

AN  
ELEMENTARY INTRODUCTION

TO  
MINERALOGY,

BY THE LATE

WILLIAM PHILLIPS.

*New Edition,*

WITH EXTENSIVE ALTERATIONS AND ADDITIONS,

BY

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HYDROUS OXALATES.

457. HUMBOLDTINE.—Oxalate of iron; Phillips. Fer oxalaté; Haüy. Humboldtin; Mohs, Haidinger. Oxalit; Hausmann.

Fracture uneven...earthy. Opaque. Lustre waxy, glimmering or dull. Yellow. Streak yellow. Slightly sectile.  $H = 2.0$ .  $G = 2.15...2.25$ .

Before the blowpipe blackens and then turns red. Imparts the colour of iron to borax and salt of phosphorus. Insoluble in water and alcohol. Readily soluble in acids. With alkalis yields a precipitate of protoxide of iron.

$2\text{Fe}\ddot{\text{C}} + 3\text{H}$ , oxalic acid 42.11, protoxide of iron 42.11, water 15.78.

Analyses of humboldtine by Rammelsberg:—

Oxalic acid . . . . .	42.40	not determined
Protoxide of iron . . . . .	41.13	40.24 40.8
Water . . . . .	16.47	not determined

Is found in capillary crystals, and botryoidal, granular or fibrous masses, with gypsum in a bed of brown coal at Kolosoruk near Bilin in Bohemia. It is said to occur also in brown coal at Gross Almerode in Hussia.

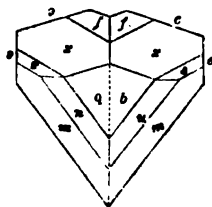
458. WHEWELLITE.—Oxalate of lime; Brooke. Phil. Mag. June, 1840. Oxalsaurer Kalk; Haidinger.

Oblique.  $101,100 = 36^\circ 47'$ ;  $111,010 = 50^\circ 39'$ ;  $101,001 = 70^\circ 32'$ .

$b$  010,  $c$  001,  $x$  011,  $e$  101,  $m$  110,  $u$  120,  $f$   $\bar{1}12$ ,  $s$  132.

$cb$	$90^\circ 0'$	$cf$	$38^\circ 54'$
$eb$	$90 0$	$cm$	$103 14$
$ec$	$70 32$	$fe$	$100 48$
$xc$	$52 35$	$ex$	$78 19$
$xb$	$37 25$	$em$	$51 58$
$xx'$	$74 50$	$sc$	$69 58$
$mb$	$50 18$	$se$	$64 28$
$mm'$	$100 36$	$sm$	$43 13$
$u'$	$62 7$	$am$	$68 24$
$fb$	$65 39$	$fm$	$105 15$
$ff'$	$121 18$	$uc$	$98 50$
$sb$	$28 41$	$uc$	$65 36$
$ss'$	$57 22$		

FIG. 639.



The faces *m* are striated parallel to their intersections with *u*; *f* striated parallel to their intersections with each other. Twins. Twin-face *e*.  $co = 38^\circ 56'$ ,  $xx = 23^\circ 22'$ ,  $ss = 51^\circ 4'$ ,  $mu = 76^\circ 4'$ ,  $un = 48^\circ 48'$ ,  $ff = -21^\circ 36'$ . Cleavage. *c*, *m*, *b*. Fracture conchoidal. Transparent...opaque. Lustre vitreous, inclining to adamantine. Colourless. Streak white. Very brittle.  $H = 2.5 \dots 2.75$ .  $G = 1.833$ .

$\text{Ca}\ddot{\text{C}} + \text{H}$ , oxalic acid 49.31, lime 38.36, water 12.33, according to an analysis by Sandall.

In small attached crystals, mostly twins, with calcite. Is supposed to have been found in Hungary.

## HYDROUS MELLATE.

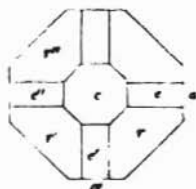
459. MELLITE.—Mellite; Phillips, Haüy. Pyramidales Melichron-Harz; Mohs. Mellit; Hausmann, Haidinger.

Pyramidal.  $101,001 = 36^\circ 44'$ .

*a* 100, *c* 001, *e* 101, *r* 111.

<i>ac</i>	$90^\circ 0'$	<i>ra</i>	$59^\circ 7'$
<i>aa'</i>	$90 0$	<i>rc</i>	$46 33$
<i>ea</i>	$53 16$	<i>rr'</i>	$61 46$
<i>ec</i>	$36 44$	<i>re</i>	$30 53$
<i>ee'</i>	$60 2$	<i>rr''</i>	$93 6$

FIG. 640.



Combinations. *cr*, *ra*, *cra*, *cera*. The faces *c* rough and curved; *e* rough. Cleavage. *r*, very difficult. Fracture conchoidal. Transparent...translucent. Lustre resinous, inclining to vitreous.  $R = 1.538 \dots 1.556$ . Honey-yellow, inclining to red or brown. Streak white. Sectile.  $H = 2.0 \dots 2.5$ .  $G = 1.5 \dots 1.6$ .

In the matrass yields water, and carbonizes without emitting any perceptible smell. Before the blowpipe on charcoal burns white, leaving nothing but alumina. Completely soluble in nitric acid, in hydrochloric acid, and in caustic potash.

$\text{AlC}^{\text{O}}\text{O}^{\text{H}} + 18\text{H}$ , mellitic acid 40.31, alumina 14.35, water 45.34.

Analysis of mellite from Artern by Wöhler:—

Mellitic acid . . . . .	41.4
Alumina . . . . .	14.5
Water . . . . .	44.1