a dull vermilion color. On breaking them open they show either a granular texture or almost as often a brilliant cleavage, the whole pebble consisting of a single crystal. Occasional crystals of pyrite and specks of chalcopyrite are imbedded in the cinnabar and in many pebbles brown ochreous limonite is interspersed through it.

With cinnabar in the placer concentrates is found gold in scales and small nuggets, magnetite and ilmenite constituting a black sand, and in one creek monazite. Free mercury was seen in some pebbles but may have been introduced by the gold washers who use it in their work.

In trenching the hillsides drained by the cinnabar-bearing creeks, Mr. Keedy's prospecting operations brought to light some large boulders of cellular lateritic iron ore in which were definite veins of cinnabar up to an inch in width and extending through the boulders. This cinnabar is identical in character with that of the pebbles and it is evident that such veins are the source of the alluvial material. Extensive search, however, failed to reveal the laterite anywhere in place. It is widely distributed throughout the region, often in very large masses, but is devoid of cinnabar except where the veins were seen. It is believed by the geologists who have studied the deposits that, prior to the development of the present topography, this iron laterite constituted a blanket deposit overlying the mica schist which composes the bedrock. Two considerable faults were observed in the trenches along which were small gold-bearing quartz veins carrying, however, no cinnabar. The formation of the cinnabar veins must have been later than the formation of the iron laterite but earlier than the recent erosion. It seems certain that the veins were deposited from hot spring waters and that somewhere in the region they must have intersected the bedrock. What seems most strange in these specimens is that the cinnabar is so closely confined to the narrow veins and is not disseminated in the porous limonite which seems a material peculiarly well suited to permit the type of impregnation so common in deposits of cinnabar.

Among the specimens collected was a single boulder of peculiar mineralogical interest. It consists of quartz and a bluish green granular mineral thought at first to be pyroxene. It proved on microscopic examination, however, to be serendibite, a borosilicate of aluminum, first found in placers in Ceylon, and later found in abundance in a contact deposit in the Adirondack Mountains in New York, which has not yet been described. The boulder contained no cinnabar and the presence of this contact mineral probably has no bearing on its origin.