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## THIERSCHITE (=WHEWELLITE)

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The name, thierschite, was given by Justus Liebig in 1853 to an un-analyzed calcium oxalate found as a coating on the marble of the Parthenon, Athens. It was considered by J. D. Dana in the 1854 edition of *The System of Mineralogy* to be probably identical with whewellite,  $\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O}$ , and the same opinion is expressed in most more recent references to the mineral. X-ray and optical study of an authentic specimen obtained from the Vienna Natural History Museum, through the courtesy of Dr. Alfred Schiener, Curator of Minerals, established that the substance consisted of desiccated vegetal material, perhaps a lichen, that contained embedded microscopic grains of whewellite. The crystallization of  $\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O}$  and  $\text{CaC}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$  (weddelite) in the cells of certain plants is well known, the earliest description dating from 1675, and is the subject of an extensive literature (von Philipsborn, 1952, 1954).

## REFERENCES

- LIEBIG, J. (1853), *Ann. Chem.*, **86**, 113.  
 VON PHILIPSBORN, H. (1952), *Protoplasma*, **41**, 415.  
 ——— (1954), *Sudhoffs Archiv.*, **38**, 306.

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## NON-EXISTENCE OF NATIVE TANTALUM

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Type specimens of the native tantalum described by Walther (1909) and by his associate von John (1910) from gold washings at Nizhnyi Tagil in the Urals and from the Altai Mountains, Russia, recently were obtained with the purchase of the collection of the late P. Walther by the Harvard Museum. Re-examination of this material has shown that it is in fact tantalum carbide and not tantalum. The specimens give identical x-ray diffractometer patterns that agree with the data given on ASTM<sup>1</sup> card 6-0524 for synthetic TaC (Table 1). TaC is isometric, with a NaCl-type structure (Schwartz and Summa, 1933); specific gravity 14.5.

<sup>1</sup> Amer. Soc. Test. Mat. Spec. Publ. 48-G, X-Ray Powder Data File.

TABLE I. X-RAY POWDER DATA FOR TaC

Altai Mtns. and Nizhniy Tagil		TaC (synthetic)		<i>hkl</i>
<i>d</i> Å	I	<i>d</i> Å	I	
2.56	100	2.57	100	111
2.22	90	2.23	90	200
1.572	41	1.575	75	220
1.342	35	1.345	55	311
1.285	10	1.285	30	222
1.114	7	1.116	15	400
1.022	10	1.022	30	331
0.995	11	0.996	30	420
0.910	10	0.9091	30	422
0.857	13	0.8573	35	511,333
<i>a</i> 4.453Å		4.456Å		

Cu radiation, Ni filter, in Angstrom units. Relative line intensities in arbitrary chart units.

X-ray fluorescence analyses showed Nb to be the chief minor element in both occurrences, in the same or virtually the same ratio to Ta. The original descriptions reported 1.5 per cent Nb in the material from the Urals and none in that from the Altai. The specimens from both localities consisted of sharp cubo-octahedral crystals and intergrown grains about 0.1 mm in size. The Altai samples contained a few flakes of native gold and several tiny, well-rounded grains of a silvery gray metal that gave the x-ray powder pattern of ruthenium. V. M. Goldschmidt (1926) also found that a specimen of supposed native tantalum from Nizhniy Tagil was TaC, and held it highly probable that the material was a laboratory and not a natural product. The occurrences (as of native tantalum) also have been doubted by Pilipenko (1915). No additional information has appeared in more recent Russian literature (Chukrov, 1960).

## REFERENCES

- CHUKROV, F. V. (1960), (ed.). Mineral System. Moscow, 1, 20.  
 GOLDSCHMIDT, V. M. (1926). Geochemische Verteilungsgesetze. *Skr. Norske Videnskaps-Akad. Oslo, Mat.-Nat. Kl.*, 8, 45.  
 PILIPENKO, P. P. (1915). *Bull. Tomsk Univ.* 62, 322. (*Min. Abs.*, 2, 109, 1925).  
 SCHWARZ, M. AND O. SUMMA, (1933). *Metallwirtsch.*, 12, 298.  
 VON JOHN, W. (1910). *Nature*, 83, 398.  
 WALTHER, P. (1909). *Nature*, 81, 335.