Crystal Data: Orthorhombic. Point Group: 2/m 2/m 2/m. As divergent bladed crystals, with \{100\}, \{010\}, \{001\}, \{021\}, to 8 mm.

Physical Properties: Cleavage: On \{010\}, good; on \{100\}, a parting. Tenacity: Brittle. Hardness = 3–3.5  D(meas.) = 4.13(9)  D(calc.) = 4.24


Optical Class: Biaxial (+). Pleochroism: Moderate; X = yellowish green; Y = Z = blue-green. Absorption: Y > X = Z  α = 1.920(3)  β = 1.960(3) γ = 2.20(0.5)  2V(meas.) = n.d.  2V(calc.) = 48.5°


X-ray Powder Pattern: Cole shaft, Arizona, USA.

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TeO₂</td>
<td>61.2</td>
<td>62.06</td>
</tr>
<tr>
<td>CuO</td>
<td>31.0</td>
<td>30.93</td>
</tr>
<tr>
<td>H₂O</td>
<td>8.2</td>
<td>7.01</td>
</tr>
<tr>
<td>Total</td>
<td>100.4</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Cole shaft, Arizona, USA; average of three analyses, H₂O by the Penfield method, average of two determinations, (TeO₃)⁴⁺ confirmed by microchemical tests; corresponds to Cu₀.₉₈(TeO₃)₀.₀₂ • 1.14H₂O.  (2) CuTeO₃ • H₂O.

Occurrence: A rare dehydration product of teineite, as pseudomorphs and incrustations.

Association: Teineite, malachite, cuprite (Cole mine, Arizona, USA); teineite, malachite, brochantite, djurleite, bornite, weissite, gold, goethite (Dome Rock Mountains, Arizona, USA).

Distribution: In the USA, in Arizona, from the Cole shaft and in the Shattuck mine, Bisbee, Warren district, Cochise Co., and in the Dome Rock Mountains, La Paz Co.

Name: Honors Richard Graeme (1941– ), American mining engineer and mineral collector, Phelps Dodge Corporation, USA, who found the first specimen.

Type Material: n.d.