

A  
SYSTEM  
OF  
MINERALOGY,  
COMPRISING THE  
MOST RECENT DISCOVERIES:

INCLUDING  
FULL DESCRIPTIONS OF SPECIES AND THEIR LOCALITIES, CHEMICAL ANALYSES  
AND FORMULAS, TABLES FOR THE DETERMINATION OF MINERALS,  
AND A TREATISE ON MATHEMATICAL CRYSTALLOGRAPHY  
AND THE DRAWING OF FIGURES OF CRYSTALS.

ILLUSTRATED BY NUMEROUS WOOD CUTS AND FOUR COPPER PLATES.

By JAMES D. DANA, A. M.

Member of the Soc. Cms. Nat. Cur. of Moscow, the Soc. Philomathique of Paris,  
the American Academy of Arts and Sciences at Boston, etc.

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UNIVERSITY

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A.

KÖTTIGITE, *D.* Zinkarseniat, *Otto Köttig*, *J. f. pr. Chem.* xlviii, 183, 1849, and *Naumann*, *ib.* 256.

Monoclinic, according to Naumann, and isomorphous with cobalt bloom. Massive, or in crusts with a crystalline surface and fibrous structure. Cleavage perfect in one direction.

H.=2.5—3. G.=3.1. Lustre of surface of fracture silky. Color light carmine and peach-blossom red, of different shades. Streak reddish white. Translucent to subtranslucent.

*Composition.*—(Zn, Co, Ni)<sup>2</sup>As+8H, or analogous to cobalt bloom. Analysis by Köttig, (*loc. cit.*):

As (by loss) 37.17, Zn 30.52, Co 6.91, Ni 2.00, Ca *trace*, H 23.40=100.

In a matrass yields water and becomes pale smalt blue. B.B. on charcoal in the outer flame changes color and fuses to a pearl, gives out fumes of arsenic, and leaves a slag of oxyd of zinc. Gives a cobalt and nickel reaction. In dilute acids easily dissolved.

Occurs with smaltine at the cobalt mine Daniel near Schneeberg. The color is owing partly to the arsenate of cobalt in the mineral.

#### HERRERITE, *Del Rio*.

Massive, reniform. Cleavage in three directions, and hence supposed to be rhombohedral. Surfaces curved. H=4—5. G=4.8. Lustre vitreous to pearly. Color pistachio, emerald or grass green. Streak yellowish-gray. Translucent.

*Composition.*—According to Herrera, Carbonic acid 31.86, tellurium 55.58, peroxyd of nickel 12.32. Del Rio found zinc in place of tellurium. It is a doubtful species. B.B. on charcoal becomes gray and evolves white fumes which cover the charcoal; in the inner flame becomes grass green.

Occurs at Albarradon in Mexico, in stratified limestone, in a vein consisting chiefly of ores of lead, and native silver with horn silver.

## X. LEAD.

Lead occurs rarely native. It is usually in combination with sulphur, constituting the common ore galena. It is also found combined with oxygen, selenium, and tellurium; with antimony and sulphur; with carbonic, phosphoric, arsenic, vanadic, chromic, antimonic, molybdic, and tungstic acids. The last two ores will be found on page 406.

The antimonial compounds are closely related to sulphuret of antimony, page 417.

### 1. *Native.*

NATIVE LEAD. *Plomb Natif*, *H. Gediegen Blei*, *W.*

Monometric. Found in thin plates and small globules.

H.=1.5. G.=11.445, when pure. Lustre metallic. Color lead-gray. Malleable and ductile.