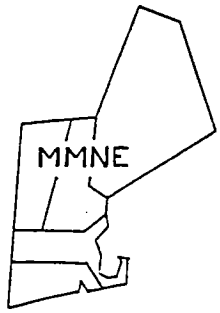

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Dues are $6.00/year and due on January 1st, payable to the treasurer.

News items for the *Newsletter* are welcome and should be submitted to the Editor. The *Newsletter* may quoted if credit is given. The Club address is c/o Editor

Upcoming Meetings
January 10, 1998 (Sat) at the Harvard Museum, Cambridge, MA. Doors open at 9 AM.

MICROMOUNTERS OF NEW ENGLAND NEWSLETTER

#202 October 1997

The MMNE was organized on January 14, 1967, for the purpose of promoting the study of minerals that require a microscope.

UPCOMING MEETING ANNOUNCEMENTS

The next MMNE meeting will be held on Saturday, November 15, at the Burlington, MA Public Library (see attached map). Doors open at 10 AM. The meeting will be devoted to the Manhan River/Loudville lead mines, located just south of Easthampton, Hampshire Co., MA. The speaker will be Dana Krueger, who has done extensive work on this locality. Abbreviated copies of an article written by Mr. Krueger for the Greater Boston Gem & Mineral Show on the locality will be available at the meeting. Frank Leighton will bring a viewer and stereo slides of the locality. MMNE members are encouraged to bring any material of interest pertinent to the Manhan River/Loudville lead mines.

Included in this newsletter are a bibliography on the Manhan River/Loudville lead mines collated and contributed by Mike Swanson; two articles on the locality, from Mining Magazine (1854) and Rocks & Minerals (1948), both contributed by Janet Cares; and a list of mineral species from the locality, also from Janet Cares. The Mining Magazine article is the continuation of a piece published in the Nov., 1993 MMNE newsletter (#172).

Future meetings will focus on other prominent New England micromount localities. At the present, February and April, 1998 are open. If you know of a locality that may be of interest to MMNE members, please consider preparing a presentation. Program possibilities should be discussed with a member of the Executive Committee.

MMNE members John Ebner and William Henderson were inducted into the Micromounters Hall of Fame on September 19, 1997 at the Baltimore Micromount Symposium. A heartfelt congratulations to both!

A welcome to two new MMNE members:

Phillip Partington
PO Box 122
Guildhall, VT 05905-0122

Edward Hakesley
10 Village Green Drive
North Andover, MA 01845

It pays to know your dentist! After having my teeth cleaned in September, I mentioned to the dental hygeinist that I could easily find a use for some of the implements of destruction she had been applying to my teeth. After discussing same with my dentist, I was presented with a box full of picks and scrapers! Apparently, after some use, these tools are thrown away – it's cheaper for them to buy new rather than refurbishing. I now have a variety of tools for opening small cavities (in rock not teeth), picking away clay and oxides, even testing relative hardness. I've been assured that, if I want them, I'll have a steady supply in the future. Make that appointment today.

Late breaking news item of interest: A moderate earthquake struck southern Quebec at 9:34 PM, Wednesday, Nov. 5, 1997. Centered near Quebec City, the tremor reportedly lasted about 20 seconds and was felt thoughout northern New England and upper New York state. The USGS National Earthquake Information Center in CO registered a magnitude of 5.0, while the Geological Survey of Canada reported an intensity of between 4.0 and 4.5 on the Richter scale.

NOTES: As you may have noticed from the masthead (and the delay in this newsletter), I have taken over the editorial responsibilities of the newsletter from Mike Swanson. I apologise for the tardiness of the newsletter – it's taken a bit to get my feet under me. I have a few ideas for articles and even a semi-regular column or two, but would appreciate any input from the membership – this newsletter will be only as strong as the active participation of each member!

Micromounter's Minutes, October 11, 1997

The October 11th business meeting at Vera and Forrest Fogg's home took only about ten minutes. Time to present our favorite hostess, Vera Fogg with a pyrex server, carry bag, with hot or cold inserts. Club members present thanked Vera and Forrest , once again, for allowing us the run of the house and beautiful yard.

The November meeting will be at the Burlington Library. In March Bob Whitmore will try to give us his slide program and lecture on the Fletcher Mine in March, weather permitting.

The change in the dues to $7.00 per person or $12.00 per family for 1998 instead of $6.00 per person didn't seem to worry anyone too much. Our new editor of the Newsletter, Hans Swarts, is encouraged to pay the printer to collate and other tedious jobs. We will eliminate the mailing envelope to save money, and see how the expenses work out.

A further discussion on keeping only about $3,500 in the treasury and spending the rest on useful projects, seemed to meet with general approval, also.

Respectfully submitted,

Pat Berry Barker, Secretary

ART. VII.—NORTHAMPTON MINING DISTRICT, MASSACHUSETTS. —THE NORTHAMPTON MINE.—By CHARLES SAMUEL RICHARDSON, CIVIL AND MINING ENGINEER, NEW YORK.—(CONCLUDED.)

THIS valuable property is situated north of the great cross course that intervenes between it and the Loudville Mines. The sett has an extent of more than three miles on the course of the main lode. Like many other mining properties in this State, very little has been effectively done to develop its mineral worth. The superficial observer, on visiting the mine, is greatly astonished at seeing such a large pile of splendid lead and copper ore on the surface, and is inclined to imagine that this certainly must be a rich mine. Well, perhaps he may be right; but if he grounds his opinion on specimens only, the chances are that he may be wrong. If he happens to be a person acquainted with mines, he will there observe, and particularly notice, the following mineral indications, which I give in the language of the miner, or otherwise—plain Cornish:—

That there is one main champion lode running through the entire sett, imbedded in a stratum of coarse granite; it is from 6 to 12 feet thick, with an underlay of about one foot 3 inches per fathom. The lode contains a vein of silver lead, a vein of barytes and banded quartz. The matrix of the lode is of sedimentary rock, and is interspersed throughout with stones of yellow copper ore, mundic and blende. There is a surface gozzan, but not worthy of notice; it is full of vugs, and freely lets down the water. The spar is of the most congenial kind; its bearing is about 30° N. E., and dip south-easterly; friable spar is met with, and here, as usual, the lead carries a good per centage of silver. A shaft has been sunk about 12 fathoms on the course of the lode; at this depth the minerals are becoming more concentrated; there is, at least, 4 feet of good stamp work in the lump, with a fine shoot of ore holding down. An adit level is now being driven up from the valley to intersect the lode 15 fathoms from grass. It was commenced in the sandstone, which covers all the valley of the Connecticut, and is now getting into the granite; it has hitherto been very favorable for driving. Some droppers have been cut which contain mundic, and the country approaching the lode is strongly mineralized. Such is a condensed description of the lode. Opinions may vary: I say it is a copper lode, carrying lead on the back—that it is one of great promise, and at 50 fathoms deep will become very productive. The country is hard for sinking; but as the lode is large and productive, the expense of the engine shaft will not be much felt in the general expenditure. That it will take time to get down under the mineral every mining man is fully aware of; but when once the ground is opened, at every 10 fathom level at and above the 50, it will work at a fair profit for ages to come. The sett itself is large enough for six mines. I think it probable that a side lode will be discovered when the 50 fathom cross-cut is driven east. Should this prove to be the case, it will greatly add to the value of the mine. An attempt has been made to work the mine by horse-power, which is much to be regretted, as it must result in a total failure. The lode was sufficiently proved a long time since to warrant the erection of a first-class pumping engine, and this must be done if the mine is to be prosecuted for its minerals. It is now being worked by a very highly respectable New York Company, T. Andrews, Esq., President, with a paid-up capital said to be amply sufficient for the full requirements of the mine.

KINGSLEY BRIDGE MINE.

This sett is the intervening ground between the Northampton Mines on the north, and the Loudville Mines on the south. It has an extent of half a mile on the course of the great champion lode, and is in every respect identical with the Northampton Mine, excepting that there appears a greater proportion of copper in the lode. About two years since, a shaft was sunk five fathoms deep, and the lode opened, from whence was taken some tons of copper and lead ore, nearly up to the very surface; and although it must have been very gratifying to the owners to witness such splendid stones of copper ore at such an early working, it does not augur any advantage to the property in a mineral point of view. Rich surface lodes I always consider as a negative feature to the success of a mine; but here the outcrop of the ore can be accounted for very easily: it is in the immediate vicinity of the great cross-course, which runs through the sett. Mining operations must be commenced more to the south to work the sett to advantage; the engine shaft should be sunk at the most convenient point, to command an equal run of levels on the course of the lode. There are two other lodes known to exist in this property, but nothing as yet has been done upon them. I consider this a valuable property, and am inclined to think it will make a large quantity of ore above the 30 fathom level, and particularly near the junction of the two other lodes, and at the cross-course. The mine is the property of private parties in New York, who, I am informed, are desirous of having it worked. Like the other mines, it will require about $75,000 to efficiently open it and erect the necessary machinery. This now concludes my present notice of the mines in this district. If the information conveyed through the medium of the Magazine should result in either individual or general benefit to the mining community, I shall feel very happy in the knowledge thereof. In each article I have endeavored to be as concise as the nature of the case would admit of. A great deal could be written in extension; and some day abler pens may dilate on the same subject, for I am positively assured in my own mind the Northampton district is destined in time to become one of very great importance.

EXPLANATION OF TERMS

Barytes = Barite
Blende = Sphalerite
Blue carbonate of copper = Azurite [misidentification of linarite?]
Gozzan = Coating of hydrous iron oxides
Green carbonate of copper = Malachite
Lead = Galena
Mundic = Pyrite
Silver-lead = Silver-bearing galena
Yellow copper ore = Chalcopyrite

THE LEAD MINES OF HAMPSHIRE COUNTY, MASS.

By EDWARD C. FOSTER
Instructor of Science, Williamsburg (Mass.) High School

The lead mines of Hampshire County are easily reached by car from Northampton, Massachusetts. Northampton, county seat of Hampshire County, is situated on the west bank of the Connecticut River and east of a region of hills known as the Berkshires. None of the lead mines are more than ten miles from the center of Northampton, although a few localities producing galena, etc. are a bit further. By taking State Route No. 66, two of the better known localities are to be found, the old Manhan Silver Lead mine, in Loudville, being the more famous; and the other, located on the farm of Joseph Schranz, is less than 100 yards from the main highway. The Hatfield Lead-Barite Mine is located on U. S. Route 5, about two and a half miles from the center of Northampton.

In the Loudville region more than fifty shafts and prospect holes have been started[1] and many of the holes are not protected. In view of that fact the present owner of the Manhan properties, the D. E. Hartnett Estate, is naturally cautious about granting permission to collectors due to the obvious dangers involved.

The Manhan Mine was probably the largest and most successful mineral mining venture in Western Massachusetts, certainly the oldest. A notice appearing under date of October 16, 1679, in the records of Nonotuck, now Northampton, gives credit to Robert Lyman as the discoverer. Colonel John Pynchon, of Springfield had an interest in the mine. In 1765, Ethan Allen, with others, took possession of the property. Their mining engineer reports that "***the vein is the largest I have ever seen. The first stone taken out of the back of the vein weighed 200 weight, almost solid lead."[2] Six hammers, or stamps were used for crushing the ore[3] and the ore was then washed of its gangue by water. Not much more information is available about the activities until the early nineteenth century, but it is known that bullets were cast from lead smelted here during the Revolution[4] and it is quite probable that this mine supplied lead for the War of 1812, the Mexican War and the Civil War. In 1865 the last transfer, as a mining venture, was made to the Manhan Lead Company for $950,000.00.[5]

That there still exists a possibility of reopening the mines at some future date may be gleaned from an address by the late owner, Mr. D. E. Hartnett, before the Northampton Historical Society, October 1, 1940. Mr. Hartnett said in part: "***I have been approached by outside interests about reopening the mines**** I will tune in with any group or concern***who desire to reopen, operate and completely finance such an enterprise". Mr. Hartnett has since passed away and the probabilities, at least in the immediate future, of reopening the mine are slim.

The South Shaft of the mine is within twenty five feet of the Loudville-Southampton Road, and is estimated to be considerably over 100 feet deep. The vein descends vertically into the country rock of granite and mica schist. Water accumulation was a major problem and a 1100 foot horizontal adit was blasted out of sandstone, granite, mica schist and serpentine. The vein is 6 to 8 feet wide and has as its principal mineral galena, with small amounts of chalcopyrite, bornite and sphalerite and as their decomposition products azurite, malachite, wulfenite, cerussite and anglesite. Pyromorphite, calcite, pseudomorphs of quartz after calcite and fluorite,[6] and cotunnite[7] have been reported. Quartz, with barite being the principal gangue minerals, is present in crystalline and massive forms and also as a drusy coating.

The vein, with 12 to 20 ounces of silver to the ton of ore, was a good producer, but unable to stand the pressure of economics, is now lost to the collector. This, as with other barite-lead veins in the vicinity, was deposited during or post Triassic since they appear in the Triassic sandstones and in the older rocks.

For the present collector there are still available hundreds of specimens of lead and silver bearing ore, which can be found on the property. However, the specimens can hardly be considered indicative of what lies underground because they represent the waste rejected when brought up from the mine and these piles of waste have been worked over by the collectors, who naturally carried away the best they could find, for the past seventy five years.

About a mile north of the Manhan properties, on the farm of Mr. Joseph Schranz, another vein of considerable importance was opened. Since the dumps are visible from the highway and there are few danger points, Mr. Schranz is quite cordial to collectors. On May 19, 1935, the Massachusetts Division of Rocks and Minerals National Outing was held here and it was at that time that Professor George Bain of Amherst College found a good specimen of wulfenite, previously unreported form this locality. The vein on the Schranz Farm is several feet wide and has been explored to a considerable depth,[8] through granite and mica schist. A dissimilarity exists between this vein and the Manhan vein in that the amount of sphalerite seems to be greatly increased and the amount of galena subsequently reduced. Copper minerals are also more common.

Two openings were undertaken in the Hatfield mine; one, a short distance north of the old road to Williamsburg, has a slanting shaft with a vein width of one foot at the surface increasing to three feet at the bottom. Further west the other vein has been opened for a depth of twenty feet. It is four feet wide at the top and eight feet wide at the bottom.[9] The main filling of the vein is again quartz and barite. Galena, sphalerite, pyrite and chalcopyrite are the primary ores with cerussite, malachite, pyromorphite, and limonite as decomposition products.[10]

There are other veins of lead-barite to be found in the vicinity, particularly in Williamsburg, Whately, Conway, Westhampton, and Leverett as reported by Nash,[11] but no attempt has been made to work them to any extent except the Leverett veins which did not pay. However, Emerson[12] reports that the Leverett veins produced the best sphalerite crystals obtained from any of the veins.

References:

[1] Northampton (Mass.) Gazette, May 16, 1935.
[2] C. H. Lyman, pamphlet, "Manhan Lead Mines Again in Spotlight" 1940.
[3] C. H. Lyman op. cit.
[4] Evert's History of the Connecticut Valley in Massachusetts. Vol. I, pg. 17.
[5] C. H. Lyman, op. cit.
[6] B. K. Emerson, U.S.G.S. Bull., Geology of Old Hampshire County, Mass., pg. 502.
[7] C. U. Shepard, Mineralogical Notices, Am. Jour. Sci. 2nd series, Vol. XLI pg. 246.
[8] E. Hitchcock, Final Report on the Geology of Massachusetts, 1841, pg. 200.
[9] B. K. Emerson, op. cit. pg. 505.
[10] B. K. Emerson, op. cit. pg. 506.
[11] A. Nash, Lead Mines of Hampshire County, Am. Jour. Sci. 1st series, Vol. XII, pg. 258.
[12] B. K. Emerson, op. cit. pg. 504.
[13] E. Hitchcock, op. cit. pg. 205.
[14] Rocks and Minerals Magazine, Oct. 1947.

Incomplete additional references not cited in the text, but interesting reading, referring to the Manhan Mine are as follows: 1810—B. Silliman and W. Meade in *Bruce's Journal*, Vol. I, pgs. 63 and 149. 1819—Amos Eaton in *Am. Jour. Sci.* 1st series Vol. 1, pg. 136. 1827—Alanson Nash, *Am. Jour. Sci.* 1st series Vol. XII, pg. 238 et. seq. 1863 C. T. Jackson and C. S. Richardson, Manhan Silver Lead Mining Company, Hampshire County, Massachusetts, Geol. Surveys and Reports, March 1863, Boston, Alfred Mudge and Co. 1866—C. U. Shepard, *Am. Jour. Sci.* 2nd series Vol. XL, p. 215. 1922 Springfield Union, Sunday, January 29, 1922.

FROM: ROCKS & MINERALS, 1948, 33: 594-597

BIBLIOGRAPHY OF THE LEAD MINES OF LOUDVILLE, MA.
AND RELATED LEAD-BEARING VEINS OF NEARBY TOWNS

1. ____ *Cat. Agr. Museum*, (1859). Report Agriculture Mass., Appendix. p.(?part) LXIX, No. XIX, p.200-11.
2. ____ ( ) The Loudville Lead and Silver Mines. *The Pegmatite*. Nashoba Valley Mineralogical Society (Massachusetts).
3. ____ (1856). Prospectus of the Williston Silver Lead Mine.
4. Anderson, J. (1962) Mineral Collecting in the Springfield, Mass. area. *Rocks and Minerals* 37:145-146
5. Anderson, Violet (1982). Microminerals. *Min. Record.* 13(1):44-46.
6. Anon ( ). The Loudville Mines. Despite lack of source material, this is an interesting article.
7. Anon (1856). *The Williston Silver Lead Mine*. New Haven. A prospectus for the Southampton mine,and solicitation for purchase of mining shares.
8. Bain, George W. and Howard A. Meyerhoff (1963). *The Flow of Time in the Connecticut Valley*. Northampton, MA. p.63. Geologic comments.
9. Beudant, F. S. (1832). _____. *The Mineralogist* :662.
10. Bjareby, Gunnar (1964). World News on Mineral Occurrences. *Rocks and Minerals* 39:32. Report of brochantite.
11. Blake, William P. (1860). The Whately silver-lead mines. *Min. Mag. and Journ. Geology* 12:411-418.
12. Cleaveland, Parker (1816). *An Elementary Treatise on Mineralogy and Geology*. Cummings and Hilliard, Boston. p. 514. Relatively extensive discussion of Southampton mine, probably taken from some of Silliman's papers.
13. Dana, James D. (1837). *A System of Mineralogy*. Durrie & Peck and Herrick and Noyes. New Haven. p.422. Mention of Southampton Mine.
14. Dewey, Chester. (1824). Additional notice of argentine.Am. Journ. Sci.7:248-249.
15. Dunn, Pete J. and John H. Marshall, Jr. (1975). The Loudville Lead Mines. *Min. Record* 6:293-98.
16. Dunn, Pete J. and R. C. Rouse (1975). Wroewolfite, a new copper sulfate hydroxide hydrate. *Min. Mag.* 40:1-5
17. Eaton, Amos (1818). Account of the strata perforated by and of the minerals found in the great adit of the Southampton Lead Mine. *Am. Journ. Sci.*, 1st Series, Vol. I, p.136-39. Description of the mine in 1818.
18. Elberfeld, Steve (1988). Personal communication to Janet Cares. Keene, NH Mineral Club field trip to Leverett, MA lead mine on 4/5/81. Found galena, barite, chalcopyrite, malachite, azurite, siderite, "limonite" after siderite.
19. Emerson, Benjamin K. (1888). Geology of Hampshire Co., MA. in Gay, W.B., *Gazeteer of Hampshire Co., Mass 1654-1887.* Syracuse, NY. pp.10-22.
20. Emerson, Benjamin K. (1898). Geology of Old Hampshire County, Massachusetts. *U.S.G.S. monograph* 29:502-7.
21. Emerson, Benjamin K. (1895). Mineral Lexicon of Franklin, Hamden, and Hampshire Counties. *Bulletin U.S.G.S.* No. 126.
22. Emerson, Benjamin K. (1916). Mineralogical Notes. *Am. Jour. Sci.* Series IV, 42:233-34.
22A. Emerson, B.K. (1917). Mineralogical Notes. USGS Monograph 29, p.502.
23. Emmons, E. ( ) *American Geology*. p.183. Mention of reopening of mine in 1855.
24. Everts, Louis (1879). *History of the Connecticut Valley in Massachusetts*. Philadelphia, PA. J.B. Lippincott Press. Vol. I. p.17. Lead source for bullets during Revolutionary War. Vol II., p.733. Working of the Leverett lead vein.
25. Foster, E.C. (1948). The lead mine of Hampshire County, Massachusetts. *Rocks and Minerals* 23:594-96.
26. Frondel, Clifford (1970). New Minerals from New England. *Min. Record* 1:47-53.
27. Gleba, Peter (1978). *Massachusetts Mineral and Fossil Localities*. Krueger Enterprises. Cambridge, MA.
28. Hannay, Agnes (Oct. 1935 - July 1936). Chronicle of Industry on the Mill River. *Smith College Studies in History*. Northampton, MA. Vol. XXI, Nos. 1-4.
29. Hiller, John (1974). Massachusetts Mines and Minerals. Privately published.
30. Hitchcock, Edward (1815). Lead mine Southampton, Hampshire County, Mass. *North Am Review*. Vol. I, p.334-38. Description of the mine in 1815.
31. *Hitchcock, Edward (1822). *Am. Journ. Sci*. 1st Series, Vol. VI, p.201. Description of the mine in 1822.
32. Hitchcock, Edward (1833). *Geology of Massachusetts*. J.S. and C.Adams. Amherst, MA. p.58ff. 65, 104, 507-8. Mentions silver.
33. Hitchcock, Edward. (1841) *Geology of Massachusetts, Final Report*. .J.H. Butler, Northampton. p.199-202 (occurrence of lead in Southampton and other veins). p.204 (Southampton zinc minerals). p. 705 (general mention of Southampton, Whately, and several other veins.
34. Holbrook, Stewart (1940). *Ethan Allen*. New York. p.31. Visit to mine by Allen.
35. Holland. *History of Western Massachusetts*.
36. Hubbard, A.O. (1825) *Am. Journ. Sci*. 9:166-7. Remarks on lead veins of Massachusetts.
37. Jackson, C.T. and C.S. Richardson (1863). Manhan Silver Mining Company, Hampshire County, Massachusetts. *Massachusetts Geol. Surverys and Reports, March, 1863*. Boston, Alfred Mudge and Co., 1866.
38. Johnson, Clifton (1932). *Historic Hampshire in the Connecticut Valley*. Springfield, MA. p.31. Lead source for bullets during Revolutionary War.
39. Johnson, Clifton (1935) *150th Anniversary of Easthampton, Massachusetts*. Easthampton, MA. p.30.
40. Krueger, Dana A. (1985). Mineral Paragenesis at the Manhan Lead Mine. Program Book for the Boston Mineral Symposium, May, 1985 (Boston Mineral Club)
41. Lincks, G. Fred (1967) Revitalizing Loudville, Massachusetts silver lead mines. *Rocks and Minerals* 42:578-82

42. Lyman, C.H. (1940) pamphlet. *Manhan Lead Mines again in Spotlight.*
43. Marshall, John H., Jr. and Pete J. Dunn (1976). The lead mines of Loudville. *Rocks and Minerals* 51:250-55. Reprint of 1975 Dunn article from *Min. Record* with minor changes.
44. Meade, William . (1810). A Description of several Combinations of Lead, lately discovered at Northampton. *Am. Journ. Sci.* 1st Series, Vol.1, p.149-51
45. Nash, Alanson (1827). The lead Mines of Hampshire County. *Am. Journ. Sci.*, 1st Series, Vol. XII.
46. Otis, Leo D. (1952) *Minerals and Rocks of Springfield and Vicinity*. The Museum of Natural History, Springfield, MA. Brief comments on locations of Hatfield, Leverett, and Southampton veins.
47. Palache, Charles, H. Berman and Clifford Frondel. (1951). *Dana's System of Mineralogy, Vol. II.*. p.256-57.
48. Rand, J.C. (1898) Minerals of Massachusetts, Part IV, Western Massachusetts. *The Mineral Collector*. Vol. V:28-30. Brief mention of Loudville.
49. Richardson, C.S. (1853). Views on American Mines and Minerals (Northampton District). *Mining Magazine* 1:489-96.
50. Richardson, C.S. (1854) Northampton District: The Loudville Mines. *Mining Magazine* 2:13-20.
51. Richardson, C.S. (1854)The Williston Lead and Copper Mine. *Mining Magazine* 2:395-396.
52. Richardson, C.S. (1854). The Northampton Mine. *Mining Magazine* 2:634-6.
53. Shelton, W. and E. Webster (1979). *Mineral Collector's Field Guide: The Northeast*. Wallingford, CT.
54. Shepard, Charles U. (1825). Miscellaneous localities of minerals. *Am. Journ. Sci.*9:248-249. "Psuedomorphous quartz and carbonate of lead, Southampton, Mass."
55. Shepard, Charles U. (1866). Mineral notices. Cotunnite at Southampton lead mine. *Am. Journ. Sci.* 42:247-248.
56. Shepard, Charles U. (1866). On Scheeletine (Stolzite) at the Southampton Lead Mine. *Am. Journ. Sci.*, 2nd Series, Vol. XLI, p.215.
57. Shepard, Charles U.(1835). *Treatise on Mineralogy, Second Part.* Hezekiah Howe &Co. and Herrick & Noyes. New Haven. Vol:221. Mention of Northampton/Southamton lead mines.
58. Silliman, Benjamin.( ) *Am. Journ.Sci.*:1:115. ? regarding Hatfield Mine.
59. Silliman, Benjamin.( ) *Am. Journ.Sci.*:1:137.
60. Silliman, Benjamin (1810). The American Mineralogical Journal #11 (Bruce's Journal). *Am. Journ Sci.:* 2:63-69.
61. Silliman, Benjamin. (ref in Cleaveland). ( )*Bruce's Min. Jour.* v. i. Southampton mine.
62. Silliman, Benjamin. (ref in Cleaveland).( ) *North American Review*. No. 3, v. i. Southampton mine.
63. Silliman, Benjamin.( )*Am. Journ.Sci.*:6:204. ? regarding Leverett Mine.
64. Silliman, Benjamin. ( )*Am. Journ.Sci.*:6:213. ? regarding Leverett Mine.
65. Silliman, Benjamin. ( )*Am. Journ.Sci.*:9:47 ? Loudville.
66. Silliman, Benjamin, Jr. (1855). Letter to Mr. Duryea, Williston Mining Co.
67. Trumbull, James R. (1898). *Trumbull's History of Northampton.* Northampton, MA. The Gazette Printing Co. Vol I:358, 361, 367, 369
68. VanIderstine, Janet (1986). *Micromounters of New England Program Book*. The Loudville Lead-Silver Mines. p.8-10
69. Yedlin, Neal (1957). The Micromounter. *Rocks and Minerals* 32:261.
70. Zerlin, Sande H. (1981). *Lapidary Journal* February 1981. A Day Trip to Loudville.

MINERAL SPECIES OF THE MANHAN LEAD MINES

The following species are known to have been reliably identified, most by Pete J. Dunn as noted in reference 1 below.

Anglesite	Cuprite	Opal
Aurichalcite	Djurleite	Plumbogummite
Azurite	Fluorite	Pyrite
Barite	Galena	Pyrolusite
Brochantite	Goethite	Pyromorphite
Calcite	Hematite	Quartz
Caledonite	Hemimorphite	Silver
Cerussite	Langite	Smithsonite
Chalcanthite	Leadhillite	Sphalerite
Chalcocite	Linarite	Wroewolfeite
Chalcopyrite	Malachite	Wulfenite
Covellite	Muscovite	Zircon (see Notes)

The following species have been reported in the references listed below. Some may be valid, but no indication of the method of verification was given, or tests were deemed unreliable.

Bornite[4]	Mimetite[4]
Chrysocolla[4]	Percylite[4]
Hydrocerussite[4]	Phosgenite[2,5]
Litharge[4]	Polybasite[3]
Natlockite[7]	Stolzite[2, 7]
Cotunnite[1,2, 6]	Witherite[4]

NOTES

Acanthite may be observed as a post-mine alteration of silver.
Zircon is probably from wall or country rock, not from mine proper.
Columbite reference (Shepard) is apparently in error.

REFERENCES

1. Dunn, P. J. and J. A. Marshall, Jr. (1975) The Loudville lead mines. Min. Record 6:293-298.
2. Emerson, B. K. (1895) A mineral lexicon of Franklin, Hampden, and Hampshire counties. USGS Bulletin number 126.
3. Krueger, D. A. (1985) Mineral paragenesis at the Manhan lead mine. Program book for the Greater Boston Mineral Symposium, May, 1985.
4. Lincks, G. F. (1967) Revitalizing Loudville, Massachusetts silver-lead mines. Rocks & Mins. 42:573-582.
5. Meade, W. (1810) A description of several combinations of lead lately discovered at Northampton. Am. Jour. Science 1:149-151.
6. Shepard, C. U. (1866) Cotunnite at Southampton lead mine. Am. Jour. Science 42:247-248.
7. Shepard, C. U. (1866) On scheeletine at the Southampton lead mine. Am. Jour. Science 41:215

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