containing minerals. This suite comes very close to representing all known silver species, many of them in very high-quality examples. Photographs of a number of notable specimens will be presented and discussed.

Szenicsite, a new mineral from Tierra Amarilla, Chile

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Szenicsite is a new copper hydroxyl molybdate from a mine near Tierra Amarilla, Atacama, Chile. Electron microprobe analyses of twenty points on two grains yielded CuO 56.25, MoO_3 34.00, and H_2O 8.99 for a total of 99.24 weight %. H_2O was also separately determined by TGA. Normalizing to a single molybdate anion gives $Cu_{2.99}(MoO_4)(OH)_{4.11}$, which is in excellent agreement with the ideal formula, $Cu_3(MoO_4)(OH)_4$.

Szenicsite is orthorhombic, with unit cell parameters of a = 8.449(3) Å, b = 12.527(6) Å, and c = 6.067(1) Å; Z = 4, and space group *Pnnm*. The strongest X-ray powder (diffractometer) lines are [d in Å, (I)(hkl)] 3.759(100)(130), 2.591(67)(320), 2.773(57)(310), 5.057(48)(120), and 2.132(31)(400).

Szenicsite, a secondary mineral derived from the oxidation of primary bornite and molybdenite-2H, is associated with abundant green powellite and with chrysocolla, brochantite, hematite and quartz. The mineral occurs as dark green bladed crystals, lamellar on {100} and elongated parallel to [001], which are intergrown as radial aggregates about [001] resulting in lustrous, curved {010} faces. The dominant form is {100} with {010} common. Crystals are typically less than 1 cm, but the largest reach 3 x 1 x 0.1 cm. They occur both freestanding in cavities and as fracture fillings. The luster is adamantine; Mohs hardness is 3.5–4. The density is 4.26 g/cm^3 (meas), 4.30 g/cm^3 (calc). Optically, the mineral is biaxial positive with α = 1.886(2), β = 1.892(2), and γ = 1.903(2) and 2V (meas) = 74(3) deg, and 2V (calc) = 73 deg. X = b, Y = a, and Z = c. Dispersion is strong, with $r > v$. There is no significant pleochroism.

The mineral is named for its finders, Terry and Marissa Szenics. The mineral and name have been approved by the IMA Commission on New Minerals and Mineral Names.

The Silver Mines of Yankee Boy Basin, Ouray County, Colorado

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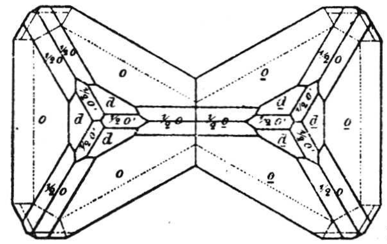
Yankee Boy Basin, situated at an elevation of 11,000 feet, is located 8 miles southwest of Ouray, Colorado, in the Mt. Sneffels mining district.

In the 1870's and 1880's, the basin was the scene of intense mining activity and promotions, with both miners and promoters hoping to make a small fortune on the newly discovered silver veins. Mines named the Minnie B, Circassian, Eldorado, Ruby Trust, Yankee Boy, and Black Diamond sprang to life. Most of the mines were short-lived, lasting only a few years, but a few lingered on until the silver panic of 1893 which shut the remaining mines down.

Sporadic activity was again resumed by leasors in the 1920's and 1930's but production was small. In 1986, a Utah mining group leased the Eldorado group of claims and an exploration drift was driven on the Eldorado vein. The drifting encountered two small silver-bearing orebodies which were mined and produced a variety of fine crystallized minerals.

The silver-bearing veins of the basin occur in Tertiary San Juan tuff and the Stony Mountain gabbro-granodiorite intrusion. The steeply dipping veins average about 60 cm in width and most have a general northwest trend.

Of interest to the mineral collector is the number of mineral species found that occur as well crystallized microcrystals. Ore minerals found to date include native gold, native silver, polybasite, acanthite, pyrargyrite, tetrahedrite, galena, sphalerite and chalcopyrite. The gangue minerals found in the veins are pyrite, marcasite, arsenopyrite, quartz, barite, rhodochrosite, kutnohorite, dolomite, siderite and calcite. Of special interest are the globular inclusions of pyrargyrite and tetrahedrite that occur in transparent crystals of quartz and barite.



Tetrahedrite

The Mineralization Pattern of Clear Creek and Gilpin Counties, Colorado

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Patterns of hypogene mineral zonation in the precious metal deposits of Clear Creek and Gilpin Counties have been recognized since 1904 and have been successively refined since then. Each mining district exhibits certain similarities in the zonal pattern, although there are some striking dissimilarities from east to west across the two counties.

All of these deposits developed as part of the Front Range portion of the Colorado Mineral Belt. The minerals were emplaced as vein fillings in faults concommitant with several pulses of igneous activity 65 to 57 million years ago in the eastern area and 39 to 35 million years ago in the western districts.

In the eastern area the mineralized veins are zonally arranged. In the core areas the veins contain pyrite and quartz with little gold and no silver. Encircling the core zones are zones of pyritic copper veins (chalcopyrite and/or tennantite or arsenian tetrahedrite) with high gold content. Outside of these zones lie peripheral lead-zinc veins (galena and sphalerite with subordinate pyrite, chalcopyrite and tennantite-tetrahedrite). The silver minerals pyrargyrite and acanthite are locally common. Quartz and carbonates (mostly siderite and dolomite with minor rhodochrosite) form the gangue of the lead-zinc veins. In the outermost areas is a zone barren of metallic ores. Some of the veins in the eastern area are composite veins with their own internal zonation; the wall zone is distinctly pyritic whereas the central zone is either auriferous pyritic copper or argentiferous lead-zinc.

All of the veins in both counties show a sequence involving initial fracturing, followed by wallrock alteration, pyrite crystallization, and finally base and precious metal mineralization. In the western districts, however, the lead-zinc zone is better developed and silver was therefore the more economically important metal. Silver mineral species identified include silver, acanthite, jalpaite, polybasite/pearceite, proustite/pyrargyrite and pyrostilpnite.

Ed. Note: The crystal drawings accompanying these abstracts are taken from Goldschmidt's *Atlas der Krystallformen* for the purpose of illustrating general morphology. They do not represent specimens from the specific localities discussed here.

Letters *continued*

Many, probably most, of the important London dealers in mineralogy, geology, conchology, entomology and other natural history subjects operated in this district at one time or another, drawn here partly, perhaps, by the presence of the natural history departments of the British Museum (before their removal to South Kensington), partly by the social milieu.

Russell moved east to 78 Newgate Street in 1884 and the business was still there in 1902 when Russell's name is replaced in that year's London Trade Directory (LTD) by that of **William James Shaw** at the same address. When the business became Russell & Shaw is unclear at the moment—Shaw may have been a manager rather than a partner at first, but this is just conjecture at present. Shaw removed to 11 John St., Bedford Row about 1907; he first appears in the LTD at this address in 1908. The entries in the LTDs for this period still give only Shaw's name, but specimen labels seen from this address are printed *Russell & Shaw*. However, there exist address labels on boxed sets of minerals printed *Thomas D. Russell* alone with the new 11 John Street address pasted over the old label. In the 1913 LTD the address changes again (to 38 Great James Street) and the entry is for Russell & Shaw. The last entry is in the 1924 directory.

Russell & Shaw was taken over by the old established firm of J. R. Gregory and Co. This was a continuation of one founded by **James Reynolds Gregory** in 1858. On his death it was carried on (becoming J. R. Gregory & Co.) by his son Albert L. F. Gregory. In 1932, E. Percy Bottley became a partner in this company and carried it on as Gregory, Bottley & Co. until 1981 when, on his death, it was bought by Brian Lloyd (once manager of mineral auctions at Sotheby's) and continues to operate as the well known Gregory, Bottley and Lloyd.

The Rand Afrikaans University box can therefore be dated, from the addresses on the labels, to the period 1907–1913 and the Pagano's to 1884–1902. And to round off this note, I enclose a copy of an advertisement for Russell's boxed sets taken from *Nature* and would like to take this opportunity to thank Mary Sheehan of *Nature* for generously allowing me to search through their back copies—the only set of which I know with the vital (to me!) ads bound in with the editorial matter.

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Of the other, German (?) sets in the Pagano's collection I can only suggest that the stag beetle incongruously present in the mine in the illustration on the box lids is actually the manufacturer's trade mark. A search through German or Austrian trade mark catalogs may turn something up.

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BEADLE COLLECTION

Regarding Lawrence Conklin's request for information on unfamiliar names of purchasers recorded in the bid book for the Dohrmann Collection auction in 1886 (vol. 23, no. 1, p. 10): "Beadle" immediately rang a bell. My collection of old geology textbooks contains a copy of Dana's *Manual of Geology* (1869) inscribed by dinosaur hunter Prof. O. C. Marsh to "the Rev. H. H. Beadle." According to Canfield (vol. 21, no. 1, p. 41–46), his father, E. R. Beadle of Philadelphia, had "a large collection. The specimens were said to weigh 15 tons"; the younger Beadle inherited the collection and presented it to Yale in 1916. So we may speculate that the purchaser at the auction (which took place in Philadelphia) in 1886 was E. R. Beadle. Another possible match on Canfield's list (for the buyer named "Lowe") is Leontina A. Lowe of Pasadena, California. Thank you for the opportunity to "play detective."

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