



## ***Old Hansonburg, one of New Mexico's forgotten mining camps***

Robert W. Eveleth and Virgil W. Lueth

2009, pp. 399-406. <https://doi.org/10.56577/FFC-60.399>

in:

*Geology of the Chupadera Mesa*, Lueth, Virgil; Lucas, Spencer G.; Chamberlin, Richard M.; [eds.], New Mexico Geological Society 60<sup>th</sup> Annual Fall Field Conference Guidebook, 438 p. <https://doi.org/10.56577/FFC-60>

---

*This is one of many related papers that were included in the 2009 NMGS Fall Field Conference Guidebook.*

---

## **Annual NMGS Fall Field Conference Guidebooks**

Every fall since 1950, the New Mexico Geological Society (NMGS) has held an annual [Fall Field Conference](#) that explores some region of New Mexico (or surrounding states). Always well attended, these conferences provide a guidebook to participants. Besides detailed road logs, the guidebooks contain many well written, edited, and peer-reviewed geoscience papers. These books have set the national standard for geologic guidebooks and are an essential geologic reference for anyone working in or around New Mexico.

### **Free Downloads**

NMGS has decided to make peer-reviewed papers from our Fall Field Conference guidebooks available for free download. This is in keeping with our mission of promoting interest, research, and cooperation regarding geology in New Mexico. However, guidebook sales represent a significant proportion of our operating budget. Therefore, only *research papers* are available for download. *Road logs*, *mini-papers*, and other selected content are available only in print for recent guidebooks.

### **Copyright Information**

Publications of the New Mexico Geological Society, printed and electronic, are protected by the copyright laws of the United States. No material from the NMGS website, or printed and electronic publications, may be reprinted or redistributed without NMGS permission. Contact us for permission to reprint portions of any of our publications.

One printed copy of any materials from the NMGS website or our print and electronic publications may be made for individual use without our permission. Teachers and students may make unlimited copies for educational use. Any other use of these materials requires explicit permission.

*This page is intentionally left blank to maintain order of facing pages.*

## OLD HANSONBURG, ONE OF NEW MEXICO'S FORGOTTEN MINING CAMPS

ROBERT W. EVELETH AND VIRGIL W. LUETH

New Mexico Bureau of Geology & Mineral Resources, 801 Leroy Place, Socorro, New Mexico 87801, beveleth@gis.nmt.edu

**ABSTRACT**—The copper deposits at old Hansonburg, located near the northern boundary of the White Sands Missile Range in southeastern Socorro County, are all but forgotten today. The scene was vastly different 125 years ago when the excitement born of mineral discovery was the topic of discussion on the lips of every miner and prospector in Socorro County. The late-nineteenth century entrepreneurs labored long and hard, only to meet with repeated failure, in an effort to develop what they perceived to be the largest high-grade copper-silver deposit discovered in the American southwest up to that time.

This paper traces the early exploitation by the Pueblo Indians up through re-discovery by the Spanish and eventually American prospectors into the 20th century. Little remains of the mining camp of Old Hansonburg but the deposit itself may yet prove to be a bonanza of a kind not even remotely dreamed of by the territorial prospectors. Remarkable geological and geochemical similarities between the Hansonburg copper deposit and a similar occurrence at the Apex Mine in southwestern Utah suggest the potential for discovery of the rare metallic elements germanium and gallium in the Hansonburg deposit is excellent.

### INTRODUCTION

Statements of “fact,” once published between the covers of a book, often become so firmly entrenched in our folklore they are difficult to dislodge whether historically accurate or not. Consider the following:

- 1): for over 100 years Patrick Higgins has been credited as the first American discoverer of mineral deposits in the Oscura Mountains area;
- 2): the locators of the first mining claims selected “Hansonburg” for the name of their new district;
- 3): the copper deposits 4-5 miles west of the Oscura Range are of the Permian “red-bed” type.

The first of these *might* have some basis in fact but the original newspaper accounts, unavailable to early chroniclers, refute it. The second and third are incorrect. True, however, is the fact the lead deposits (“Blanchard Mine Group,” et. al.) in the main range of the Oscuras, though not the first to receive attention, have been so extensively examined and discussed in both popular and geological/mineralogical literature, their fame has spread around the world while exactly the opposite holds for the copper deposits. But for a single exception so little has appeared in print that the copper mines and the mining camp of Old Hansonburg are all but forgotten today. Intentionally perhaps for here Mother Nature dug deeply into her reserve of mineralogical tricks to keep the pioneer miners busily chasing an elusive “willow-the-wisp” that, for reasons they could not or did not understand, wasn’t really worth chasing.

### CENTURIES OF MULTI-CULTURAL EXPLOITATION

The townsite of Old Hansonburg is located in T6S, R5E some 3 miles south of the northern boundary of the White Sands Missile Range in southeastern Socorro County. Inaccessible to most visitors today, back in 1881 it was the site of what was perceived to be one of the highest grade copper discoveries in New Mexico up to that time. The discovery spawned not only the townsite but a mining district or two (Fig. 1).

In an earlier day the area was known to the Pueblo Indians as a source of mineral pigments and glazing materials at least hun-

dreds of years before the arrival of the first Europeans. The Spanish and Mexican miners who followed them were also acquainted with the area and left their mark as well. No written record of this fascinating period has yet come to light but information can be gleaned from secondary sources. It is interesting to note that the Spanish and Mexican miners appear to have concentrated their efforts on the lead deposits in the main Oscura range (the south Oscuras and Little Burros were also the subject of considerable attention but those must be left to another chapter) while the American prospectors initially focused their attention on the copper deposits to the west. The Pueblos, however, knew of and exploited both.

The deposits of the Sierra Oscura were/are a treasure trove of the very kinds of mineral substances the Native Americans would have prized: the blue and green copper carbonates azurite [ $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$ ] and malachite [ $\text{Cu}_2\text{CO}_3(\text{OH})_2$ ], as well as the brown to red oxides of iron and other mineral “paints” for pigments, artwork, and personal adornment, and lead sulfide (galena --  $\text{PbS}$ ) for use in glazing their pottery. Physical evidence of their regular visitation is widespread. Stone spear points and arrowheads have long been observed in the area and the first lead miners on the scene often discovered indisputable evidence of prehistoric exploitation. MacCarthy (1918, p 10) for example, noted the “veins were evidently first worked long ago for their lead: rough stone hammers being often found in the caves in the bedding-plane deposits.”

A recently discovered and beautifully preserved “lithic cache” containing 1.3 kg of galena crystals in a “utility ware” pot, is undated but obviously of pre-1680 Native American origin (Weber, 1997, p 202). The galena crystals were carefully examined by Drs. Weber, Lueth and the author and the oxidation rinds of lead sulfate (anglesite,  $\text{PbSO}_4$ ) and carbonate ( $\text{PbCO}_3$ ), along with associated minerals fluorite ( $\text{CaF}_2$ ), barite ( $\text{BaSO}_4$ ), drusy quartz, and faint copper staining, were determined to more closely resemble the lead deposits of the Sierra Oscura than those, for example, at the Gonzales and other similar prospects east and southeast of Socorro. Additional physical “evidence,” if one knows where to look, includes the numerous pot-shaped “Indian water holes” in the Pennsylvanian Limestone, usually full of cool, clear water, and carefully covered with flat stones

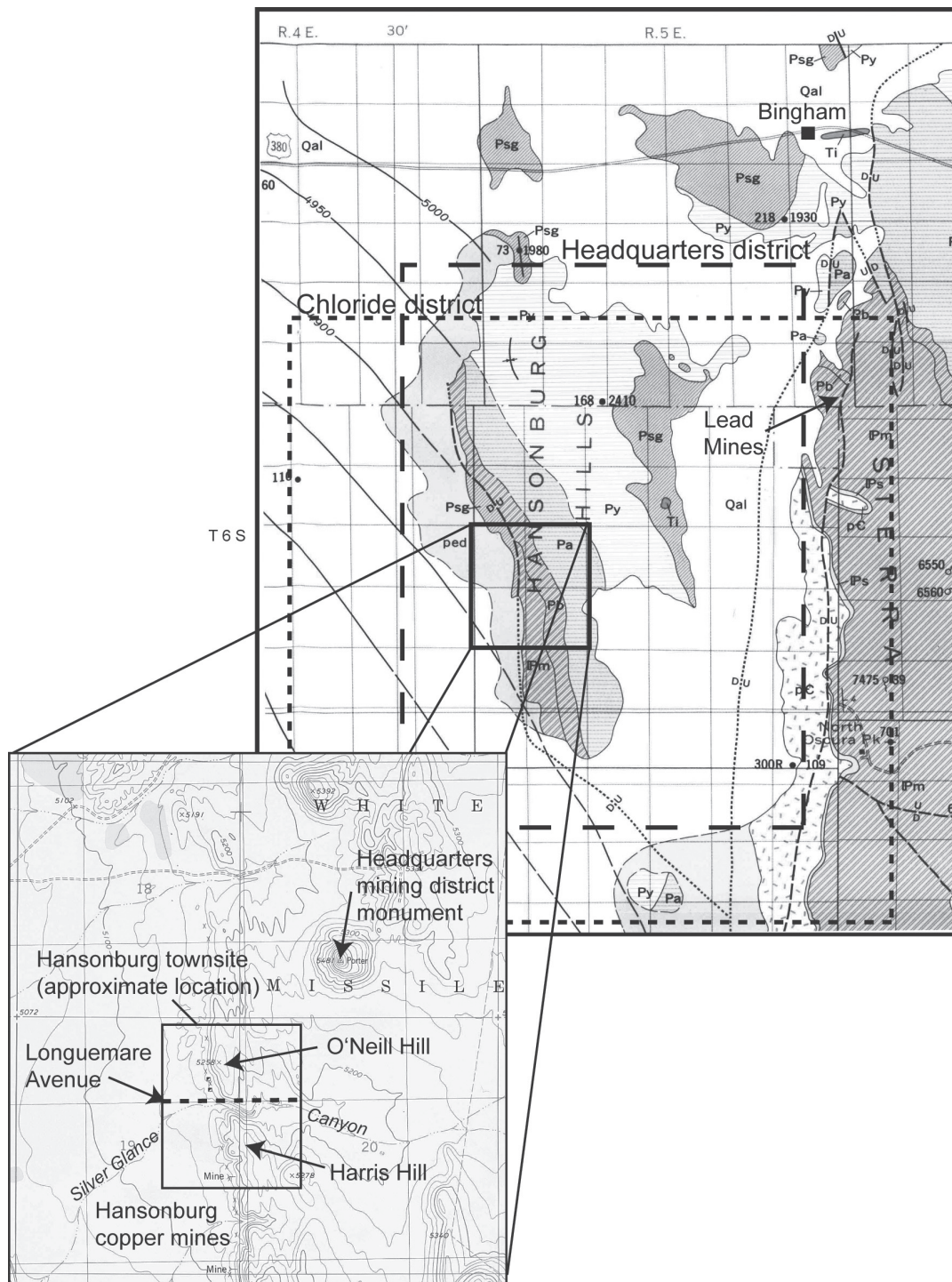


Fig 1: The Hansonburg copper deposits are located primarily in sections 19-20 and 29-30, T6S, R5E on the modern USGS 7-1/2 minute Wrye Peak SW quadrangle [inset]. Boundaries for Headquarters District [HQMD] as per legal description. Note eastern boundary for HQMD does NOT extend to the lead deposits in the main range. Chloride District assumed to extend to center of Oscura range based upon mining claim legal descriptions. Excepting HQMD all other boundaries, including Hansonburg townsite, projected/approximate. Hansonburg MD same as Chloride MD. Base map modified from Weir, 1965.

doubtless since time immemorial (Blanchard, 1965, p 7).

And finally, recent archaeological studies utilizing isotopically coupled plasma mass spectrometry (popularly known as “isotopic fingerprinting”) completed by Dr. Deborah Huntley at the Uni-

versity of Arizona indicate that Hansonburg lead was detected in about 4% of the ancestral Zuni pottery glazes studied throughout the circa 1275 to 1400 AD time period (Huntley, 2008). Since scientific and physical evidence indicates hundreds of years of



continuous exploitation of these deposits by the Pueblos it is reasonable to assume that Hansonburg ores continued to be used by Zuni and Rio Grande potters (pers. comm., 2009, Huntley), until ca.1700 although the ore sources have yet to be studied for the later period. The Piro have long been assumed to be the Pueblo people who traded the mineral substances to the Zuni but when they retreated south with the Spanish to El Paso in 1680 this left the Isleta as the Pueblo closest to the Hansonburg deposits (pers. comm., Homer Milford). Future events suggest the traders may have been the Isleta instead.

### ARRIVAL OF THE FIRST AMERICAN PROSPECTORS

According to Fayette Jones (1904, p 103), “it was about the year 1872 when [the Oscura Mountains area] of Socorro county first attracted the attention of [American] prospectors. A man by the name of Patrick Higgins, who previously sold his mining interests in Water Canyon in the Magdalena Mountains, appears to have been the discoverer of the district.” Jones, as it turns out, was slightly off the mark on both accounts. Patrick Higgins, arrived in New Mexico in 1862 (Anderson, p 619) and was one of Socorro county’s pioneer residents. He was also the first American to settle in Water Canyon but he remained in the latter place well *after* 1872 (Republican Review, 3/29/1873, p 2; Eveleth, 2002a). Recent research, moreover, indicates he may not have been the first American prospector to venture into the Sierra Oscura region. That distinction goes to Captain R. B. Willison in 1869, to wit:

“We understand the prospecting party which left [Santa Fe] early in this month under Captain R. B. Willison for the Sierra Oscura mountains have been having quite a rough time of it owing to the scarcity of water in that section for the use of themselves and their animals. The energy and perseverance of Captain Willison in pursuit of success in this exploration certainly entitle him to its attainment, and indeed we confidently hope and expect his efforts will result in that end....The object of the originators of this trip was to determine whether *a certain story of rich mineral deposits* in a particular portion of this territory was true or not... (*Santa Fe Daily New Mexican*, 4/19/1869, p 1; 5/9/1869, p 1).”

Willison is said to have “brought with him conclusive evidence of the existence of rich mines [i.e., *deposits*] in this comparatively new portion of our territory and he will leave Santa Fe in a few days to assist in their further development (ibid, 5/9/1869, p 1).” Alas whatever evidence Willison brought back with him must have been insufficient to rouse the interest of his mining colleagues because he was soon off on other ventures – to survey the Santa Rita Del Cobre Grant for US Surveyor General Spencer, for ex (Ibid, 6/28/1869, p 1; 7/24/1869, p 1). Interest in the Sierra Oscuras again faded.

Could Jones have been partly correct about Higgins but simply got the timeline wrong? Perhaps Higgins passed through the Hansonburg area at an *earlier* date and it was he who related that “*certain story of rich mineral deposits*” to Willison? Both were military men who served in a sparsely populated territory, barely

90,000 at the time (US Census, 1870), and it’s no stretch to imagine they were acquainted. The mystery must remain unresolved for the time being since neither man appears to have left a written record and a diligent search through the Socorro county mining claim records (Socorro, IB-1) indicates that neither located any mining claims at least through 1903. If Willison did NOT learn the story from Higgins, then there must be another unaccredited source still “out there.”

### THE PUEBLOS & RE-DISCOVERY

Some twelve years would pass before the second ‘great discovery’ took place in January 1881 (*Socorro Sun*, 1/22/1881, p 3) due to no small assistance by the Pueblo Indians themselves. Certainly the origin of the discovery of 1881 points directly to them and more specifically to an Isleta named “Old Lorenzo.” Though the press often credited Lorenzo with discovering the Oscura deposits (*Daily New Mexican*, 4/16/1886, p 1) he was likely following in the footsteps of his ancestors and was simply the latest (in 1880) of a long line of Native American prospectors.

W. T. Harris, an American prospector of some repute, was living near or among the Isletas in 1880. Doubtless due to their common interests in mining and prospecting, he and Lorenzo became close friends -- so close that the two not only went out on prospecting trips together but on hunting and fishing expeditions as well (*Bullion*, 6/1/1883, p 10; 10/1/1883, p 6). Through Lorenzo “*Harris first obtained a clue which led to the discovery of the Oscura and Hansonburg deposits* (*Bullion*, 6/1/1883, p 10).” The clue must have been a compelling one for Harris quickly rounded up his prospecting colleagues Col. Harvey Hanson and John O’Neill and headed to the Sierra Oscura in the *dead of winter* to find the deposits described by Lorenzo. It is interesting to note they concentrated their efforts upon the copper deposits first perhaps due to copper price being 4-5 times that of lead in 1880-81 (USGS, 1931, p A115). The high desert prairie west of the Oscuras offered few landmarks and the men fanned out. The observant Harvey Hanson made the discovery on New Year’s Day 1881 (*Sun*, 1/22/1881, p 3). The trio proceeded to locate the Compromise, Broad Gauge, and Narrow Gauge lode mining claims “*on a vein or lode of silver and copper bearing rock on Chloride Hill.*” The Compromise was clearly considered the “Veta Madre” of the locations as many of the adjacent/adjoining claims were referenced from it (Record Book 1, p 157-158).

### A NEW TOWNSITE AND MINING DISTRICT ARE BORN

Back in Socorro to record their claims the group organized a substantial exploration party and on January 16 the claimants, accompanied by Capt. John Mills, Louis Proto, “Prof.” Charles Longuemare (co-editor of the Socorro *Weekly Miner* and future editor of the Socorro *Bullion* newspaper) (Eveleth, 2002b) and several others, crossed the Jornada del Muerto for the express purpose of exploring the Oscura Mountains and organizing what was to become the Chloride (not Hansonburg – not yet anyway) mining district. A general call for a miner’s meeting was issued

for January 19<sup>th</sup> and the local miners responded in force. The “newly discovered district,” said the *Socorro Sun*, (1/22/1881, p 3), “was organized in a legitimate manner with F. G. Barney as Chairman...John Mills as Secretary...the U. S. and Territorial mining laws were adopted...” W. T. Harris was elected recorder...G. W. McFarland, a Socorro attorney, and secretary of the town site company, assisted in laying out the new city” (*Mining World*, 2/1881, p 6; 12). The miners proceeded to lay out a townsite which they named *Hansonburg* in honor of the discoverer, Harvey Hanson. The new town site “adjoining the Broad Gauge and Compromise”...is “very pleasantly located on the rolling prairie...situated between two hills: ‘O’Neill’ to the north and ‘Harris’ to the south and centered at the mouth of ‘Silver Glance Canyon’ (*Mining World*, 3/1881, p 9).” The prospectors obviously had visions of longevity for nineteen hundred and twenty lots were platted and main street was named “Longue-mare Avenue” in honor of the above mentioned editor.

Despite the diligence exercised by the locators they overlooked just one minor detail: they failed to file a legal description of the district and a plat of the town site in the Socorro county courthouse – at least none has yet been found despite considerable research. Recorded or not the rush was on. The *Mining World* (3/1881, p 9), datelined February 22, reported “about 75 persons in camp and others entering daily.” A subsequent article datelined April 21 stated: “still they come and the boom continues in the Chloride district...” The camp now “contains 150 people...and there are at present...250 men in the district...(ibid, 5/1881, p 10). The *Santa Fe New Mexican* (5/18/1881, p 2) reported that Hansonburg “has already assumed the appearance of a thriving town. Three months ago such a place did not exist on the map of Socorro County...The miners at Hansonburg are offering large inducements to the first American baby born in that camp. Ambitious young mothers should migrate...” None took them up on their offer and for good reason: few relished the thought of sleeping on the ground and potable water was very scarce: the nearest supply was a spring (likely Borrego) in the Oscura Range requiring a nine-mile haul. Dug wells were planned and Harvey Hanson even rounded up a diamond drill for well-boring (*Sun* 2/9/1881, p 2). But Hansonburg never achieved the status of the thriving community envisioned by its founders. Although “a number of shanties were erected (*Bullion*, 2/19/1887, p 2),” it remained essentially a tent and shanty town at least until the Alcazar Copper Company erected a few “permanent” stone structures after 1900.

The “Great Discovery” of 1881 received widespread coverage in both the territorial and major eastern press and it was initially thought the “cupriferous silver in a gangue of sulphate of baryta...associated with malachite and blue carbonate of copper and occasionally *sulphurets of silver and antimony*” would prove to be amongst the most valuable and productive found up to that time (*Gazetteer*, 1882, p 158; *Sun*, 1/22/1881, p 3; *Mining World*, 2/1881, p 6). The miners decided to name the townsite Hansonburg and selected “Chloride” for the new mining district (*Socorro Sun*, 1/22/1881, p3) – keep in mind the first three claims were officially described as located “on a vein or lode of silver and copper bearing rock on Chloride Hill.” But the *Mining World* (2/1881, p 6) immediately questioned the choice: “why the district

was named...Chloride...we are at a loss to imagine...Argenta or Silver...would have been more appropriate...” The latter, however, would have been equally inaccurate for reasons yet to be disclosed.

All up to this point was straightforward and predictable but the next was almost unprecedented: the miners “*purchased all the claims of the Pueblo Indians to the old mines of the district* (*Mining World* (5/1881, p 10 -- credited to the *Socorro Sun*).” This is a most unusual statement in light of the fact that the Indians’ presence predated any “mining laws” per se, they staked no claims (although as citizens they had the right to do so after 1866), and therefore held no “legal” title other than a possessory one due to long term use and exploitation. What could the *Mining World* have been referring to? Recall that one of the “discoverers,” W. T. Harris, lived amongst the Pueblos and many of his locations were said to be effected “*through the medium of the Isleta Indians* (*Socorro Bullion*, 9/1/1883, p 5; 7/24/1890, p 4).” On friendly terms with them, the discoverers obviously thought it prudent to keep it that way and did so by satisfying any ‘possessory rights’ the Indians may have held upon the Hansonburg and Oscura deposits! Whatever the remunerations offered the settlement must have been agreeable to the Isletas as Harris was still living peacefully among them, scalp intact, ten years later (*Bullion*, 7/24/1890, p 4).

Close on the heels of the copper excitement was the “New Discovery” of the lead mines 4-5 miles east in the main range of the Oscuras and it is clear from the territorial newspaper accounts and legal claim descriptions that they too were considered to be within the boundaries of the new Chloride Mining District (*Mining World*, 3/1881, p 9). Here the miners encountered the unmistakable earmarks of their predecessors (MacCarthy, 1918, p 10), and especially the Spanish and Mexicans, who developed a few of the deposits to a considerable extent. Workings found in the main range of the Oscuras were renamed Mina Vieja” (“old mine”), “Big Chief,” and “Old Chief” by the American re-locators. The Mina Vieja was described in part as:” beginning at the mouth of an old abandoned tunnel...situated on the western slope of the Dark Mountains...and the Big Chief “south of the Mina Vieja lode (Mining Claims Records Book 1, p 162).” The *Socorro Bullion* (2/1/1884, p 5) offered further details:

“there are two old Spanish tunnels: No. 1 is in the mountain 300 feet entirely upon ore and is on the north end of the lode and follows the strike...No. 2 is on the south end of the claim, is in 200 feet and has five air shafts. The property possesses sufficient work to satisfy the investigator that the Spanish adventurers placed no little importance upon it...”

The exact location is difficult to pin down but the only working known to closely resemble the above description is today’s Rimrock Tunnel.

### THE ENCHANTED CAVE OF THE OSCURAS

A third notable event was the discovery of the “Enchanted Cave of the Oscuras,” the entrance of which was located just “a brisk walk of several minutes” from the Hansonburg townsite. Origin-

nally revealed to the world in the *Socorro Sun* (2/19/1881, p 3), the cave was said to be extensive, remarkably beautiful and containing spectacular stalactites, stalagmites, and flowing springs. The miners' first foray onto the cavern very nearly ended in tragedy twice and the entire account reads like an adventure straight out of Jules Verne. The editor of the *Bullion* stated (12/1/1883, p 8), "The Enchanted Cave of the Hansonburg district was written up (in 1881) by an erratic Bohemian and was reproduced extensively in the eastern press. At the time the story of the discovery was doubted by many, but it is no myth, and the Enchanted Cave, the largest cavern in the southwest [up to that time], is an extraordinary monument, a striding example of the work of the great Creator." A second group of prospectors, perhaps equipped with better torches, "penetrated its mystic recesses to the depth of two thousand feet when they found no indication that it was nearing its termination" (ibid, 4/1/1883, p 4). A final mention in the same paper (1/1/1885, p 6), stated "The Enchanted Cave which exists in this district is one of the wonders of New Mexico and well repays a visit." New Mexico newspaper coverage for this period is sporadic at best and much research remains to be done to determine the exact location of this cave and conduct exploration by modern methods. The articles allegedly "reproduced extensively in the eastern press" have yet to be located and the exact location of the "Enchanted Cave of the Oscuras" seems to have died with the prospectors and newspaper men who first revealed its existence.

#### FURIOUS DEVELOPMENT THEN THUNDEROUS SILENCE

Despite the "new" lead discovery the copper deposits continued to remain the focus of attention (again, probably due to metal price disparity) at least until the post-1900 period and the miners attacked the development of the claims with gusto. In fact the town site of Old Hansonburg would serve as the center of operations for both the copper deposits out on the prairie and the lead deposits in the Oscuras until about WWI when the MacCarthys re-opened the Rimrock tunnel and established a camp at the foot of the mountain. The best copper claims were determined to be those located in the heart of the district surrounding the townsite, and included the previously mentioned "Compromise," "Broad Gauge," "Narrow Gauge," and also the "Last Chance," "C. F. Williams," "Hidden Treasure," and several others (*Mining World*, 2/1881, p 6). The first was considered the most valuable of the lot and received the lion's share of development such that all subsequent references to "the Hansonburg copper mine" refer to the "Compromise."

Contracts were let to sink shafts on the main properties to depths of 50 and 100 feet and Lasky (1932, p 67) later reported depths of as much as 300 feet were attained through a series of drifts, subdrifts, and winzes. Mining methods were limited to hand-steeling, blasting with black powder, hand mucking, and hoisting with hand-windlasses. The first ore shipment was allegedly sent to Denver for "testing" in late April 1881 (*Mining World*, 5/1881, p 10) but no follow-up article could be found, a sure indication the returns were not remunerative. Local newspaper

accounts kept the public encouraged with overly-optimistic assay reports for the precious metals but these proved to be inaccurate when the miner's efforts failed to yield the hoped-for returns. The few surviving records from later years (Bureau archives) clearly demonstrate the best grades achieved by the most careful cobbing and hand-sorting were dismal – averaging perhaps a few ounces silver per ton and 5-10 percent copper. Nothing will clear out a mining camp faster than bad news from a smelter and Hansonburg was no exception. This was likely the reason the camp was abandoned almost overnight – certainly no later than June (*Mining World*, 7/1881, p 11) -- and the copper deposits again languished in the desert sun. Incredibly Hansonburg went from boom to bust in less than six months and little beyond assessment work took place in the camp for the next 5-6 years.

A dim glimmer of hope loomed on the horizon, however: the territorial press contained much talk of the Atchison, Topeka & Santa Fe Railroad extending a branch line from the Rio Grande at San Antonio, east through the Carthage coal fields, thence south around the Oscura Mountains, crossing the malpais near Milagro or Polly, thence north to White Oaks (*Socorro Bullion*, 9/1/1883, p 7; 12/1/1884, p 6). Such a railroad would pass directly through the Hansonburg copper district and, it was thought, provide the economic stimulus to make the mines profitable. Alas, when the San Pedro branch railroad was completed in May 1883 it terminated at the Carthage coal mines – still some 20 miles short of the copper deposits.

Four years later the road from Carthage to Hansonburg was much improved, copper prices increased about 20% and the sacked ore now only had to be hauled by teams and wagons to the Carthage railhead. This encouraged Socorro entrepreneurs F. Wilson, W. H. Moore, and others, to organize the Jornada Mining Company (Fig. 2), take a bond and lease on the Compromise (still considered the most promising mine in camp) (*Bullion*, 2/19/1887, p 2; Jornada Prospectus, 1887) from owner Charles Blanchard who kept the assessment work current, and try again. The mine was re-opened and after a full year of careful hand sorting and selecting only the highest-grades "a large amount of ore was being readied for shipment (*Socorro Times*, 3/17.1888, p 1). This shipment, if made, was again followed by deafening silence in the press and it is likely that the venture followed its predecessors down the same path of failure.

Next came John Y. Hewett and associates, their coffers swelling with profits from their successful Old Abe gold mine at Whites Oaks, who made an attempt to work the copper mines in 1892. "The old workings and locations made in 1881 have once more been located...these gentlemen propose to thoroughly explore these claims and with increased facilities, hope to bring them to a productive condition (*Socorro Bullion*, 7/19/1892, p 3). By this time the results were almost predictable.

#### A LESSON IN GEOLOGY AND MINERALOGY

The territorial press continued to talk of the vast amounts of rich ore lying about on the surface: "Why is it the proprietors of these mines are not working them is a question. There are thousands of tons at hand that only need to be quarried down



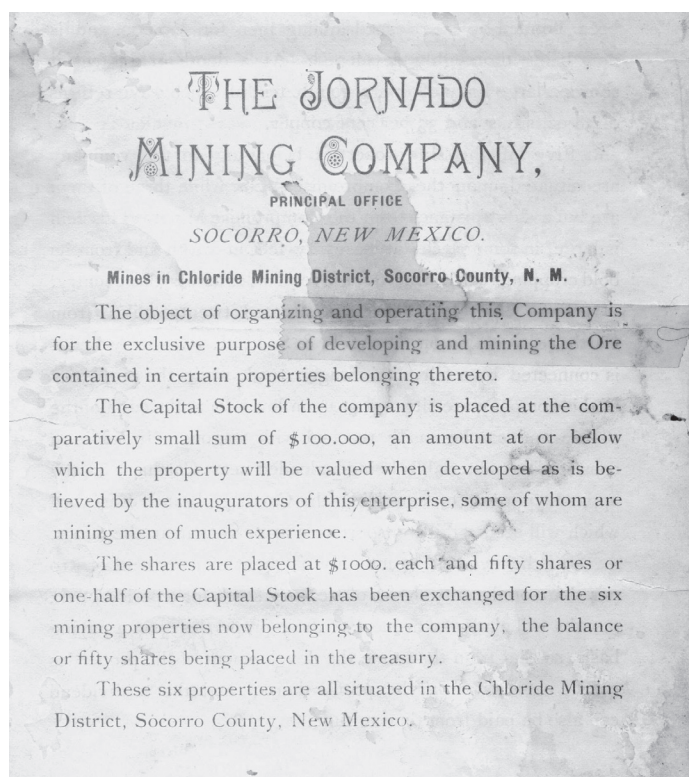


FIGURE 2. Historic paper relating to the Hansonburg copper mines is extremely rare as is this prospectus of the Jornado Mining Company, Chloride Mining District, Socorro, New Mexico. It documents a second attempt to reopen the Compromise in 1887 by a group of Socorro businessmen. Despite carefully selecting and hand sorting the ore, low grades, distance to market, and other adverse factors again resulted in failure. Author's collection.

and sorted and it is ready for shipping to any point where there is a market" (*Mining World*, 7/1881, p 11). As late as 1888 the *Socorro Times* reported "the Compromise has a four foot pay streak of almost pure *copper glance* that will average about 45 per cent...(3/17/1888, p 1)." Clearly something was amiss and that something appears to be a misidentification of the minerals in the deposit. Numerous accounts in the territorial press leave little doubt the locators thought they were dealing with a high-grade silver-copper deposit composed chiefly of "copper glance" (chalcocite,  $\text{Cu}_2\text{S}$ ), "silver glance" (argentite,  $\text{Ag}_2\text{S}$ ) and "horn silver," (choloragyrite,  $\text{AgCl}$ , then called 'cerargyrite'). But argentite and choloragyrite are not known to occur and chalcocite is so rare in the Hansonburg copper deposits it is essentially non-existent. This is the reason the *Mining World's* alternatively suggested names of "Argenta" or "Silver" were no more appropriate than the locator's choice of "Chloride." These prospectors were hardly novices, however. Many of them had several years' experience with precious metal deposits in the southwest. Harvey Hanson, for example, was credited with some notable discoveries among them the Socorro Peak silver deposits (Jones, p 111). Charles Longuemare, "a jaunty little Frenchman who hailed from a celebrated school of mines located near Paris" (Otero, 1935, p

220) was recognized as an excellent field mineralogist in his day (Eveleth, 2002b). How could they have gotten it so wrong? The answer doubtless lies in the complex nature of this unusual mineral deposit – the only one like it in all of New Mexico.

Some fifty years would pass before USGS geologist Samuel Lasky correctly described both the geology AND the mineralogy. At least one early-day writer (Anon, 1881, p9) *did* correctly note the deposits were hosted in limestone but newspaper accounts are so ephemeral and this 'fact' was quickly lost. Subsequent investigators (Fritzgaertner, 1882; Turner, 1902; Jones, p 103) intimated, if they didn't specifically state, the deposits were of the "red bed copper" type (which do, incidentally, often contain significant quantities of chalcocite). Lasky, (p 64-65) set the record straight for all time when he wrote "the field work leading to the present report has disclosed that the copper deposits are not of the "Red Beds" type, but that they occur in limestone and are structurally similar and apparently genetically related to the lead deposits...A fault [similar to that at the Lead Mine] is responsible for the western scarp-front of the outlying hills. The scarp is in Magdalena limestone upon which rests the Abo sandstone and the Chupadera formation which dip gently toward the east..." Moreover his microscopic investigations determined the ore minerals were not the species assumed to be present by the early miners (although chalcocite does occur in *minute* quantities) but consisted primarily of the copper arsenic sulfide *tennantite* ( $\text{Cu, Fe}_{12}\text{As}_4\text{S}_{13}$ ) and arsenates (ibid, p 70). One specimen under the microscope was said to reveal "a few particles of what seems to be enargite ( $\text{Cu}_3\text{AsS}_4$ )...enclosed within the tennantite...A white mineral is included within it...but the particles are too small for the application of other tests...The ore is said to carry a few ounces of silver per ton, and this white mineral may be its source." The "white mineral" was likely native silver and, as Lasky correctly surmised, very likely accounts for the small amount of silver in the ore (Lasky, ibid p 70; pers. comm., Virgil Lueth).

Lasky did not specifically identify the arsenates but later investigators (DeMark, 1987; pers. comm., Paul Hlava, 2009) confirmed, with microprobe analysis, the presence not only of tennantite but olivenite,  $\text{Cu}_2\text{AsO}_4(\text{OH})$ , and conichalcite,  $\text{CaCu}(\text{AsO}_4)(\text{OH})$ , both derived from the oxidation of tennantite. The territorial press "hinted" (a/k/a "sulphurets of silver and antimony," in *Mining World*, 2/1881, p 6) and Lasky (p 72) speculated that tetrahedrite ( $\text{Cu, Fe}_{12}\text{Sb}_4\text{S}_{13}$ ) might be found at the lower levels of the deposit but no antimony was detected during the above cited microprobe work thereby eliminating that possibility and, in turn, decreasing the potential for higher silver content with depth. It is interesting to note that conichalcite commonly forms botryoidal to reniform crusts with vitreous to 'greasy' luster...color varies from green to yellow and even gray – a description that closely resembles that for choloragyrite.

The multitude of articles citing the abundance of "copper glance" and [silver] "chloride" in a deposit in which those species do not occur, leads to the conclusion that the pioneer miners must have mistaken tennantite for chalcocite and conichalcite (or even olivenite?) for horn silver. This could explain why three decades of effort resulted in repeated failure: the high arsenic and



low silver content of the ore yielded poor returns and the heavy penalties assessed by the smelters eliminated much if not most of the profit from the shipments.

Arsenic-bearing minerals are relatively rare in New Mexico. The abundance of tennantite and secondary As minerals is very unusual and unique to the state. Just a single deposit in the entire southwest bears resemblance to the copper deposits of Hansonburg: the Apex mine in southern Utah (Bernstein, 1986; Dutrizac et al., 1986). The mineralogical (oxidized, tennantite-rich ores) and geological features (fault-hosted breccias hosted in Pennsylvanian limestones) of the Hansonburg copper deposits are very similar those described at the Apex mine. Accordingly, the Hansonburg deposits represent a potentially unrecognized resource for gallium and germanium. A detailed geochemical study of the ores is currently ongoing.

### IF AT FIRST YOU DON'T SUCCEED...

The dawn of the 20th century ushered in a new era. The appearance of gasoline-fueled internal combustion engines and, though primitive by today's standards, the advent of efficient rubber-tired trucks, would soon change the way ore was hoisted, handled and shipped. Late in 1901 the Alcazar Copper Company, comprised primarily of Cincinnati investors, relocated the principal claims (the original owners having long since given up on them). The Compromise, Broad and Narrow Gauge, etc., became the Calumet, Banner, St. Mark and Exchange (Book 23, p 434-436). It is interesting to note that the newly organized "Headquarters Mining District" was already 'on the books' in the Socorro County courthouse (Book 23, p 401-403) when the claims were re-located yet Alcazar continued to use "Chloride" (see below). The new company initiated what was said to be "extensive developments," erected several buildings, installed a gasoline-powered hoist at their newly-christened "Camp Alcazar," and even managed to ship a car of ore. When their manager, A. J. Borden, suddenly came down with a severe case of "la grippe" the Cincinnati investors decided their money was better spent elsewhere -- on their Arizona copper properties for example -- and abandoned the Hansonburg properties in early 1902 (E&MJ, 10/26/1901, p 549; *Socorro Chieftain*, 2/5/1902, p 1; 3/8/1902, p 1; Jones, 1904, p 103). The authors suggest the smelter settlement for the company's sole shipment, should it ever be found, contained enough bad news to cause a company-wide case of "la grippe!"

A few small shipments of hand sorted ore were made by various small operators, one as late as 1938 (NMBG&MR Archives). These totaled no more than a few hundred tons, the best of which graded barely 8% copper and a few ounces of silver per ton. The average grade was more like 3% copper and less than 2 ounces silver per ton (ibid). The focus of attention had swung to the lead deposits (to be discussed at another time) in the main Oscura Range by WW1 and interest in the Old Hansonburg copper deposits faded. It is likely, with the benefit of hindsight and a clear understanding of the mineralogy, that few if any Hansonburg copper shipments were made at a profit. The penultimate blow for the camp occurred late in 1910 when the Hansonburg post office closed permanently (*Socorro Chieftain*, 12/3/1910, p

4); the final curtain fell when the area was withdrawn as part of the White Sands Missile Range in 1945 thereby ending all hope of rejuvenating the mines regardless of grade, mineralogy, metal prices, or smelter penalties.

### EPILOGUE: IS IT "CHLORIDE," "HEADQUARTERS," OR "HANSONBURG?"

When the original prospectors located what they took to be a vast high-grade silver-copper deposit, they immediately christened their newly organized mining district "Chloride," and Chloride it remained into the post-1900 period. Up through ca. 1902 over 200 claims were located therein (Index Book 1) but no legal description was ever filed at the courthouse for the Chloride District. Ditto for *Hansonburg*, the name assigned to the townsite.

A new generation of miners and prospectors decided to remedy that oversight and in 1901 established the "Headquarters" Mining District, which almost, but not quite, duplicated the earlier Chloride. This time, however, the organizers were very careful to record same in Record Book 23, p 401-403 but inexplicably failed to extend the eastern boundary far enough to include the lead deposits in the Oscura range (refer to Fig 1). Headquarters remained in vogue for a while but it too was ignored by some locators and invoked by others (the MacCarthys in 1916, for example) when their locations didn't even fall within its boundaries. We have already seen that the ink was barely dry for the new district when Alcazar relocated the copper claims in the same record book (Book 23) just 30 pages later -- but in Chloride! Headquarters had its day but it too seem to have fallen from favor by the 1930s: when the Blanchard family located their first claims they further clouded the picture by choosing the name "Oscura."

Finally we come full circle to *Hansonburg* as applied to a mining district. Though it too has never officially been recorded as such, it made its first appearance in the press as early as 1883 when Bullion editor, Charles Longuemare, (one of the original Chloride locators) stated: "the Hansonburg district possesses some



FIGURE 3. Robert North, October 2, 1987, at one of the "permanent" stone structures in Old Hansonburg erected ca. 1901 by the Alcazar Copper Company. Photo by and courtesy of Ramon DeMark.

of the most extraordinary copper properties on the continent and displays croppings over 200 feet in width (*Bullion*, 12/1/1883, p 8).” In 1886 the “Tufnut” was the first *Hansonburg District* claim to appear in the official record books (Book 16, p 129) and even Longuemare’s colleague, original Chloride locator/founder W. T. Harris, who definitely knew better, recorded the “Copper King” lode in the *Hansonburg District* in 1899 Book 44, p 202)!.

So we are left to ask: “what’s in a name?” Very little, apparently, when that name is applied to a mining district. The term Hansonburg (though often misspelled “berg”) has been so commonly used it seems to have entered oral tradition. Since it appears to be what the public, and maybe even Col. Harvey Hanson, would prefer why not stay with it? The townsite is long gone but the district remains. The author provides this information as an afterthought for those who stay up late at night losing sleep over such things.

### ACKNOWLEDGMENTS

The author is indebted to many colleagues and scientists who have generously shared their insight, observations, scientific and archaeological data, and mineralogical material. Special thanks are due Homer Milford for his knowledge of the Pueblo Indians and storehouse of historical facts; Dr. Deborah Huntley for her important isotopic analyses on the Pueblo lead glazes; Ramon DeMark and Paul Hlava for their keen mineralogical observations and microprobe work; the late Dr. Robert H. Weber for his many archaeological and mineralogical contribution. A debt of gratitude is also due the pioneer miners and newspapermen who had the courage to report their successes and failures to the outside world.

### REFERENCES

- Anderson, G. B., editor, 1907, “History of New Mexico – Its Resources and People,” Pacific States Publishing Company, Los Angeles, Vol. 2, 1047 p.
- Anon, 1881, “A Trip To The Oscuras,” in *Mining World*, 3/1881, p 9.
- Bernstein, L.R., 1986, Geology and mineralogy of the Apex germanium-gallium mine, Washington County, Utah: U.S. Geological Survey Bulletin 1577, 9 p.
- Blanchard, Ora W., ca 1965, “Blanchard Mine History,” manuscript report constructed “from memory, business papers, and William Edward Blanchard’s Diaries,” 13 p., copy in NMBG&MR Mining Archives, Socorro, New Mexico, courtesy of Sophia Blanchard Warner.
- Bureau Archives; unpublished reports, manuscripts, and mine production data (some proprietary), Socorro, New Mexico.
- Daily New Mexican*, territorial newspaper published on Santa Fe, New Mexico
- DeMark, Ramon S., 1987, “Mining Development and Minerals of the Hansonburg Mining District, Socorro County, New Mexico,” 8th New Mexico Mineral Symposium, Socorro, NM, Nov.14&15.
- Dutrizac, J.E., Jambor, J.L., and Chen, T.T., 1986, Host minerals for the gallium-germanium ores of the Apex Mine, Utah: *Economic Geology*, v.81, p. 946-950.
- E&MJ, Engineering & Mining Journal, professional journal of mining, New York.
- Eveleth, Robert W, 2002a, “A Preliminary Biography of Patrick Higgins,” in *Hansonburg Mining District Chronological File*, Biographical section (unpublished), NMBG&MR, Socorro, New Mexico
- 2002b, “A Preliminary Biography of Charles Longuemare,” in *Graphic-Waldo Chronological File* (unpublished), NMBG&MR, Socorro, New Mexico.
- Fritzgaertner, M. G. R., 1882, “Report on a Large Group of Argentiferous and Auriferous Copper Mines, Located in the Oscura Mountains, County of Socorro, Territory of New Mexico,” private report submitted to Hon. W. T. Thornton, December 19, 1881; *The Democrat Book and Job Printing House*, Santa Fe, 1882, 16p; copy in archival files of the NMGM&R, Socorro, New Mexico.
- Gazetteer, 1882, “A Complete Business Directory of New Mexico and Gazetteer of the Territory, Socorro County Section [“The Oscuras”], New Mexico Printing and Publishing Co., Santa Fe.
- Huntley, Deborah L, 2008, “Ancestral Zuni Glaze-Decorated Pottery,” Univ. Arizona Press, Tucson, 112 p.
- Jones, Fayette, A., 1904, “New Mexico Mines and Minerals,” *World’s Fair Edition*, New Mexico Printing Co., Santa Fe, N. M., 349 p.
- Jornado Mining Company, 1887, Prospectus of ...“Mines in Chloride Mining District (i.e. Hansonburg) Socorro, New Mexico,” Stephens Litho. & Co., St. Louis, 4 p; Author’s collection.
- Lasky, Samuel G., 1932, “The Ore Deposits of Socorro County, New Mexico,” New Mexico Bureau of Mines & Mineral Resources, Bulletin 8, Socorro, New Mexico, 139p
- MacCarthy, Marion S., 1918, “The Property of the Western Mineral Products Company, Carthage, New Mexico,” 18 p, maps; unpublished private report in NMBG&MR Mining Archives, Socorro, New Mexico.
- Mining World*, territorial newspaper, Las Vegas, New Mexico, various issues as cited.
- Otero, Miguel A, 1935, “My Life on the Frontier,” The Press of the Pioneers, Inc., New York, 293 p.
- Republican Review*, territorial newspaper, Albuquerque, New Mexico.
- Socorro Bullion*, territorial newspaper, Socorro, New Mexico; various issues as cited.
- Socorro Chieftain*, territorial newspaper, Socorro, New Mexico; various issues as cited.
- Socorro, IB-1, Index Book No 1, Socorro county mining claims through 1903, Socorro county courthouse, Socorro, NM.
- Socorro Sun*, territorial newspaper, Socorro, New Mexico; various issues as cited.
- Turner, H. W., 1902, “The Copper Deposits of the Sierra Oscura, New Mexico,” *Transactions of the American Institute of Mining Engineers*, San Francisco, CA, October, 1902, 4 p. Turner, like Fritzgaertner, did not specifically address the Hansonburg copper deposits but all copper deposits discussed in the Sierra Oscura area are of the red-bed type, thus confusing the issue.
- US Census, 1870, “The Statistical History of the United States from Colonial Times to the Present,” Table A123-180, p 13, Fairfield Publishers, Inc., Stamford, CT, 1965.
- USGS, 1931, “prices of silver, copper, lead, and zinc, 1850 – 1931,” in *Minerals Resources of the United States*, Part 1, Metals, p A115.
- Weber, Robert H., 1997, “Two Lithic Caches From The Rio Grande Valley Near Socorro, New Mexico,” *The Archaeological Society of New Mexico*, Melinda S. Duran and David T. Kirkpatrick, Eds., Vol. 25, p 197-203.
- Weir, J.E., Jr., 1965, Geology and availability of ground water in the northern part of the White Sands Missile Range and vicinity, New Mexico: U.S. Geological Survey, Water-Supply Paper 1801, 78 p.