cause the x-ray and the majority of optical examinations conform to leonhardite rather than to laumontite.

CONCLUSIONS

Leonhardite crystals with lesser amounts of the fully hydrated laumontite, are associated with calcite, quartz, and other Na-Ca zeolites filling fractures near the top of a diabase sheet. Although conforming to previously published data on leonhardite in most respects, the x-ray powder pattern is distinguished by a (110) reflection of 100 intensity at 9.49 Å, and by a notable deficiency in silica which does not appear to be counterbalanced by alkali or aluminum substitution for calculations based on 48 oxygen atoms per unit cell.

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THE AMERICAN MINERALOGIST, VOL. 48, MAY-JUNE, 1963

SOME PROPERTIES OF PLATINUM MONOTELLURIDE (PtTe)

M. L. GIMPL, C. E. NELSON AND N. FUSCHILLO,
The Research Division, Melpar, Inc., Falls Church, Virginia.

There is confusion in the literature over the existence of the compound PtTe. Roessler (1897) claims synthesis of PtTe by melting $PtTe_2$ in the oxidizing flame of a blowpipe on charcoal. Thomassen (1929) was unable to prepare the monotelluride of platinum by direct fusion of the elements. Groeneveld Meijer (1955) showed that a naturally occurring platinum telluride (niggliite) has the formula PtTe and probably has a hexagonal unit cell of $a = 4.11$ Å, $c = 5.446$ Å.

The existence of the compound PtTe has been shown in a recent investigation of the platinum-tellurium system (Gimpl *et al.*, to be publ.). The compound, PtTe, is formed by a peritectic reaction of $PtTe_2$ and liquid at 920° C.

A platinum monotelluride sample weighing approximately 3 grams was prepared by reacting a stoichiometric ratio of the elements at 1150° C. in an evacuated quartz ampule. The samples were then slow cooled to 900° C. and held for 48 hours to allow the peritectic reaction to go to completion.

Metallographic examination showed the samples to be single phased. The grains in the polished sample were strongly anisotropic when viewed under polarized light.

The samples of platinum monotelluride have a metallic luster, are silver-white in color and are opaque. The samples of PtTe were etched by immersing in a mixture of 15 parts of nitric acid, 2 parts of hydroflouric acid, and 5 parts of acetic acid for 2 to 5 minutes. The samples of PtTe were completely inert to concentrated hydrochloric acid, concentrated nitric acid, and aqua regia.

The resistivity of the sample of PtTe was 2.07×10^{-5} ohm-cm as measured by an ac-compensating resistivity probe. The scratch hardness was about 2 on the Mohs scale. Micro hardness testing showed the sample to have a 100-gram Vickers hardness number of 55. The sample was crushed and the pycnometer density was 10.54 gm/cc.

The sample was then finely ground in a mortar and analyzed in an *x*-ray diffractometer using filtered copper radiation. The d spacing and intensities measured are presented in Table 1. The d spacings may be compared to those calculated by Groeneveld Meijer (1955) and Sholtz (1936). The d spacings observed here agree well with those observed by Sholtz. Our values do not agree with those calculated by Groeneveld Meijer (1955) for a hexagonal structure of PtTe. Groeneveld Meijer (1955) attributed the lines in the check column to impurities in the sample of Sholtz (1936). We, however, have no impurities and have an essentially single-phase

TABLE 1. POWDER *X*-RAY DATA FOR PtTe

d Å	Spacings not Agreeing with Calculated Structure but Agreeing with Sholtz	I/Io
3.309	X	18
2.829	X	25
2.356	X	38
2.266	X	9
2.187		36
2.040		100
1.655		13
1.599		38
1.322	X	33
1.230		21
1.101		15

material as observed by metallographic examination. This would indicate that the hexagonal structure calculated by Groeneveld Meijer (1955) is not correct since it does not fit all of the lines reported by Sholtz (1936).

No further work is planned on the structure of the compound PtTe at this time.

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THE AMERICAN MINERALOGIST, VOL. 48, MAY-JUNE, 1963

COMPARATIVE STUDY OF THE ETCH PATTERNS ON MUSCOVITE FROM DIFFERENT SOURCES

A. R. Patel and S. Ramanathan, *Physics Department, Sardar Vallabhbhai Vidyapeeth, Vallabh Vidyanagar, India.*

Introduction

Etching of micas has been reported by several workers, chief among whom are De la Vault (1944), Patel and Tolansky (1957), Pandya and Pandya (1958) and Patel and Ramanathan (1962). Their studies were mainly confined to muscovite from a particular deposit.

Patel and Tolansky (1957) reported that the etch pattern produced by HF acid consists of large individual, isolated and small, widely distributed pits. The density of the small, widely distributed pits is so large that even in the early stages of etch they interfere with one other, and hence in many cases it is not possible to determine its value. Patel and Ramanathan (1962) established the correspondence in the etch patterns of the large individual isolated pits on the opposite sides of a thin mica flake and hence attributed their origin to the existence of linear dislocations in the body of the crystal.

In the present investigation we have collected muscovite mica from different sources: 14 samples of which are from India and one from Australia. They have been etched in HF acid simultaneously, and the etch patterns produced on them have been critically studied with a view that it might shed some light on the history of growth of the crystals.

Experimental Data and Observations

The particular mica to be investigated was cleaved and the freshly cleaved surfaces were treated with 40% HF acid. The etch patterns pro-