**Attikaite**  
\[Ca_3Cu_2Al_2(AsO_4)_4(OH)_4 \cdot 2H_2O\]

**Crystal Data:** Orthorhombic.  
**Point Group:** 2/m 2/m 2/m or mm2.  
As bent, scaly crystals flattened on [001] to 0.080 mm; in spherical aggregates to 0.3 mm.

**Physical Properties:**  
**Cleavage:** Perfect on {001}.  
**Tenacity:** Flexible.  
**Hardness:** 2-2.5  
D(meas.) = 3.2(2)  
D(calc.) = 3.356

**Optical Properties:**  
**Color:** Pale blue to greenish blue; colorless in transmitted light.  
**Cleavage:** Perfect on {001}.  
**Tenacity:** Flexible.  
**Hardness:** 2-2.5  
D(meas.) = 3.2(2)  
D(calc.) = 3.356

**Cell Data:**  
**Space Group:** Pban, Pbam, or Pba\(_2\).  
\(a = 10.01(1)\)  
\(b = 8.199(5)\)  
\(c = 22.78(1)\)  
Z = 4

**X-ray Powder Pattern:**  
Christiana no. 132 mine, Kamareza, Laurion District, Attika, Greece.  
\(22.8 (100), 5.01 (90), 2.780 (70), 11.36 (60), 3.38 (50), 2.503 (50), 2.682 (30)\)

**Chemistry:**

\[
\begin{array}{lc}
\text{Compound} & \text{Percent} \\
\text{MgO} & 0.17 \\
\text{CaO} & 17.48 \\
\text{FeO} & 0.12 \\
\text{CuO} & 16.28 \\
\text{Al}_2\text{O}_3 & 10.61 \\
\text{P}_2\text{O}_5 & 0.89 \\
\text{As}_2\text{O}_3 & 45.45 \\
\text{SO}_3 & 1.39 \\
\text{H}_2\text{O} & 7.61 \\
\text{Total} & 100.00 \\
\end{array}
\]

(1) Christiana no. 132 mine, Kamareza, Laurion District, Attika, Greece; average of 4 electron microprobe analyses, \(H_2O\) by difference, IR confirms OH and \(H_2O\), corresponding to \(Ca_{2.94}Cu^{2+}_{1.93}Al_{1.57}Mg_{0.02}Fe^{2+}_{0.02}\)(As\(_{3.74}\)S\(_{0.16}\)P\(_{0.12}\))\(_{2-4.02}\)O\(_{16.08}\)(OH)\(_{3.87}\)2.05H\(_2\)O.

**Occurrence:** In the oxidized portions of polymetallic sulfide-quartz veins.

**Association:** Arsenocrandallite, arsenogoyazite, conichalcite, olivenite, philipsbornite, azurite, malachite, carminite, beudantite, goethite, quartz, allophane.

**Distribution:** Christiana no. 132 mine, Kamareza, Laurion District, Attiki Prefecture (Attika), Greece.

**Name:** For the place of its first occurrence, the historically significant region, Attika, Greece.

**Type Material:** A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow (catalog no. 3435/1).

**References:**  