NPS Form 10-900
(3-82)

OMB No. 1024-0018
Exp. 10-31-84

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only
received
date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic CORNWALL IRON FURNACE NATIONAL HISTORIC LANDMARK DISTRICT

and/or common

2. Location

street & number In irregular pattern along Rexmont Road and Boyd Street ___ not for publication

city, town Cornwall Borough ___ vicinity of

state Pennsylvania code 42 county Lebanon code 075

3. Classification

Category	Ownership	Status	Present Use	
X district	___ public	X occupied	___ agriculture	X museum
___ building(s)	___ private	X unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	X private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	___ yes: restricted	___ government	___ scientific
	___ being considered	X yes: unrestricted	X industrial	___ transportation
		___ no	___ military	X other:

4. Owner of Property

name Multiple - see continuation sheet

street & number

city, town ___ vicinity of state

5. Location of Legal Description

courthouse, registry of deeds, etc. Lebanon County Courthouse

street & number South 8th Street

city, town Lebanon state PA

6. Representation in Existing Surveys

title Historic Sites Survey has this property been determined eligible? ___ yes ___ no

date 1966 X federal X state ___ county ___ local

depository for survey records National Park Service

city, town Washington state D.C.

7. Description

Condition		Check one	Check one
_X_ excellent	___ deteriorated	___ unaltered	X original site
___ good	___ ruins	_X_ altered	___ moved date _____
___ fair	___ unexposed		

Describe the present and original (if known) physical appearance

The Cornwall Iron Furnace National Historic Landmark contains three interrelated major elements. The first is the "plantation," the furnace and its associated buildings, including the ironmaster's mansion; the second is the adjacent open pit mine, which provided the ore the furnace was built to exploit; the third is a village consisting mainly of stone double residences built to house workers.

Cornwall Furnace lies in south-central Lebanon County, Pennsylvania, along the northern edge of Furnace Hills, a prominent ridge running east to west along the border between Lebanon and Lancaster Counties. The ore hills on which the furnace depended are at the foot of its north slope. The contours of the land are noticeably steep, in sharp contrast to the gently rolling farmland to the north and south. A creek, aptly named Furnace Creek, runs to the west of the furnace buildings. In addition to iron ore, the immediate area is rich in both sandstone and limestone, the predominant building materials of the furnace complex and the village.

Although Cornwall Furnace is the earliest and most important of the iron manufactories in the immediate area, the ore deposit was so large and so rich that numerous other furnaces and forges were built nearby in the eighteenth and nineteenth centuries. None of these survives, although archaeological remains may exist. However, three additional workers' villages remain in the immediate vicinity of Cornwall Furnace. None has sufficient direct association with Cornwall Furnace to be considered part of the National Historical Landmark. However, one at least, Burd Coleman Village directly west of the mine, is certainly eligible for the National Register in its own right. Two others, Anthracite and Rexmont, may also be eligible for the National Register.

The majority of the structures associated with Cornwall Furnace in the nineteenth century survive in a remarkable state of preservation. Some retain discernible evidence of their eighteenth century origins. In the descriptions of individual buildings that follow, numbers preceding the description refer to the attached sketch map. Numbers in brackets refer to photographs.

Furnace and Ancillary Buildings

1. The furnace lies toward the northern end of the site. So well preserved that it seems likely it could still be put in blast without a major restoration effort, it is a hill furnace consisting of two large sandstone buildings, linked by an open wooden gallery. The steam engine and other machinery installed in the mid-nineteenth century are still in place, as are many of the implements used by the furnace workers. Comparison of an old photograph [1] of the furnace with a modern view [2] shows the buildings as virtually unchanged,

(see continuation sheet - 7-1)

8. Significance

Period	Areas of Significance—Check and justify below				
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion	
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science	
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture	
___ 1600–1699	___ architecture	___ education	___ military	___ social/ humanitarian	
x 1700–1799	___ art	___ engineering	___ music	___ theater	
x 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ transportation	
___ 1900–	___ communications	x industry	___ politics/government	___ other (specify)	
		___ invention			

Specific dates 1742 - 1883 **Builder/Architect** Peter Grubb; unknown

Statement of Significance (in one paragraph)

Cornwall Iron Furnace National Historic Landmark District exemplifies the type of iron-making complex that manufactured most of America's iron from before the Revolution until after the Civil War. The furnace itself, which operated from 1742 to 1883, was one of the country's major producers of cast iron in the colonial period. It is probably the best-preserved charcoal furnace in the United States. The Cornwall Ore Banks, mined continuously from 1742 to 1974, constituted the largest known deposit of iron ore in the country until the discovery of the Mesabi Range in 1887. The well-designed and well-executed surviving buildings, including the furnace and ancillary buildings, the iron-master's mansion and a miners village, reflect the financial success and pride of America's early iron-making dynasties.

Cornwall Iron Furnace National Historic Landmark District is located in Cornwall Borough in the southern section of Lebanon County. Settlement of the Lebanon Valley area began early in the 18th century with the arrival of German and Scotch-Irish farmers attracted by the region's fine agricultural potential. By the 1730's, however, exploitation of the region's mineral resources had begun, a development that eventually resulted in establishing the Lebanon area as one of the most significant iron-producing centers in the United States. The single event that triggered this great period of development was the completion of the Cornwall Furnace in 1742. The natural feature on which both the furnace and the region's iron industry as a whole depended was the great Cornwall iron ore deposit. The furnace and the related ore banks were the core of the Lebanon Valley iron industry for over a century.

The Cornwall iron ore deposit was the largest and most economically significant iron formation in the country prior to the discovery and exploitation of the extensive Lake Superior ore fields. The deposit was embodied in three hills located at the northern foot of the Furnace Hills (formerly South Mountain). The largest and easternmost of these hills was called Big Hill and rose to an elevation of over 400 feet and covered 40 acres of land. The next largest was Middle Hill, some 200 feet high and occupying 35 acres. Grassy Hill was the smallest, only 150 feet in elevation and covering 30 acres. It was located immediately west of Middle Hill. The ore took the form of magnetite and was exposed at the ground surface. This exposure not only led to the deposit's early discovery, but also made its exploitation in a pre-machinery age possible.

(see continuation sheet 8-1)

9. Major Bibliographical References

(See continuation sheet 9-1.)

10. Geographical Data

Acreage of nominated property 175 ±

Quadrangle name Lebanon Quadrangle scale 1:24000

UTM References

	Zone	Easting	Northing
A	18	380820	4145830
B	18	381410	4145790
C	18	381110	4145810
D	18	379440	4145810
E	18	379410	4145831
F	18	379818	4145840
G			
H			

Verbal boundary description and justification

(See continuation sheet 10 - 1.)

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title Constance M. Greiff and Richard Porter

organization Heritage Studies, Inc. date October 1983

street & number RD 6, Box 864, Mapleton Road telephone (609)-452-1754

city or town Princeton state New Jersey 08540

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state ___ local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title date

For NPS use only

I hereby certify that this property is included in the National Register

Keeper of the National Register date 3/20/85

Attest: date

Chief of Registration

United States Department of the Interior
Heritage Conservation and Recreation Service

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Cornwall Iron Furnace
Continuation sheet National Historic Land-mark District Item number 4 Page 1

Furnace and Ancillary Buildings:

1. Block 19J Lot 135
The General State Authority of the Commonwealth of Pennsylvania
18th and Herr Streets
Harrisburg, Pa. 17100

1a. See 1

2. See 1

2a. See 1

3. Block 19J Lot 125
Commonwealth of Pennsylvania Historical and Museum Commission
Rm. 501, William Penn Museum
Harrisburg, Pa. 17120

4. See 3

5. Block 19J Lot 105
Cornwall Manor of the United Methodist Church
Cornwall, Pa. 17016

6. See 5

7. Block 19J Lot 115
See 5 for ownership

Block 19J Lot 120 (adjacent to Block 19J Lots 105 and 115)
See 5 for ownership

8. See 3

9. Block 19J Lot 130
Capp, LeRoy E.
Sidney Anne
Box F
Cornwall, Pa. 17016

10. Block 19E Lot 40
The Methodist Church Home
Cornwall, Pa. 17016

11. Block 19 Lot 195
See 10 for ownership

12. See 11

(see continuation sheet 4 - 2)

13. See 11

14. Iron Mine
Block 19 Lot 180
Lebanon County Industrial Development Authority
P.O. Box 899
Lebanon, Pa. 17042

15. Minersvillage:

North side Boyd Street, west to east:

1A. Block 19J Lot 98 (unnumbered house)
Wheeler, Robert M. and Mary G.
R2 Box 1376
Loslunas, N. Mex. 87031

* Triangular lot at Boyd St.-Gold Rd. intersection (no bldg.)
Bethlehem Mines Corp.
Martin Tower
Bethlehem, Pa. 18000

2A. Block 19J Lot 96 (Bldg. 2-4)
Dupkas, Michael A. and Mary B.
P. O. Box 7
Cornwall, Pa. 17016

4. Block 19J Lot 94 (Bldg. 2-4)
Gross, Grace E.
Box 74
Quentin, Pa. 17083

6. Block 19J Lot 92 (Bldg. 6-8)
Ondrusek, Cyril J. and Kathryn I
6 Boyd St.
Cornwall, Pa. 17016

8. Block 19J Lot 90 (Bldg. 6-8)
Miller, Elwood H. and Grace Z
Box 310
Cornwall, Pa. 17016

10. Block 19J Lot 88 (Bldg. 10-12)
Blauch, John D., Jr. and Dawn M.
10 Boyd St., Box 43
Cornwall, Pa. 17016

(see continuation sheet 4 - 3)

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12. Block 19J Lot 86 (Bldg. 10-12)
Doll, Charles F. and Kathryn E.
12 Boyd St.
Cornwall, Pa. 17016

14. Block 19J Lot 84 (Bldg. 14-16)
Boyer, Edwin L. and Ella V.
P. O. Box 9
Cornwall, Pa. 17016

16. Block 19J Lot 82 (Bldg. 14-16)
Krause, Kathleen E.
16 Boyd St.
Cornwall, Pa. 17016

18. Block 19J Lot 80 (Bldg. 18-20)
Hains, Timothy C. and Debra Jane
18 Boyd Street
Cornwall, Pa. 17016

20. Block 19J Lot 78 (Bldg. 18-20)
Nelson, Eleanor I.
Cornwall, Pa. 17016

22. Block 19J Lot 76 (Bldg. 22-24)
White, Clayton M. and Alverta D.
Cornwall, Pa. 17016

24. Block 19J Lot 74 (Bldg. 22-24)
Neidig, Annetta D.
24 Boyd St.
Cornwall, Pa. 17016

26. Block 19J Lot 72 (Bldg. 26-28)
Shoop, Barry W. and Nancy J.
26 Boyd St.
Cornwall, Pa. 17016

28. Block 19J Lot 70 (Bldg. 26-28)
Nelson, Rickey P. and Cheryl A.
28 Boyd St.
Cornwall, Pa. 17016

30. Block 19J Lot 68 (Bldg. 30-32)
Bankey, John R. and Sandra F.
30 Boyd St.
Cornwall, Pa. 17016

(see continuation sheet 4 - 4)

32. Block 19J Lot 66 (Bldg. 30-32)
Kane, James R. and Linda S.
32 Boyd St.
Cornwall, Pa. 17016

34. Block 19J Lot 64 (Bldg. 34-36)
Carpenter, Ronald G. and Kathleen L.
and Mary E.
Box 72
Cornwall, Pa. 17016

36. Block 19J Lot 62 (Bldg. 34-36)
(See 34 for ownership)

73. Block 19J Lot 58 (first frame double house)
Yurejefcic, Nicholas, Sr.
Cornwall, Pa. 17016

74. Block 19J Lot 56 (first frame double house)
Coleman, Wilson, Jr. and Sandra L.
74 Boyd St.
Cornwall, Pa. 17016

75. Block 19J Lot 54 (second frame double house)
Enders, Paul C., Jr. and Diana M.
75 Boyd St.
Cornwall, Pa. 17016

76. Block 19J Lot 52 (second frame double house)
Mettley, Mary E.
76 Boyd St., Box 122
Cornwall, Pa. 17016

78. Block 19J Lot 50 (general store)
Grandi, Peter P. Jr., and Mettley, Richard
Rexmont, Pa. 17085

38. Block 19K Lot 2 (Bldg. 38-40)
Jenkins, Richard A. and Alice L.
38 Boyd St.
Cornwall, Pa. 17016

40. Block 19K Lot 4 (Bldg. 38-40)
Ponessa, Joseph and Constantino, Jr.
Cornwall, Pa. 17016

42. Block 19K Lot 6 (Bldg. 42-44)

(see continuation sheet 4 - 5)

Schuckers, Lane R. and Penny L.
42 Boyd St.
Cornwall, Pa. 17016

44. Block 19K Lot 8 (Bldg. 42-44)
King, M. Louise
44 Boyd St.
Cornwall, Pa. 17016

46. Block 19K Lot 10 (Bldg. 46-48)
Miller, Earnest C. and Priscilla L.
52 Boyd St.
Cornwall, Pa. 17016

48. Block 19K Lot 12 (Bldg. 46-48)
Miller, Leon T. and Kathryn I.
Cornwall, Pa. 17016

50. Block 19K Lot 14 (Bldg. 50-56)
Miller, Earnest C. and Priscilla L.
52 Boyd St.
Cornwall, Pa. 17016

52. Block 19K Lot 16 (Bldg. 50-56)
(See 50 for ownership)

54. Block 19K Lot 18 (Bldg. 50-56)
Kohr, Earl R. and Bettie J.
Cornwall, Pa. 17016

56. Block 19K Lot 20 (Bldg. 50-56)
Garner, Terry L. and Linda L.
56 Boyd Street
Cornwall, Pa. 17016

263. Block 19K Lot 22 (Bldg. 262-263)
Grandi, Peter P., Jr. and Borello, Vincent
Cornwall, Pa. 17016

262. Block 19K Lot 26 (Bldg. 262-263)
Fiorentino, Francis A. and Carol A.
Box 13
Cornwall, Pa. 17016

South side Boyd Street, west to east:

60. Block 19J Lot 2 (Mennonite Church)

(see continuation sheet 4 - 6)

Minersvillage Mennonite Church
c/o Norman Wine
R5
Lebanon, Pa. 17042

65. Block 19J Lot 4 (Bldg. 65-66)
Broughall, Edward G. and Louise L.
Box 50
Cornwall, Pa. 17016

66. Block 19J Lot 6 (Bldg. 65-66)
Goshert, John C. and Pauline G.
Box L
Cornwall, Pa. 17016

1. Block 19J Lot 8 (Bldg. 1-3)
Reppert, Lela B. and William C., Jr.
Box 181
Cornwall, Pa. 17016

3. Block 19J Lot 10 (Bldg. 1-3)
Ponessa, Constantino, Jr. and Gloria R.
Box 187
Cornwall, Pa. 17016

5. Block 19J Lot 12 (Bldg. 5-7)
Williams, Viola B.
Cornwall, Pa. 17016

7. Block 19J Lot 14 (Bldg. 5-7)
Gristick, Joseph P.
Cornwall, Pa. 17016

9. Block 19J Lot 16 (Bldg. 9-11)
Rice, Rodney L. and Cynthia A.
9 Boyd St.
Cornwall, Pa. 17016

11. Block 19J Lot 18 (Bldg. 9-11)
Sabo, David M. and Barbara M.
11 Boyd St.
Cornwall, Pa. 17016

* Block 19J Lot 17 (no bldg.)
Paxton, Melvin L.
Box 331
Cornwall, Pa. 17016

(see continuation sheet 4 - 7)

* Block 19J Lot 100 (no bldg.)
Cornwall Borough Municipal Authority
Cornwall Borough Hall
Cornwall, Pa. 17016

13. Block 19J Lot 20 (Bldg. 13-15)
Netzley, D., Lynch, R., Chernich, E. and Goshert P.
Cornwall, Pa. 17016

15. Block 19J Lot 22 (Bldg. 13-15)
Chernich, Ellen I. and Daniel P.
15 Boyd St.
Cornwall, Pa. 17016

17. Block 19J Lot 24 (Bldg. 17-19)
Mettley, Paul P. and Anna B.
Cornwall, Pa. 17016

19. Block 19J Lot 26 (Bldg. 17-19)
Walker, James H. and Martha; Broughton,
Edward L. and Sandra L.
19 Boyd St.
Cornwall, Pa. 17016

21. Block 19J Lot 28 (Bldg. 21-23)
Stroud, Bertram C. and Mary J.
Cornwall, Pa. 17016

23. Block 19J Lot 30 (Bldg. 21-23)
Mettley, Albert and Amelia T.
Cornwall, Pa. 17016

25. Block 19J Lot 32 (Bldg. 25-27)
Gergle, John S., Jr.
Box 85
Cornwall, Pa. 17016

27. Block 19J Lot 34 (Bldg. 25-27)
Kreitz, Stanley H. and Beverly
Box 140
Cornwall, Pa. 17016

29. Block 19J Lot 36 (Bldg. 29-31)
Miller, Harold E.
2373B W. Oak St.
Lebanon, Pa. 17042

31. Block 19J Lot 38 (Bldg. 29-31)

(see continuation sheet 4 - 8)

Henning, Jan L. and Jane
Cornwall, Pa. 17016

33. Block 19J Lot 40 (Bldg. 33-35)
Kiscadden, William and Elma M.
Cornwall, Pa. 17016

35. Block 19J Lot 42 (Bldg. 33-35)
Hofnagle, Frederick and Stella E.
35 Boyd St.
Cornwall, Pa. 17016

79. Block 19J Lot 44 (frame double house)
Fake, E. Joan
Box 178
Cornwall, Pa. 17016

80. Block 19J Lot 46 (frame double house)
(See 79 for ownership)

77. Block 19J Lot 48 (frame single house)
Lehman, Thomas A. and Jean M.
77 Boyd Street
Cornwall, Pa. 17016

41. Block 19K Lot 56 (Bldg. 41-43)
Obenstine, Anna Mae
Cornwall, Pa. 17016

43. Block 19K Lot 54 (Bldg. 41-43)
Beck, Clarence D., Jr.
43 Boyd St.
Cornwall, Pa. 17016

45. Block 19K Lot 52 (Bldg. 45-47)
Wise, Ray N. and Jeannette E.
303 E. Walnut St.
Lebanon, Pa. 17042

47. Block 19K Lot 50 (Bldg. 45-47)
Mason, Mervin C., Jr. and Bernice A. J.
47 Boyd St.
Cornwall, Pa. 17016

49. Block 19K Lot 48 (Bldg. 49-51)
Arnick, Raphael F. and Shirley F.
Cornwall, Pa. 17016

(see continuation sheet 4 - 9)

Block 19K Lot 46
Fiorentino, Ralph S. and Joann
51 Boyd St.
Cornwall, Pa. 17016

53. Block 19K Lot 44 (Bldg. 53-55)
Weidman, Marlin L. and Debra A.
53 Boyd St.
Cornwall, Pa. 17016

55. Block 19K Lot 42 (Bldg. 53-55)
Beck, Clarence and Elizabeth C.
Cornwall, Pa. 17016

258. Block 19K Lot 40 (Bldg. 258-259)
Donley, Marian M. O.
Box 191
Cornwall, Pa. 17016

259. Block 19K Lot 38 (Bldg. 258-259)
Orner, Shirley V.
Box 73
Cornwall, Pa. 17016

260. Block 19K Lot 36 (Bldg. 260-261)
Ebright, Donna J.
260 Boyd St.
Cornwall, Pa. 17016

261. Block 19K Lot 34 (Bldg. 260-261)
Shultz, Julia T.
261 Boyd St.
Cornwall, Pa. 17016

57. Block 19K Lot 74 (Bldg. 57-58)
Fiorentino, John J. and Joanne R.
Cornwall, Pa. 17016

58. Block 19K Lot 72 (Bldg. 57-58)
Waltman, Edward R. and Minnie
Cornwall, Pa. 17016

59. Block 19K Lot 70 (Bldg. 59-60)
Fiorentino, John J., Sr.
Caornwall, Pa. 17016

60. Block 19K Lot 68 (Bldg. 59-60)
Murray, John W. and Emma K.

(see continuation sheet 4 - 10)

Cornwall, Pa. 17016

61. Block 19K Lot 66 (Bldg. 61-62)
Druff, Lester T. and Maria D.
61 Granite St.
Cornwall, Pa. 17016

62. Block 19K Lot 64 (Bldg. 61-62)
Brown, William C. and Anna M.
Cornwall, Pa. 17016

63. Block 19K Lot 62 (Bldg. 63-64)
Allen, Harry F. and Alma
Cornwall, Pa. 17016

64. Block 19K Lot 60 (Bldg. 63-64)
Berkheimer, Kenneth B., Jr. and Deborah A.
64 Granite St.
Cornwall, Pa. 17016

Shirk Street:

* Block 19K Lot 58 (frame and cement block garage)
Arnick, Raphael F. and Shirley F.
49 Minersvillage
Cornwall, Pa. 17016

The chief elected official is:

Mayor William Smith
Cornwall, PA 17106

although the litter that cluttered the working site is no longer in evidence. To accommodate visitors the State of Pennsylvania has installed some asphalt walkways, post lighting and a simple woooden stairway, as well as a gravel parking lot south of the furnace. The evidence of a perspective view of Robert Coleman's holdings at Cornwall, made about 1800, [3] suggests that the furnace occupies the same site as in the eighteenth-century, although it is of somewhat different configuration. Indeed, it probably incorporates some elements of the earlier complex. The present appearance probably dates to work carried out in 1847, when steam power was installed, and 1856, when the stack was rebuilt. Coleman Family documents at the Pennylvania Historical and Museum Commission in Harrisburg and the Historical Society of Pennsylvania in Philadelphia may contain more specific information than is currently available about precise construction dates for the furnace complex and related buildings.

The furnace complex is embanked into both the north and west banks of the hill into which it is built, so that the lower building grouping, consisting of casting shed, bridge house, and engine/wheel house, is, in effect, multi-level in two directions. This grouping has a highly architectural quality, due to its impressive massing and the punctuation of large wall areas by two-light, multi-paned pointed windows with hood molds.

On the lowest level the casting shed, running roughly west to east, is a one-story building with a high gable roof of slate with a monitor [2]. There is an arched double opening in the center of the west wall sheltered by a shed-roofed portico. This is flanked by pointed windows, each light with four panes, which were not present when the earliest known photograph of the furnace was taken. A foot or two below the eaves line a change in the color and arrangement of the masonry suggests that the present configuration may be the result of a rebuilding of the eighteenth-century casting shed. This construction joint is more apparent on the south wall of the casting shed, which is blank except for two relatively small rectangular openings. The north wall is divided three bays, by an arched opening at the east end and two pointed windows [4]. Above these openings are two large gabled wall dormers with pointed windows. The interior of the casting shed is a single room with the work hearth at the east end. It has been restored for interpretive purposes with a sand floor and "molten" pigs and sows in channels impressed in the sand. Enclosed within the east end of the casting shed, and rising through its roof, is the furnace stack. The stack is 28 feet square at the base and 31 feet 8 inches high. Besides the work arch, there are three tuyere arches. The base is built of stone with iron binders; the superstructure and chimney are brick. The superstructure encloses the boilers that were placed adjacent to the chimney in the mid-nineteenth century. In an early

(see continuation sheet 7-2)

example of cogeneration, these used waste heat from the stack to power the steam engine.

The bridge house also runs on an east-west axis directly behind the casting house. It is two stories on the north and west sides and one story on the south and east, with an arched standing seam tin roof. The north facade is divided into three bays, with the east bay on the first floor marked by a pointed arched door [4]. There is a double leafed arched door in the west facade. The only opening on the east is a small pointed door leading to a catwalk on the furnace superstructure. The south wall, largely obscured by the engine house, is blank. The arched door in the west facade opens into the charging room, from which the furnace was filled. The roof construction, which is exposed, is unusual. It is an arched bowstring truss, of which the top chord is formed of several bands of wood, held together by iron bolts. The bottom chord and king post are made of iron rods. Between the trusses, vertical iron rods tie the roof timbers to the stone walls. Still in place in the charging room are wooden storage bins, the scale, the bell, and the tally board. The interior below the charging room is divided into two spaces. Although the precise use of this area is not known, it may have housed the bellows before the blowing tubs were installed.

The engine/wheel house is perpendicular to the bridge house, with its roof ridge running north south. The west facade, five bays wide, rises two stories above a stone terrace. On this side, later dormers and a small brick chimney have been restored, based on old photographs [2]. The south facade is timber construction, covered with vertical planking. There are two "barn door" openings, one single, the other double, and a window in the gable. The east facade [5] is considerably embanked. A break in the wall, about 1/3 of the length from the bridge house, marks the greater width of the building around the wheel pit, and may also mark the extent of the eighteenth-century wheel house. It is marked by a large gabled dormer. Two sheet metal chimneys, one decorative, pierce the gabled slate roof. The northern end of the buildings houses the wheel tub, said to be in the same location as it was in the eighteenth century. The 28-foot fly wheel [6] is still in place and still operable, although its axle has been replaced; the original axle is displayed in an adjoining room. Above the fly wheel, the blowing tubs and ducts are also still in place. On the level below the wheel, to the west is the steam engine. The reminder of the interior is occupied by a small office and large storage areas. The most visible alteration has been the insertion of simple wooden platforms and stairways, so that visitors can view the works. Electricity has been installed, for lighting and power to drive the wheel.

(see continuation sheet 7-3)

At the upper level the bridge house is joined to the coal house by a covered walkway. Constructed of timber, with a gabled slate roof, the walkway is given the appearance of an arcade by decorative board and batten spandrels.

The coal house [8] is oriented north-south. Sturdily built of stone, it appears to have replaced an earlier building of flimsier construction [9]. In its present state it was originally nine bays long, the bays defined by stone buttresses. Eventually it was extended to the north by three bays, the division still marked in the roof by a crow-stepped parapet. The south wall, to which a wooden shed was formerly attached, has slit openings and a bullseye in the gable. The north wall is blank, except for an eaves belt course and a blind bulls eye in the gable. The east wall has three openings with slatted doors, and openings in the roof from which the building was filled. At the south end a new door and new triple light windows have been sympathetically inserted to accommodate office use. The interior of the southern end of the building has been converted for use as a reception area and museum.

1a. Immediately west of the furnace is a small one-room stone building, erected by the State of Pennsylvania within the last two decades [2]. Built of stone, with slate roof, and openings replicating those of the furnace buildings, it was erected to provide rest rooms before costruction of the museum facility.

East of the coal house two terraces rise to Boyd Road. Several buildings and structures connected with the operation of the furnace are located on these terraces.

2. Off the southeast corner of the coal house, and built into the wall of the lower terrace is a ore roaster [10]. It is built of coursed limestone rubble, with an arched hearth. There is some deterioration of the stone at the top. The old photograph [1] suggests that the roaster may have been covered with a wooden shed.

2a. North of this feature is a sandstone retaining wall, divided by wing walls into storage bins for raw material.

On the terrace above the retaining wall are two stone gable-roofed buildings [12].

3. The first of these is now known as the carpenter's shop, although it is unclear from historic maps that this was its original function. It is partially embanked from west to east, with its roof ridge

(see continuation sheet 7-4)

running north-south. The west facade is the most decorative, with four pointed windows and two gabled wall dormers. The south facade has a double-leafed arched door, flanked by 6/6 sash, with a bulls eye in the gable apex. There is a rectangular double-leafed door on the north facade, flanked by pointed windows and, again, a bulls eye in the gable. The east facade is plain, with two simple rectangular openings.

4. The second building, now known as the blacksmith's shop, is smaller and simpler. It is a three-bay structure, with large 6/6 double-hung sash. Both the north and south facades have large double-leafed arched doors. There is a small chimney in the northwest corner. The prominent roof overhang and shaped rafter tails suggest a somewhat later date than seems likely for Building 3, which is so closely related in style to the furnace buildings. If this is the case, Building 3 is more likely to be the blacksmith's shop shown on the 1867 and 1873 maps.

East of these buildings, Boyd Street runs south from Rexmont Road, carried on the upper terrace created by another stone retaining wall.

5. Across Boyd Street, closest to the intersection is the mule and horse stable [13], an L-shaped building of roughly squared coursed rubble sandstone, with a slate gable roof. The more elaborately decorated side towards Boyd Street is seven bays wide. The northern bay is occupied by oversized double-leaf doors in a round-arched keyed opening. Six smaller doors are in the form of three-centered arches. Between each pair of doors is a barred window, with pedimental labeled lintel and labeled sill. Two steeply gabled wooden wall dormers complete the facade, each topped with a finial and containing two arched openings with ornamental iron ventilators set in the diagonally battened doors. These decorative elements give the entire building a Germanic late medieval appearance. The Rexmont Road facade, is far simpler, with seven plain stable doors, and a plain barred window between each set of doors.

6. Adjacent to the mule stable to the south is a smaller frame building. Although in recent years this served as part of the mine office, its appearance suggests that it may have been a carriage house. It is in the form of a Gothic cottage, with a projecting cross-gabled pavilion on the west facade, with Queen Anne detailing. The lower story has been altered by the addition of German siding and the insertion of modern 1/1 sash with modern shutters. The upper story of the pavilion maintains saw-toothed shingles and a small-paned demi-lune window. This building does not appear on the 1875 property map; its style suggests that it was constructed in the 1880s or '90s.

(see continuation sheet 7-5)

7. The next building along Boyd Street, two-and-a-half stories and gable-roofed, is of substantial construction [14]. Although now adaptively used as the Lebanon Valley Academy, and in the recent past as the mine office, its size and rather domestic quality bear a striking resemblance to the typical early nineteenth century inn or boarding house associated with rural industrial complexes. The building is constructed of coursed rubble sandstone, pinkish on the west facade, and otherwise brownstone. It is seven bays across the front, with an entrance with transom and sidelights in the third bay from the right, and two rooms deep. There is a full porch across the front. A two-story stone wing at the rear, forms a roughly T-shaped plan. Perpendicular to this at the north is another wing said to have been constructed in the twentieth century. Round-arched dormers in the slate roof are Colonial Revival in character and also appear to be of twentieth century date. The interior has been considerably altered, but retains some early woodwork. Most notable are the window jambs, with triple-beaded raised panels. These suggest a construction date in the late eighteenth or early nineteenth century, although the style of the building, judging from the exterior, could generally be characterized as Federal/Greek Revival.

8. Across Boyd Street from the Academy is the so-called butcher shop [15]. In effect it is on a terrace below Boyd Street, reached from the roadway by flights of sandstone steps. Built of sandstone of a pale golden hue, the building is in the form of an elongated octagon. Despite its former mundane function, it has an ecclesiastical appearance, due to its polygonal ends, the prominent slate roof, and the second floor fenestration, which consists of pointed quatrefoil windows. The building is embanked. The main entrance is on the one-story east side, through a round-arched door in a prominent cross gable. There are also arched entries in the south and west walls. The basement level is also pierced by barred slit windows with interior shutters. There is a central chimney (not expressed on the exterior), but no sign of a fireplace. On the interior the north wing has only a partial second floor. Still in situ is a revolving wooden rack, rising through both levels, presumably used to hang carcasses during smoking. The basement level under the central and southern portions of the building was presumably used for storage, while the second floor may have functioned as the shop. There is a wooden stair from the second floor to the attic. The building seems to be somewhat later in style than the carpenter's shop or stable, but appears on the 1867 map.

9. Southwest of this building is a double house, which probably was allocated to supervisory personnel at the furnace. Built of brownstone, it has two steeply gabled wall dormers on the west facade, with pointed windows similar to those in the furnace. It was probably

(see continuation sheet 7-6)

erected at about the same time the furnace was rebuilt. It has been altered by conversion to a single residence.

Cornwall Mansion

Northwest of the furnace, across Rexmont Road, is the entrance to Cornwall Mansion, the ironmaster's house, now part of a retirement complex.

10. To the right of the entrance drive is a small Cottage Ornee in roughly finished sandstone ashlar, with cut and tooled limestone trim [16]. Although described in literature at the site as the mine pay office, its most recent function, it is simply labeled "office" on the 1867 map. At the time the mine office was located out on Boyd Street, near Minersvillage, and it seems likely that this was the office for the furnace. The building, which resembles small gate lodges of a type illustrated in Downing and other mid-nineteenth century pattern books, is generally Gothic in style, with a sharply peaked cross gable and elaborate vergeboards. The round-arched openings, however, are Italianate. This eclectic intermingling suggests a construction date in the 1860s.

To the left (west) of the drive the property is fronted by a cast and wrought-iron fence.

11. Behind the fence a grove of pine trees masks an intrusion, a modern building used as a central kitchen for the retirement complex. The drive itself is bordered on this side by a low sandstone wall.

12. The mansion is set back a considerable distance from Rexmont Road. Between the house and the road are the remains of a formal, terraced garden [17], which includes an "aquarium" -- a large round brick basin--, and an early brick cold frame. West of the garden the land slopes down toward Furnace Creek, forming a meadow in which cannon are said to have been tested during the Revolutionary War. A drawing of the property made c. 1800[9] shows some features of this garden already in existence and depicts the mansion as consisting of two sections, a lower five-bay section to the left, and a three-bay section with considerably greater floor-to-ceiling heights to the right. These appear to have been incorporated, probably in the mid-nineteenth century, into the main section of the house [18]. This is now a rectangular eight-bay block, of ample two-and-a-half story height, with a gable roof pierced by round-headed, and later shed, dormers. It is constructed of masonry covered with stucco scored to simulate ashlar. Several features are probably the result of extensive remodeling in 1865. These include a two-story stone service

(see continuation sheet 7-7)

wing at the rear, one-story polygonal wings on the east gable and the east end of the north facade, and an elaborate four-stage Italianate tower, all of sandstone with wooden trim. A wooden porch of vaguely Moresque design extends across the south facade and wraps around the west gable. The mansion is in a good state of preservation. Viewed from the furnace buildings, Rexmont Road or the entrance drive, it retains the appearance shown in nineteenth-century photographs. Despite conversion to use as an office for the Cornwall Manor retirement complex, the interior is also largely intact, including a period staircase, woodwork, mantels, and even some chandeliers. However, sizeable additions have been made at he rear of the building.

By the mid-nineteenth century, the mansion grounds included a full complement of outbuildings. Of these, only one survives in unaltered condition in the immediate vicinity of the mansion.

13. This is an octagonal stone ice house [19] located a few hundred yards to the west of the house. A bulkhead on the north face provides access to the underground storage area. A round-arched door to the east opens into an aboveground room. This may have been used as a summerhouse, since three round-arched windows occupy the western faces.

Other outbuildings include Gothic greenhouses behind the mansion and stables and a large barn east of the entrance drive. These latter buildings have been heavily altered, however, to adapt them for use as part of the retirement facility, and are not included within the landmark boundary. A charming Gothic gatehouse [20] also survives at the corner of Schaeffertown Road and Cornwall Pike north of the mansion. However, so much new construction lies between this building and the mansion that the integrity of their interrelationship has been destroyed.

14. Iron Mine (Cornwall Ore Banks)

Beyond the furnace's ancillary buildings Boyd Street swings southeast toward Minersvillage, skirting the eastern border of the open pit mine [21]. The road itself has been moved considerably to the east since 1955 to allow for expansion of the mine. In the process, several buildings related to the operation of the mine, including a weigh house, a blacksmith's shop and the mine office, were destroyed.

The mine has obviously been altered considerably in appearance in the more than 230 years in which it was worked. In the eighteenth century, when workmen dug surface ore with picks and shovels, it was certainly considerably smaller. As steam machinery and rail

(see continuation sheet 7-8)

transportation made extended operations possible, the area covered by the mine inevitably increased. Nevertheless, it has remained a constant presence, as the essential reason for the furnace's existence, and is one of the strongest visual components of the Cornwall Furnace Historic District.

The mine is over 400 feet deep, a vast gash in the landscape. It is rimmed with trees, part of the forested slopes that once supplied charcoal for the furnace. Below the trees, benches (terraces) are cut in the stone face. Vestiges of hoists cling to the slopes in the northeast corner. Since mining operations ceased in 1974, the pit has filled with water to approximately half its depth. Machinery and some structures associated with operation of the mine remain in place underwater.

15. Minersvillage

Boyd Street now terminates at Minersvillage, running through the town in a generally east-west direction. Development of the village appears to have proceeded in general from west to east. Two frame houses at the west end appear, on the evidence of style, to date from the first half of the nineteenth century. These, along with another frame house somewhat to the east and six stone houses on the north side of the road, are shown on the 1867 map. In contrast, stylistic evidence suggests that the frame houses at the east end were constructed some 20 to 30 years later than most of the buildings in the village.

The village, strung out in linear fashion on both sides of Boyd Street, is at the east end of the mine, overlooking the slopes that run down to Furnace Creek. On the north it is bounded by Gold Street, along which there is no development. Most of the buildings rise directly from the sidewalk and have only small sideyards, so that the fabric of the town is compact. Minersvillage consists primarily of 38 double houses, most of which appear to have been built in the third quarter of the nineteenth century to a standard design. Of these, the great majority, 22, are stone, and 8 are brick. The frame buildings exhibit a greater variety in design and date. The standard design of the masonry buildings is a four-bay double house, with narrow segmentally-arched windows, which originally contained 4/4 sash. The houses have slate (unless reroofed) gable roofs with deep overhangs, carried on simple, heavy wooden brackets. There are brick chimnies on the gable ends, exterior on the first floor and interior above. Depending on the grade of the street, entrances are on the front or the side. Each entrance (unless altered) has a small portico, consisting of chamfered posts carrying a hipped roof. There are also

(see continuation sheet 7-9)

shed porches across the rear of the buildings. Although the designs are virtually identical, the stone houses exhibit considerable variety because of differences in material. Some are entirely of brownstone, some of limestone, others of limestone with brownstone trim. In addition to the double houses there are two single houses, one stone and one frame, a frame multiple dwelling, a general store, and one intrusion, a cement block garage.

A view taken from the west end of the village in the nineteenth century [22] differs little from one taken today [23]. Except for the paving of the road, the addition of utility lines, the presence of cars, and the absence of some wooden fencing, the scene is virtually unchanged. With one exception, alterations to individual buildings are relatively minor, consisting of changes in window sash, alterations to porticos, and enclosure or enlargement of rear porches. Alterations visible from the public way, as well as descriptions of the non-standard buildings are detailed below. Numbers preceding descriptions refer to cast-iron numerals affixed to most of the buildings.

North side Boyd Street, west to east:

Unnumbered house, northwest corner, intersection of Boyd Street and Gold Road.
This coursed rubble brownstone single house, probably built for a supervisor, appears on the 1867 map. It is a T-plan with cross-gabled pavilion. A Stick Style porch wraps around the front and west side of the pavilion. A large French window gives access to the porch on the front of the pavilion; curiously the floor above it is void of openings.

2-4. Standard. Unaltered except for shed addition at rear.

6-8. Standard. 6, intact, except for 1/1 sash lower floor. 8, one of most altered buildings in village. Contemporary vestibule has replaced portico, single-pane sash both floors.

10-12. Standard. Both have 1/1 sash. 10 relatively intact. 12, portico replaced, large glassed-in sunroom with cement block chimney added to east side at rear.

14-16. Resembles standard type, but is larger in scale, with center chimney and (originally) 1-story frame rear ell. Windows in gable apex are 6/6 rather than diamond shaped. Brownstone. 14, portico has been enclosed in aluminum, and the ell is sheathed in aluminum siding and has a large added side porch. A plastic carport has been constructed adjacent to the house on the

(see continuation sheet 7-10)

west. 16, ell has been enlarged and aluminum-sided. The eaves soffit of the main house is also covered with aluminum, but brackets (although not of the original profile) have been retained.

18-20. Standard. Unaltered, except for 1/1 sah in 20.

22-24. Standard. Only alterations, 1/1 sash and aluminum portico in 22, 6/6 sash in 24.

26-28. Standard. Unaltered.

30-32. Standard. Unaltered.

34-36. Standard. Unaltered, except for asphalt shingle roof.

Two frame double houses, one numbered 74.[24]
These appear somewhat later in date than the stone buildings and were probably constructed in the fourth quarter of the nineteenth century. Each is three bays wide, with the entries paired in the center, and porches across the front. The most prominent feature is the large central gable, with jigsaw work in the peak. The jigsaw work is repeated in the side gable. This, combined with the steepness of the gable pitch, gives the buildings a generally Gothic character. However, there are paired round-arched Italianate windows in the gable apices. Of the four units, the east half of the eastern building and the west half of the western building are in virtually original condition. The east end of the western building has been radically altered with aluminum siding and trim, and a false brick front on the first floor of the facade. The remaining unit has suffered minor alterations.

General Store.
Set back from the building line, this is a deep, narrow building, with its gable end to the street. It has been resided in aluminum, with an asphalt roof. There is a porch across the front on simple wooden posts. 4/4 sash, except for a single 6-pane sash in the gable apex, suggesting that, like most of the village, it was built in the third decade of the nineteenth century.

38-40. Standard. Unaltered, except for rebuilding of porticos, one of which is enclosed.

42-44. Standard. Unaltered, except for asphalt roof.

(see continuation sheet 7-11)

46-48. Standard. Alterations include replacement of porticos, and enclosure of portico on 48. Asphalt roof.

50-56. [25] Similar to standard in design but four units and considerably larger with 8-bay facade. Three chimneys, one at each gable end, one in center. Single gabled dormer in each unit. Both front and side entries. Minor alterations include replacement of side portico on 54, asphalt roof, single-pane sash on lower floor.

262-263. Frame double house, each unit three bays with center entry. Set well back from building line. Aluminum siding, asphalt roof. Porch of 263 has been enclosed.

South side Boyd Street, west to east:

Mennonite Church. [26]
Although now used for religious purposes, appearance of this building suggests that it was constructed as a multiple dwelling. It is 2 1/2 stories high
and L-shaped in plan. There are six bays on the north facade, including three entries; there is an additional entry in the four-bay ell. The proportions of the building, and such details as the 6/6 sash and corbelled chimneys suggest a date in the early nineteenth century. Its size and general appearance indicate that it may have functioned as an inn or boarding house. Alterations include aluminum siding and an asphalt shingle roof.

65-66. Frame double house. 2 1/2 stories high, each unit, 3 bays on the first floor, 2 bays on the second, with central chimney. Standing seam metal roof. Alterations include aluminum siding, new windows.

1-3. Standard. Alterations include 1/1 sash in both, replaced portico and added shutters on 3.

5-7. Standard. 7 unaltered. Alterations to 5 include replaced portico, 1/1 sash, added shutters.

9-11. Standard. 9 unaltered. On 11 portico extended to form porch across entire gable end, 1/1 sash in upper windows.

13-15. Standard. 13, portico posts remain intact, but iron railing has been added and roof replaced in aluminum, 1/1 sash. 15, portico enlarged and rebuilt in aluminum, most windows have single pane sash.

(see continuation sheet 7-12)

17-19. Standard. 19 unaltered. 17, portico replaced in aluminum, 1/1 sash.

21-23. Standard. Minor alterations include 1/1 sash and addition of louvered shutters.

25-27. Standard. Unaltered, except for addition of iron railing to portico on 25.

29-31. Standard. 31 unaltered. Portico replaced on 31 and sash replaced with 1/1.

33-35. Standard. Unaltered, except for 1/1 sash in 33. There is a double garage adjacent to 35.

Frame double house.
The building, set far back from the street, may, judging by appearance, predate the standard houses. Each unit is 2 bays wide, with the doors in the center. There is a porch across the front and a rear ell.

Frame single house, corner Boyd and Shirk Streets.
This building is an anomaly in the village. Its placement is unusual, facing neither street, but angled to face the corner. It is 2 1/2 stories in height and 3 bays wide and 2, with an interior end chimney. It has a full front porch and a 2-bay ell at the the rear. The front has been covered with vinyl shingle and the sides with aluminum; the roof is asphalt.

The remaining masonry houses are of the same design as the stone houses, but executed in brick, with front rather than side entries. As a result, they have smaller side yards. According to local tradition they were constructed a decade later than the stone houses; their location in a cluster at the east end of the village seems to confirm this later date. All were painted in the 1940s.

41-43. Standard. Unaltered except 1/1 sash on lower floor.

45-47. Standard. Paint has recently been removed from 47. Porticos on both units have been replaced in aluminum and iron. 45 now has 1/1 sash, and 47 single pane sash on lower floor.

49-51. Standard. Unaltered except for 1/1 sash.

53-55. Standard. 53 unaltered , except for replacement of front door. 55 has aluminum portico, 1/1 sash.

(see continuation sheet 7-13)

258-259. Frame double house, 2-story, 6-bays wide, with center entrances. Porch on deeply chamfered posts across 3/4 of facade. Clapboards on one side of first story, sawtoothed shingles above. Large shed-roofed dormer in center, gabled wall dormers on either side. Stylistic evidence suggests a date in the late 1880s or 1890s.

260-261. [27] Same design as 258-259, except that center dormer is gabled, side dormers shed-roofed. One unit covered in vinyl, other in aluminum sideing.

Street Paralleling Boyd Street to South

57-58. Standard. Aluminum shed addition on northeast and aluminum porticos.

59-60. Standard. Unaltered.

61-62. Standard. Unaltered.

63-64. Standard. Unaltered.

Shirk Street

Shirk Street is a short cross street that runs from south of Boyd Street north to Gold Road. The only building on it is the sole intrusion within the boundaries, an early twentieth century frame and cement block garage.

Several other features of the local natural environment further enhanced the region's potential as a center of iron manufacture. The area included many other minerals in addition to the extensive iron deposits, notably copper, silver, and gold in varying quantities. Less spectacular, but more important, were the huge deposits of sandstone, limestone, and traprock which were as readily accessible as the iron ore. Of these, the first two were vital to the operations of the Cornwall iron operations. The sandstones of the Furnace Hills immediately south of the ore hills provided high quality building material that has left an indelible mark on the present built environment. A band of sandstone lay south of the iron deposit and was therefore exposed during mining activities, making quarrying operations fairly simple. The underlying rock stratum to the north of the ore hills was limestone which was vital to the local iron industry as flux (used in the removal of impurities from iron ore during smelting). Two other natural resources, the stands of timber to the south and Furnace Creek, contributed to the high temperatures necessary to the production of iron. First, the timber assured a steady supply of charcoal. Second, the creek's power, when converted to an air blast (by a waterwheel-driven bellows) fanned the charcoal fire to the levels required by the furnace.

Peter Grubb was the first to perceive and exploit the iron-making potential of the region. The Grubb family had emigrated to America from Cornwall, England, a generation earlier, and the area of the three great ore hills was given its name in honor of the family's place of origin. Grubb acquired title to all the land encompassing the ore hills between 1734 and 1737. Big and Middle Hills were the first of the ore hills to be exploited as the largest and most exposed. In addition to being the first to mine the hills, Grubb also erected the first ironworks in the immediate area, a bloomery constructed circa 1735. This structure, in which iron ore was processed into bar iron through heating and hammering, was said to have been located on Furnace Creek just south of Minersvillage. This works would have probably been a small, perhaps temporary entity. Completion of the nearby furnace several years later probably resulted in the demise of the small, primitive bloomery. The site of this structure has disappeared, consumed by expansion of the massive Middle Hill mine during the 20th century.

The Cornwall Furnace was built during the years 1739 to 1742. Peter Grubb, who prior to becoming an ironmaster had worked successfully as a stone mason and had previous experience in the erection of large stone industrial structures, used local stone in its building. The sandstone furnace stack, 30 feet high with a 9-foot bosh was built into the side of a hill to allow for its charging. Attached to the stack were the casting house and a structure housing the wheel pit,

(see continuation sheet 8-2)

with the wheel being driven by Furnace Creek. In simple turns, the furnace operation involved the charging of the stack with charcoal, iron ore, and limestone flux, with the cold blast provided by a bellows increasing the temperature within the stack. The resulting flow of molten iron was shaped into pig iron or cast iron products in the casting house.

Cornwall Furnace was the only furnace in the Lebanon-Cornwall area until the 1790's; its operation in conjunction with ownership of the ore hills gave Grubb a monopoly in ore and its refinement. Grubb ran the furnace himself for several years before entering into a series of lease agreements which made its operation the responsibility of several successive companies and individuals. He retained, however, sole ownership of the three ore hills. Grubb also expanded his iron empire through acquisition of additional lands and construction of forges. With Peter Grubb's death in 1754, the ownership of the ore hills and the furnace passed to his sons Curtis and Peter Jr.. In the early 1760's the two brothers ended the series of lease agreements relating to the furnace and took over its management themselves. Full control of operations at Cornwall evidently then remained with the Grubb family until after the Revolution.

The Cornwall operation was one of the most important in Pennsylvania, the leading colonial iron producer through the Revolutionary period. The iron industry of this period was predominantly composed of smaller, family-run operations. Cornwall differed in scale primarily because of its valuable ore source.

Managing an early charcoal furnace required large tracts of land and a complex organization of tasks. The Cornwall operations involved almost 10,000 acres, and required miners, woodcutters and colliers, farmers, and servants. The most skilled laborers were those employed in the furnace. In the early period mining was done by a fairly small group of laborers using hand tools and, later, blasting powder. Woodcutting and charcoal making were carried on in the woodlands. The iron-making plantation also included several farm tracts, so that the community was virtually self-sustaining. By the Revolutionary era its produce was sufficient to warrant construction of a grist mill. The workers were housed in a variety of structures, most of which, except for the farmhouses, were small and often flimsy. Miners, for example, often lived in rough structures near the mine holes; woodcutters and colliers occupied huts in the woods. None of the earlier workers' housing survives.

The furnace's primary product during the majority of the Grubb period was pig iron. Cornwall pig was processed in the forges owned by the Grubbs and was also sold to local forges owned by others (although some did go to forges located in Maryland). Production rates

(see continuation sheet 8-3)

fluctuated as demand shifted. Cornwall also manufactured cast iron products, with stoves dominating and items such as firebacks and kitchen wares being of somewhat lesser importance. Distribution and production were expanded during the American Revolution. Pig iron continued as an important product, but the furnace also produced cannon and shot, as well as stoves and salt pans. Cannon were allegedly tested in the meadow between Furnace Creek and the present manor house just north of the furnace.

With the end of the Revolutionary War, production at Cornwall Furnace was reduced as the young nation struggled economically. This may have contributed to a decision by the Grubbs to accept a non-family member, Robert Coleman, as a partner with a one-sixth share in the furnace, mines, and related properties. Coleman was an Irish emigrant who had begun his career at the lower levels of the iron industry and had risen through the ranks as a clerk (including time spent as an employee of the Grubbs) and manager. He had also operated ironworks as both a lessee and as a partner elsewhere in the region. The Grubb-Coleman ownership lasted until the end of the 18th century, with Coleman steadily acquiring larger and larger influence. In 1787 an agreement gave Curtis Grubb and Coleman control of the Cornwall Furnace and associated elements, a property which totalled 7520 acres. The mine remained undivided under the joint control of the various owners. During the 1790's production increased as the United States began a period of expansion. Coleman steadily increased his control at Cornwall, buying additional shares as members of the Grubb family died or sold out. By the time he acquired full title to the furnace property from the estate of Curtis Grubb in 1798, he held a five-sixths share of the ore hills.

Robert Coleman built on his iron and real estate activities, of which his Cornwall estate was the center, to become one of the wealthiest and most influential men in the Commonwealth of Pennsylvania. The direct property tax of 1798 provides a fairly detailed indication of the extensive physical improvements on his Cornwall Furnace property. The furnace itself was described as a two-story stone structure measuring 40 feet x 83.5 feet in plan. The property also included: a stone coal house; a stone mill (28 feet x 33 feet); a stone office (16 feet x 43 feet); a stone and log barn (27 feet x 91 feet); two stone stables (34 feet x 74 feet and 30 feet x 50 feet; a two-story stone dwelling (24 feet x 44 feet) with kitchen (30 feet x 33 feet); and four stone and five frame dwellings, all small, single story structures.

The extensive Cornwall estate was depicted in some detail on a "birds-eye view" probably commissioned by Coleman and drawn circa 1800 [3]. The furnace and manor complexes were shown both in the overall view and in a larger scale inset. The furnace complex was shown to

(see continuation sheet 8-4)

include the stack, casting shed, wheel house, coal house, and raceway system. Several other support structures were located immediately adjacent to this central focus. Just to the north was the mansion complex, with the fine dwelling said to have been built by Curtis Grubb circa 1775 at its center. Also visible were several associated outbuildings and the landscaped grounds surrounding the house. South and east of the furnace the diggings at Big and Middle Hills were depicted with the former showing evidence of heaviest exploitation during the 18th century. To the south of Big Hill several structures, apparently dwellings, were shown on the present site of Minersvillage. Other important features of the estate that were represented included the road system, the grist mill and associated raceways, numerous scattered structures, cultivated fields and orchards, and woodland areas.

Robert Coleman continued as the dominant figure at Cornwall and in Lebanon County until his death in 1825. His holdings, including the furnace and approximately 80% of the rights to the ore hills, passed to his sons and remained under the control of his descendents into the 20th century. As a result, during the first half of the 19th century the estate continued to function in the mode common from the 18th century, under the ownership and management of one or two families. However, the development of the ore deposit and the furnace made the Cornwall estate one of the largest of these family-operated works in Pennsylvania. Besides the growth at the furnace, the Colemans expanded their estate to include thousands of additional acres. North of the furnace and mansion complex such features as a church and store were added to increase Cornwall's self-sufficiency; a school was also built. The estate's vital transportation connections, which allowed for the shipment of ore and pig iron to the region's other ironworks, also were improved during this period with the completion of the Union Canal north of Lebanon and the Horseshoe Turnpike, in part the present Route 419.

There were, of course, interruptions to expansion in the early 19th century. The high rates of production that had begun in the 1790's continued through the War of 1812. However, with peace between the United States and England came an influx of cheap iron products from the latter country. This competition caused another period of reduced production. This ended around 1825 as the Lebanon region entered a cycle of expansion that provided a great demand for iron products that lasted into the 1840's. The major change in furnace operation was the gradual elimination of products other than pig iron. Mining activities also continued to follow the patterns established during the 18th century. The major change was simply an increased volume of mining as the region now included several furnaces requiring ore. The Colemans and the Grubbs had opened several separate mine holes, but each continued to take only as much ore as was necessary to run their

(see continuation sheet 8-5)

own furnaces or sell to the owners of others.

The iron industry of the Lebanon County area experienced a terrific expansion during the second half of the 19th century, and rapidly came to represent that region's dominant economic activity. A key development that played an important role in allowing this expansion to occur was the introduction of anthracite furnaces. The utilization of coal, which was easily obtained from the mountainous regions to the north of the Lebanon area, made furnace production cheaper and more efficient. Numerous anthracite furnaces were built in the area during and after the 1840's. The Coleman family interests participated in this expansion, through construction of the Anthracite and Burd Coleman Furnace complexes. It was the great Cornwall ore banks, however, which allowed the Colemans to maintain their preeminent position in the region's iron industry. The overall expansion of that industry resulted in a huge increase in the demand for iron ore, and Cornwall was easily the primary regional source for that ore.

Mining operations at Cornwall expanded tremendously in response to the increased demand. It was during this time period that the activities at Middle Hill were greatly expanded and that Grassy Hill was first opened up. The work forces within the mines increased in size. The traditional "mine hole" method of excavation was replaced by the more efficient terrace, or bench, system. Eventually steam-powered rock drills were employed in addition to blasting and hand tools. As important as increasing the amount of ore removed from the mines was the improvement of the transportation that served to get the ore to market. Cornwall was well-connected to the region and the Union Canal by an extensive road system, but there were frequent difficulties in hauling ore by wagon over muddy roads. The first attempt to improve this situation was the construction of the Cornwall Plank Road to Lebanon and the canal. This route was quckly replaced, however, by the arrival of railroad links. Coleman family interests sponsored the construction of the North Lebanon Railroad in the 1830's to connect Cornwall and the canal (a connection was later made with the Lebanon Valley Railroad when it was completed). During the next couple of decades an ever-expanding internal rail system was constructed to connect various parts of the Cornwall complex to the North Lebanon line. In the 1880's a spur was built to connect Cornwall to the Pennsylvania Railroad to the south, opening up additional markets for Coleman ore and iron.

As the value of the ore banks increased, so too did the number of conflicts among the owners. Use of the mine had previously been unregulated, with each owner able to choose the quantity of ore they would take out and the location of their diggings. By mid-century mine ownership was dominated by separate branches of the Coleman family and the remaining Grubb interests. Several private agreements

(see continuation sheet 8-6)

failed to solve the issue and as a result Lebanon County's most famous legal battle commenced in 1851. The courts did not reach a decision until 1869, but five years earlier the owners finally reached a solution with the formation of the Corwall Ore-Bank Company. Mine affairs were handled by the new company under the supervision of a general superintendent.

The greatly increased mining activities and the resultant larger labor force made the construction of additional workers' quarters necessary. There was apparently a great deal of this type of construction in the 1860's. Oral history has told of veterans of the Civil War returning after completing their military service to live in new houses constructed at what is now called Minersvillage. In 1879 a Cornwall Ore-Bank Company report stressed the importance of having the miners live near the mines and recommended that additional housing be built. It was noted that to date the company owned twenty-five workers' houses. It seems likely that most of these were located in Minersvillage.

Although the introduction of anthracite had resulted in a general expansion in the region's iron industry, it had also signalled the beginning of the end of the charcoal furnace. Cornwall Furnace resisted this trend and was able to stay in blast until February of 1883. The furnace maintained fairly high production levels through the Civil War, although these levels were much reduced from those of the period between 1825 and 1845. Attempts were made to alter the furnace operation in such a way as to maintain its ability to compete with the new anthracite furnaces. By 1850 steam power replaced Furnace Creek in driving the bellows (which were shortly thereafter replaced by blowing tubs). In 1856-7 the entire furnace was apparently remodeled (including a rebuilding of the stack), producing the structural complex that survives today.

Several maps of the second half of the 19th century provide a detailed view of the Cornwall iron complex [7 and 10]. The furnace was shown in its present configuration along with numerous other related structures (the office, mule stable, abbatoir, blacksmith shop, etc.). To the north was the mansion, which was extensively remodeled during the 19th century, and its associated outbuildings. All three of the ore hills were being excavated, with Middle Hill being most intensively worked. Minersvillage was visible as a growing focus of workers' housing stretching long the present Boyd Street.

The Cornwall Furnace was well-maintained by the Coleman family after its closing. In the 1930's the furnace structure was given to the Commonwealth of Pennsylvania by the family along with an endowment for its maintenance. Management responsibility was turned over to the Pennsylvania Historical Commission (now the Pennsylvania Historical

(see continuation sheet 8-7)

and Museum Commission), who continue to administer the site today. The Coleman family remained in residence at the mansion until after the Second World War when the property was conveyed to the Cornwall Methodist Church. The great ore mines were purchased by the Bethelhem Steel Company shortly after the First World War. The 20th century brought highly mechanized mining techniques (steam and electric shovels, inclined rail hoisting systems, screening and crushing plant, trucks, conveyors, concentrators, etc.), which resulted in greatly expanding the huge open pit where Middle and Grassy Hill once stood. This vast pit mine was still active until the 1970's when flooding ended mining operations. Minersvillage continued as a "company town" owned by Bethlehem Steel until the closing of the mine, at which time the dwellings were made available to the former miners.

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Boundary Description

Beginning on the north side of Rexmont Road at the southeast corner of Block 19E Lot 40, then easterly along the north side of Rexmont Road crossing the intersection with Cornwall Road to a point on the north side of Rexmont Road due north of the northeast corner of Block 19J Lot 120 (said northeast corner being on the south side of Rexmont Road), then due south across Rexmont Road and along the west line of Block 19J Lot 120 to the north line of Block 19 Lot 500, then westerly along the north line of Block 19 Lot 500 to the east side of Boyd Street, then southeasterly along the east side of Boyd Street to the west line of Block 19J Lot 98, then along the west, north, and east lines of Block 19J Lot 98 to the north side of Gold Road, then easterly along the north line of Gold Road to a point around 145' in the course of the west line of Block 19K Lot 28 northerly of the northwest corner of the said Block 19K Lot 28, then southerly in the course of and along the west line of Block 19K Lot 28 to the north side of Boyd Street, then easterly and southerly along the north and east sides of Boyd Street to the north line of Block 19K Lot 30 then westerly in the north line of Block 19K Lot 30 and the south side of Nickel Alley to the east side of Quartz Street, then southerly along the east side of Quartz Street to the south side of Granite Street, then westerly along the south side of Granite Street to the west side of Shirk Street, then northerly along the west side of Shirk Street to the south side of Silver Road, then westerly along the south side of Silver Road crossing the northernmost section of Block 19J Lot 100 to the east line of Block 19 Lot 180, then southerly and westerly in the east and south lines of Block 19 Lot 180 to the point where the said line of Block 19 Lot 180 angles southward away from the rim of the mine hole, then due west from said angle around 1950' across Block 19 Lot 180 to a point around 600' due south of the southeast corner of Block 19H Lot 35, then due north around 600' to the southeast corner of Block 19H Lot 35, then northerly and westerly along the east and north lines of Block 19H Lot 35 to the east line of the 20' wide paper alley to the east of the east lines of the lots on the east side of Old Mine Road in the village of Burd Coleman, then northerly along the east line of said alley to a point around 3225' due west of the most southeasterly corner of Block 19 Lot 200, then due east around 3225' across Block 19 Lot 180 to the most southeasterly corner of Block 19 Lot 200, then northeasterly in the east line of Block 19 Lot 200, to the west side of Boyd Street, then northwesterly along the west side of Boyd Street to the northeasternmost corner of Block 19 Lot 200, then westerly along the north line of Block 19 Lot 200 to the west bank of Furnace Creek, then northwesterly along the several courses of the bank of Furnace Creek and into Block 19 Lot 195 to a point around 1200' westerly of the northwest corner of the main block of Cornwall Mansion, then easterly in the course of the north wall of the main

(see continuation sheet 10-2)

block of Cornwall Mansion around 1200' to the said northwest corner, then along the rear facade of Cornwall Mansion, including the rear wing, then easterly from the northeast corner of the main block of Cornwall Mansion to a point on the north side of the lane leading easterly from the mansion directly opposite the angle formed by the south side of the said lane and the east side of the driveway running along the east side of the fountain just east of the mansion, then southerly across the lane leading eastward from the mansion to the said angle, then continuing southerly along the east side of the driveway on the east side of the fountain to the east side of the driveway running southerly Rexmont Road, then southerly along the east side of the driveway to the northernmost corner of Block 19E Lot 40, then southeasterly along the north and east lines of Block 19E Lot 40 to the north side of Rexmont Road and the place of beginning.

Boundary Justification

The boundaries have been drawn to include those elements of the built environment and the landscape that have survived with considerable integrity from the period when Cornwall Furnace was in operation. The boundaries incorporate natural features (such as the creek), manmade features (such as roads), and modern and historical property lines. West of the furnace buildings and the mansion the boundary is Furnace Creek. This includes the garden and testing meadow south and west of the mansion, but excludes mine-related buildings southwest of the furnace that were built in the last decade of the nineteenth century, after the Cornwall charcoal furnace had ceased to operate and have now been converted to other industrial uses.

In the vicinity of the Cornwall Manor retirement complex the boundary is drawn to exclude modern construction and extensively altered older buildings. Thus everything east of the driveway is excluded, with the exception of the mine office at its southern terminus. The northern boundary was extremely difficult, since some of the new buildings are actually attached to the back of the mansion. The boundary thus runs from the northwest corner of the main block wall of the mansion on a line of convenience to Furnace Creek. Modern additions on the west side of the mansion and a large extension to the 19th-century service wing thus lie within the boundaries, but are considered intrusions, not a part of the landmark.

East of the driveway, the boundary follows Rexmont Road to the rear lotlines of buildings ancillary to the furnace along the east side of Boyd Road. Between these buildings and the area of the mine, the east and west sides of Boyd Road form the boundary. This is appropriate

(see continuation sheet 10-3)

because Boyd Road served as the historic link between the furnace and the mine, It excludes land to the east on Big Hill. Although Big Hill was once also mined, its appearance was so altered in the 1960s, by filling with spoil from crushing operations, that it no longer retains the appearance of part of the historic mining enterprise.

Because the mine has obviously changed in configuration over time, it was difficult to set boundaries around it. Consideration was given to using the Clark line, a surveyed line found on nineteenth century maps, which defined then known ore locations. However, relating this line to the existing situation and existing property lines was difficult, both because of the small scale of the nineteenth century maps and because mining actually progressed in a manner different from that projected in the nineteenth century. Furthermore, using the Clark line as the Landmark boundary would have included some non-mine related industrial structures and excluded some existing portions of the mine. Accordingly, property lines were used as boundaries along the east, and parts of the southern and western borders of the mine, with lines of convenience related to these property lines forming the northern and the remaining parts of the soutern and western boundaries.

Minersvillage was almost entirely defined by the rear of property lines or by real or paper streets.

Consideration was given to including other properties related to the mine or the Coleman enterprises. These included additional villages, Bird Coleman, Anthracite, and Rexmont. However, the first two were related not to Cornwall Furnace, but to other furnaces in the area; the third, while also associated with ironmaking, had an even more remote connection with Cornwall. Although these three, especially Bird Coleman, are probably eligible for the National Register in their own right, they were not considered to have a close enough association with Cornwall Iron Furnace to warrant inclusion in the Landmark boundaries.

Consideration was also given to including numerous individual stone houses, churches, the Cornwall store, the railroad, and other buildings and features in the area associated with the Coleman enterprises. In particular, inclusion of the gatehouse for the mansion was debated. However, construction of new buildings for the Cornwall Manor retirement complex has so altered the historic relationship between the mansion and the gatehouse that the integrity of setting has been lost. Other potential sites in the area were considered not to possess sufficient associative or geographic

(see continuation sheet 10-4)

relationship to the furnace or mine to warrant inclusion.

United States Department of the Interior
Heritage Conservation and Recreation Service

National Register of Historic Places Inventory—Nomination Form

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Boundary Description

Beginning on the north side of Rexmont Road at the southeast corner of Block 19E Lot 40, then easterly along the north side of Rexmont Road crossing the intersection with Cornwall Road to a point on the north side of Rexmont Road due north of the northeast corner of Block 19J Lot 120 (said northeast corner being on the south side of Rexmont Road), then due south across Rexmont Road and along the west line of Block 19J Lot 120 to the north line of Block 19 Lot 500, then westerly along the north line of Block 19 Lot 500 to the east side of Boyd Street, then southeasterly along the east side of Boyd Street to the west line of Block 19J Lot 98, then along the west, north, and east lines of Block 19J Lot 98 to the north side of Gold Road, then easterly along the north line of Gold Road to a point around 145' in the course of the west line of Block 19K Lot 28 northerly of the northwest corner of the said Block 19K Lot 28, then southerly in the course of and along the west line of Block 19K Lot 28 to the north side of Boyd Street, then easterly and southerly along the north and east sides of Boyd Street to the north line of Block 19K Lot 30 then westerly in the north line of Block 19K Lot 30 and the south side of Nickel Alley to the east side of Quartz Street, then southerly along the east side of Quartz Street to the south side of Granite Street, then westerly along the south side of Granite Street to the west side of Shirk Street, then northerly along the west side of Shirk Street to the south side of Silver Road, then westerly along the south side of Silver Road crossing the northernmost section of Block 19J Lot 100 to the east line of Block 19 Lot 180, then southerly and westerly in the east and south lines of Block 19 Lot 180 to the point where the said line of Block 19 Lot 180 angles southward away from the rim of the mine hole, then due west from said angle around 1950' across Block 19 Lot 180 to a point around 600' due south of the southeast corner of Block 19H Lot 35, then due north around 600' to the southeast corner of Block 19H Lot 35, then northerly and westerly along the east and north lines of Block 19H Lot 35 to the east line of the 20' wide paper alley to the east of the east lines of the lots on the east side of Old Mine Road in the village of Burd Coleman, then northerly along the east line of said alley to a point around 3225' due west of the most southeasterly corner of Block 19 Lot 200, then due east around 3225' across Block 19 Lot 180 to the most southeasterly corner of Block 19 Lot 200, then northeasterly in the east line of Block 19 Lot 200, to the west side of Boyd Street, then northwesterly along the west side of Boyd Street to the northeasternmost corner of Block 19 Lot 200, then westerly along the north line of Block 19 Lot 200 to the west bank of Furnace Creek, then northwesterly along the several courses of the bank of Furnace Creek and into Block 19 Lot 195 to a point around 1200' westerly of the northwest corner of the north wing of the Cornwall Mansion in the course of the north wall of the said north wing, then easterly in the said course of the north wall around 1200'

(see continuation sheet 10-2)

to the said northwest corner, then easterly along the north wall of the said north wing to its northeast corner, then easterly in the course of the said north wall around 100' to a point on the north side of the lane leading easterly from the mansion directly opposite the angle formed by the south side of the said lane and the east side of the driveway running along the east side of the fountain just east of the mansion, then southerly across the lane leading eastward from the mansion to the said angle, then continuing southerly along the east side of the driveway on the east side of the fountain to the east side of the driveway running southerly Rexmont Road, then southerly along the east side of the driveway to the northernmost corner of Block 19E Lot 40, then southeasterly along th north and east lines of Block 19E Lot 40 to the north side of Rexmont Road and the place of beginning.

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In the vicinity of the Cornwall Manor retirement complex the boundary is drawn to exclude modern construction and extensively altered older buildings. Thus everything east of the driveway is excluded, with the exception of the mine office at its southern terminus. The northern boundary was extremely difficult, since some of the new buildings are actually attached to the back of the mansion. The boundary thus runs along the north wall of the service wing of the mansion, and then continues on the same course on a line of convenience to Furnace Creek. Some portions of the modern additions on the west side pf the mansion thus lie within the boundaries, but are considered intrusions, not a part of the landmark.

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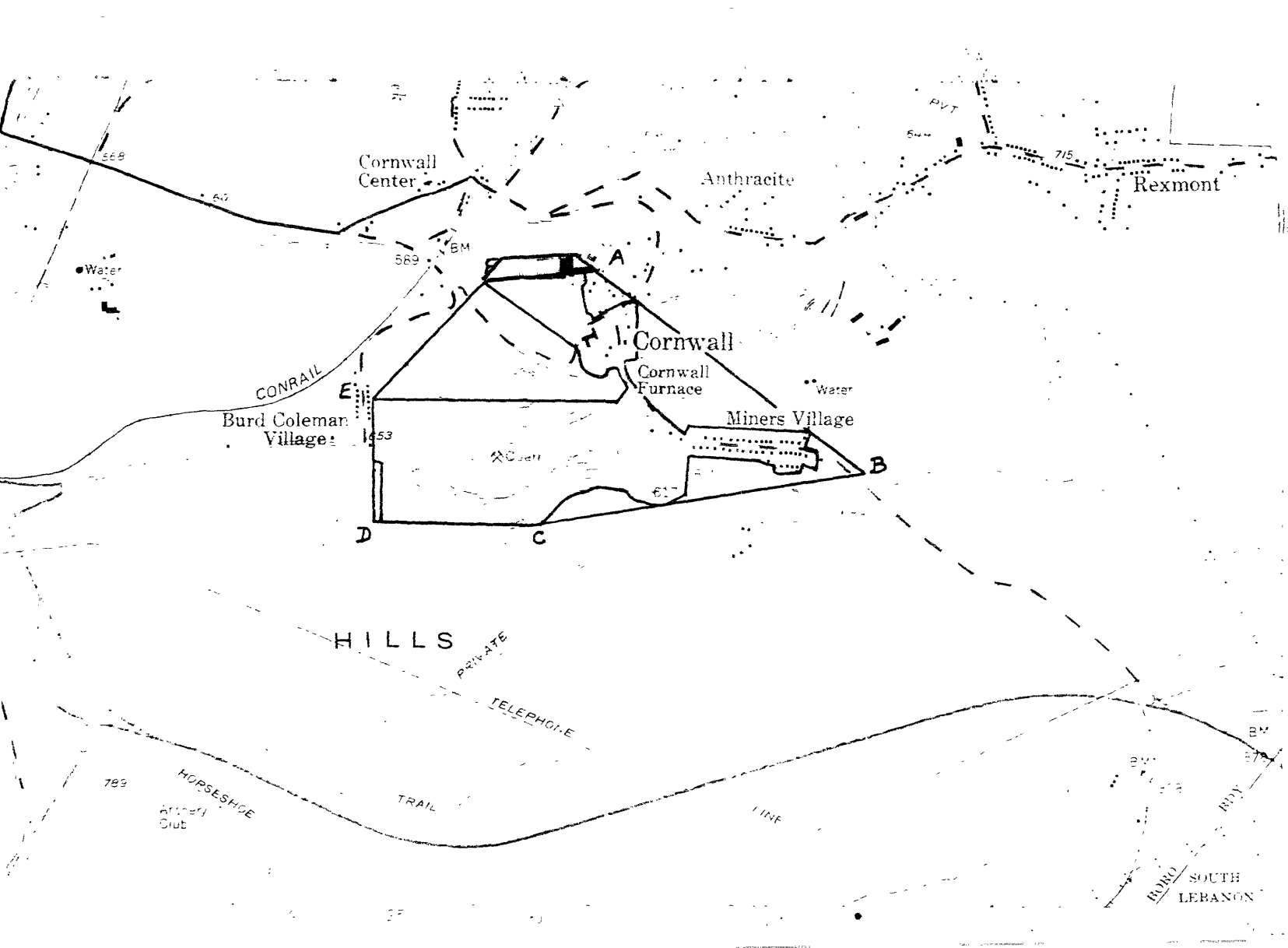
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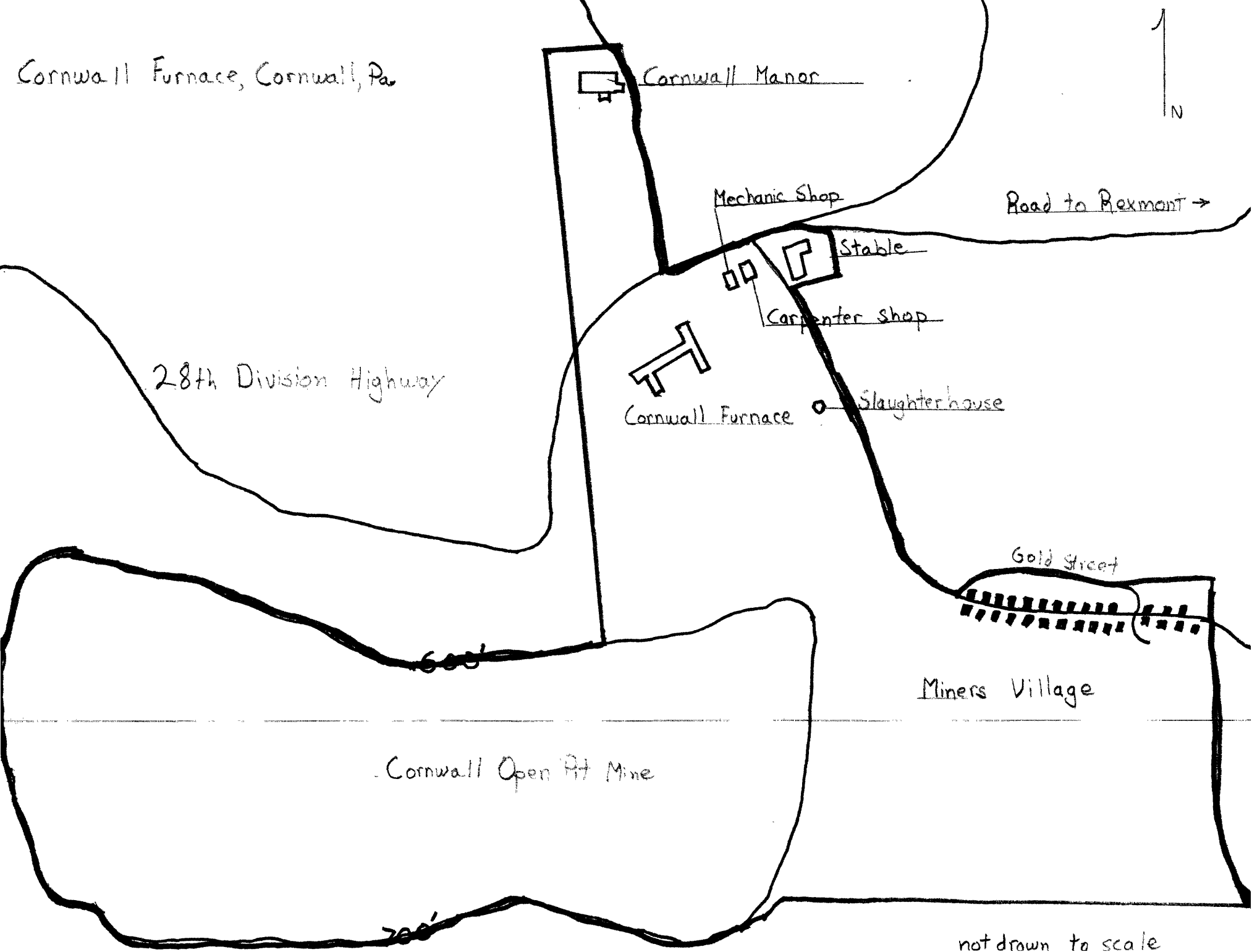


UTM References:

A. 18/380820/4458330
B. 18/381410/4457990
C. 18/380110/4457800

D. 18/379440/4457810
E. 18/379440/4458310
F. 18/379880/4458780

LEBANON, PA.


Cornwall Furnace, Cornwall, Pa.
Cornwall Manor
N
Mechanic Shop
Road to Rexmont →
Stable
Carpenter Shop
28th Division Highway
Cornwall Furnace
Slaughterhouse
Gold Street
Miners Village
Cornwall Open Pit Mine
600'
200'
not drawn to scale