

DESCRIPTION OF INDIVIDUAL MINES

THE HIBERNIA MINE

The Hibernia mine located on Plate II comprised the Lower Wood, Glendon, Scott, DeCamp, Upper Wood, Willis and Wharton mines of the early New Jersey survey reports, all operating the Hibernia deposit. The deposit extends from the Beach Mine, near New Road, northeast under Hibernia Brook into the Hill on the east. Around 1890 Joseph Wharton began a program of consolidation and in 1901 secured control of the entire Hibernia mines which resulted in one of the most important magnetite ore properties in the State. The property was passed on to Warren Foundry and Pipe Corporation and the Shamoon Industries; in the 1970's Shire National (successor to Shamoon Industries) sold the northeast section of the deposit. The mine has yielded more than 5,000,000 tons of ore to rank as the fourth largest producer in the State. The ore was Bessemer grade and the mine operated until 1913 when it was abandoned.

In 1873 a tunnel was driven for 2,500 feet along the ore shoot to drain the upper workings. The entrance to the tunnel still exists and is covered with a steel plate. The portal is located across the valley behind the Old Hibernia Store and the present Trailor Post Office on the west side of Hibernia Road as shown on Plate II. The tunnel is approx-

imately 10 feet high x 15 feet wide and about 2,500 feet long and connects with old stopes and shafts in some places.

The deposit was worked to the surface up the hill over the tunnel, the remains of the workings are still visible in the form of a collapsed trench. The deposit was in several steep stringers close together, the width near the surface averaging 10 feet increasing to 20 feet wide at greater depths. Prior to 1972 the workings on the top of the hill at the southeast end were mostly open, hundreds of feet deep. The Glendon Shaft was approximately 900 feet deep and connected with the Hibernia Tunnel; the No. 5 Shaft also connected with the tunnel at about a 250 foot depth. The No. 6, 7 & 8 Shafts were reported to be 1,600 feet deep and also connected with the Tunnel at a 250 foot depth. The No. 10 Shaft was reportedly 1,100 feet deep; this is the location where an attempt was made in 1964 to recover a stolen car which was thrown into the opening. In 1972 the openings were blasted shut and dozed in. One area in mid 1977 has shown considerable settlement, the entire stretch of the working can still be made out. The plunge of the deposit put it underground around the No. 8 Shaft. Shafts 9, 10, 11 & 12 locations are visible, but no surface workings are evident between the shafts. The deposit was exploited to approximately 2,800 feet under No. 12 Shaft. The foundations of the No. 12 Shafts are today still very visible. Several hundred feet north of No. 12 Shaft, Shamoon Industries started to sink a

new shaft in the 1950's but the project abandoned and covered with a steel plate several years later. The location, it is believed, is owned by Halecrest.

It is reported that ore was mined from the Hibernia deposit as early as 1722. In 1765 the "Adventure Furnace", later known as the Hibernia Furnace was built at Hibernia and supplied shot and ordance for the Continentals during the Revolutionary War. In 1850 some ore was mined to supply the furnaces at Powerville and Beach Glen; the Hibernia Furnace at that time being in ruins.

There is no record of the amount of ore produced from 1750 to 1854; from 1854 up to 1885 the production is estimated at 1,821,000 tons. Between 1901 and 1905 the recorded production was 1,084,567 tons. The mine was closed for several years and reopened in 1908 yielding about 50,000 tons a year until it was shut down. The total aggregate yield from the mine is estimated at 5,230,311 tons.

BEACH MINE

The Beach mine was about one-fourth of a mile southwest of the southern end of the Hibernia property located as shown on Plate I. Ore was discovered here about 1785 and worked to a depth of 12 feet at that time. In 1833 it was reopened and operated intermittently until 1885 when it was abandoned. During the most active years it produced at the

rate of 1,500 tons annually. In 1855 the excavation was 50 feet deep by 190 feet long. Old maps show the deposit to have been ultimately worked to a depth of 100 to 150 feet. The ore body was three and a half feet thick, dipped 80° S. E. and pitched about 15° N. E. The remains of the operation are completely obliterated.

BAKER MINE

The Baker mine area is on the south side of the Richard Mine Road at the west end of the Richard Mine property as shown on Plate III. The openings shown on Plate III were based on information taken from a 1949 U. S. Bureau Report of Investigation 4432. The area to the west and southwest of the house has been bulldozed or graded over. The large pit No. 2 is probably the present water reservoir. The pits to the southeast of the house were from the southeast Richard deposit, pit No. 1 being filled with reject concrete pipe. The pit No. 6 across the trail is still open. The southeast area is in the Richard mine property. The Baker mine area should not be used for development until detailed field examinations are carried out to determine any possible hazards.

The Baker mine was opened in 1866 on two veins of ore 300 feet apart of which the Mt. Pleasant (northwest) one was 7 feet thick and the Richard (southeast) one 23 feet thick. The total aggregate production from the mine is estimated to be 400,000 tons. The main Baker shaft was

sunk on the Richard deposit and extended to the bottom rock a distance of 325 feet. The extent of the known mine workings on the Richard deposit are shown in Plate IV. The extent of the workings on the Mt. Pleasant deposit is not known, but presumably the deposit was worked out along the complete length of the Baker property. The northeast continuation of both deposits has been worked in the Richard mine. The mine worked continuously until 1877, reopened in 1884 and worked till 1890 and then closed. It was reopened in 1905, dewatered, a small quantity of ore raised, when the entire underground workings collapsed, the accident a result of robbing the pillars.

RICHARD-ALLEN-TEABO MINES

The Richard Mine Property was first worked by three independent mine companies, known as the Teabo, Allen and Richard mines. In the later years the properties were consolidated and operations continued under the Richard Mine designation by the Colorado Fuel and Iron Corporation. The mine was operated nearly continuously from 1856 up to the 1950's and has yielded approximately 5,700,000 tons of ore from all operations. The production had come from two ore bodies; the Mt. Pleasant or north vein and the Richard or south vein, the Richard vein supplying about three fourths of the total tonnage.

Previous to 1901 there were three inclined shafts on the Richard

ore body; the No. 1 (533 feet in length), No. 2 (630 feet in length) and two shafts on the Mt. Pleasant ore body; No. 4 (932 feet in length) and No. 6 (600 feet in length).

In 1901 shaft No. 5 was completed; a three compartment shaft inclined 52° S. E. that was sunk between the Mt. Pleasant and Richard deposits to a vertical depth of 685 feet. This was the principal hoisting shaft until the Sweetser shaft was constructed. Refer to Plate V for the shaft and deposit relationships.

The Sweetser shaft; a four compartment vertical shaft, was situated at the base of the hill about 500 feet southeast of the Richard vein outcrop, sinking started in 1917 and by 1920 had reached a depth of 1,034 feet. In 1930 the shaft was completed to a depth of 1,244 feet.

The Allen Mine immediately to the northeast of the Richard No. 3 shaft was worked between 1855 and 1884 as the Allen operation. The workings consisted of several shallow shafts and an adit 630 feet long that was driven to the Allen deposit. At the surface the Allen deposit; was separated from the Richard deposit by the Allen fault and situated between the Richard and Teabo ore bodies, striking 45° N. E., dipping 65° S. E., and pitching 14° N. E.

The Teabo Mine was northeast of the Allen Mine and has been abandoned since 1907, the property later worked by the Richard Mine

Operators. The Teabo Mine worked the Teabo ore body through several shafts the deepest of which was the Teabo No. 5 Shaft located at the extreme northeast of the property. The relationship of the various ore deposits is pictured in Plate VI.

At the extreme northeast boundary is a large pit and several more in a straight line to the southwest, these are the remains of Teabo No. 5 and the old No. 2 and 3 Teabo shafts which worked the Elizabeth ore shoot which outcropped in this area. A woods road starts along the second pit and winds down around the other pits to the power line right of way. In the woods to the right just before the power line right of way is the depression left by the old whim shaft which marks the southwest end of the Elizabeth ore shoot. At the Mt. Hope property line the workings were approximately 300 feet down from the surface. No. 5 Shaft, extended through the Elizabeth deposit down to the Teabo ore shoot. Up the hill about 400 feet and paralleling the Elizabeth workings are a series of small prospect pits.

To the east and along the eastern boundary of the power line right of way is a series of pits and rock dumps. These belong to the Brennan ore shoot. Not much is known about these workings except they were not extensive or very deep.

Approximately 600 feet through the woods from the old No. 3

Teabo shaft in the Elizabeth is the first of the shafts, No. 4, in the Teabo shoot. This is almost straight in from Teabo Road along a dirt road running west. The shaft area was filled in 1970, except for the barbed wire fence, the area is unrecognizable as a mine shaft. There is a considerable amount of mine rock on the north side of the woods road. The old maps show that this shaft was sunk almost 250 feet through rock before hitting the top of the Teabo shoot. The bottom works were about 500 feet deep in this area. Over the hill some 500 feet to the southwest are a large pit and dumps of waste rock and a series of large pits in line for approximately 1,100 feet. These are the southwest workings of the Teabo ore shoot and were about 120 feet deep.

About 200 feet past the last Teabo pit to the southwest is the remains of the Smoke Stack Shaft. This shaft had a tunnel adit out to the east bank of the mountain. The entrance to the adit is about 1,000 feet to the northeast of the Sweetser shaft and is now marked by a depression. The Smoke Stack shaft is offset to the west approximately 50 feet from the line of shafts in the Teabo shoot. This probably marks the start of a new ore shoot but we are not sure which one (probably the Kearney or Mt. Pleasant). There is a line of large pits running to the southwest for around 1,000 feet. Three hundred feet down from the Smoke Stack shaft are the remains of foundations indicating the location

of the Allen Mine shaft. The line of pits end several hundred feet in the woods from the water tanks and the old water reservoir.

There was another ore shoot, Richard, to the east. The No. 2 and 3 shafts were in the Richard deposit. No. 6 was in the west (Mt. Pleasant) shoot. No. 5 connected both shoots. The area around No. 3 and 5 shafts has been graded over. No. 3 is marked by rock dumps, but the shaft location couldn't be found, as the shaft caved in many years ago. No. 5 is now marked by a round 4 foot diameter steel pipe and concrete cap near the back bank of the graded area. Further to the southeast is another graded area. Shaft No. 6 is in the northwest corner of this area, it is completely covered. No. 7 shaft was not found, it could be in the southwest corner, but we feel it may be across the road in the Baker area near No. 1 Richard shaft. Along the road connecting the two graded lots is a machine foundation on the east side and rock dumps on the west side marking the location of No. 2 shaft. The old maps did not show any pits in this area indicating the ore didn't come to the surface.

The large V shaped pits on the hill are not due so much to the wide underground workings as to the depth of the over burden. The timber supports around the shafts and stopes gave way allowing earth to wash into the underground workings. These may be adequately plugged or filled, however, they should be avoided. The Richard mine extended south across

Richard Mine Road, this area included in the coverage of the Baker mine.

The Sweetser shaft is at the bottom of the hill as shown located on Plates III & VII. An old change house is still standing in the area, to the west of the change house are the foundations of the mill. The shaft is along side the north end of the mill foundations and is covered by concrete blocks and dirt. The first 80 feet of the shaft is timbered, below that the shaft is concrete lined. In time the timber could give away causing a cave.

MT. HOPE MINE

The Mt. Hope mine, presently operated by the Halecrest Corporation, which was resurrected in 1977 is at Mt. Hope, 3 miles north of Dover shown located on Plate VIII. The mine includes the workings on nine ore bodies of which four were on Mt. Hope Hill, three on Hickory Hill and two on Mt. Teabo Hill. The principal shafts included the Spencer, Fowler, Brown, Elizabeth, Carlton, Leonard and New Leonard. The New Leonard shaft is the present operating shaft; all the ore hoisted since 1944 has been through the New Leonard shaft; a three compartment shaft 2,694 feet deep that connects with the 1,000, 1,700, 2,100, 2,300 and 2,500 levels. The Mt. Hope mine ranks as the largest producer of iron ore in New Jersey yielding close to 6,000,000 tons since its beginning. It is said to be the oldest operating iron mine in the United States dating back to at least

1710.

The oldest workings were the "open work", and the Jugular vein (Taylor Deposit) operations on the northeast side of Mt. Hope. Entrance to the workings was by means of two 25° inclines that descended to a depth of 100 feet. The ore was worked down from the surface producing a great open pit which to the northeast went underground. About 1868 a crosscut adit known as the Big Tunnel was completed and intersected five different deposits that now are known as the Brennan, Leonard, Finley, Hawkins and Taylor. In addition to these deposits, the Elizabeth deposit, on the northeast slope of Mt. Teabo was opened prior to 1868. It was mined from an adit at the base of the hill that was driven southwest along the strike; the ore above the adit level was mined from three shafts, the largest of which was the Painter shaft. A third group of deposits; the Spencer and Gold Diggings were actively mined prior to 1868 and crop out on Hickory Hill.

The Taylor ore body, which has been the largest source of ore at the Mt. Hope mine, cropped out on both Mt. Hope Hill and Hickory Hill, the two groups of open cut mine workings shown on Plate VIII. The Brown shaft, sunk in 1900 at an angle of 64° to the S. E. worked the Taylor, Elizabeth, Leonard and Carlton deposits. In 1906 the Leonard shaft was opened to mine the ore from the Leonard or Side Hill deposit. In 1907 the Carlton shaft was sunk on the Carlton vein. The Taylor deposit strikes

N. 40° to 45° E., dips 50° S. E. to vertical, and pitches about 18° N. E.

The Teabo ore body, mined in the abandoned Teabo mine, and because of its northeast plunge was encountered on the 1,000 foot level at the Mt. Hope mine and has subsequently been mined on the 1,700 foot level. The Teabo ore body strikes N- 40° to 45° E., dips 55° S. E. and plunges 20° N. E.

The Richard ore body, which was mined throughout the Richard and Baker mines was encountered on the 1,700 foot level at the Mt. Hope mine. At this level the deposit strikes N- 42° S. E. and averages about 15 feet in thickness.

The Elizabeth ore body cropped out on Mt. Teabo where it was mined from the Elizabeth adit and a series of shafts, the deepest of which was the Painter shaft. The deposit strikes N- 45° E., dips steeply southeast, plunges about 15° N. E. and averages about 7 feet in thickness.

The Leonard ore body cropped out on Mt. Hope Hill and mined from the surface and the Leonard shaft. The deposit strikes N- 45° E., dips steeply northwest and plunges about 17° N. E.

The Finley deposit was mined at the surface on both Mt. Hope and Hickory Hills prior to 1868. The most extensive operations were southwest of the Mt. Hope fault where the deposit was opened for a distance of 2,400 feet. On Hickory Hill, openings extend for 1,000 feet. In addition to the surface workings the deposit was worked from the 4th

and 5th levels, off the Brown shaft. The ore body strikes N-30° E., averages 6 feet in thickness and plunges about 20° N. E.

The Brennan (or Brannin) deposit was opened prior to 1868 on Mt. Hope Hill where it was exploited for about 700 feet by four shafts sunk to depths of 35 to 40 feet. Later the deposit was intersected by the Big Tunnel 150 feet from the portal.

The Hawkins deposit was mined to shallow depths on Hickory Hill for a distance of 450 feet. The deposit was low in grade and not of any importance.

The Spencer deposit is on Hickory Hill half a mile northeast of the New Leonard shaft and was prospected for a distance of 1,000 feet. The workings consisted of several shallow pits and a short inclined shaft. The production from the deposit has been negligible, estimated at 1,000 tons.

The Gold Diggings deposit, is on Hickory Hill, half a mile northeast of the Brown shaft, and was prospected for a distance of 600 feet. The workings consisted of a cribbed shaft reported to be 50 feet deep and a series of small prospect pits, the small dumps indicating shallow depth openings.

Since the mine is presently in operation, the reader is referred to the Halecrest Corporation for in depth information concerning the Mt. Hope mining operation.

BEACH GLEN MINE

The Beach Glen mine is located approximately 3/4 mile northeast of the intersection of Green Pond Road and Meridan Road. Access to the main slope is along a dirt road which passes within several hundred feet to the southeast of the old mine buildings as shown on Plate IX.

The entrance to the main slope is covered with planking sealing the entrance. The timbered head frame and tracks leading down the incline are still in evidence a short distance from the portal. The first open pit northeast of the main slope is easily accessible, approximately 200 feet long with steep walls. About midway in the pit against the northwest wall is a small caved opening apparently leading to an old stope. About 50 feet to the northeast of No. 1 pit is a second pit approximately 50 feet in diameter probably a part of an old stope. Some bulldozing and closing of openings was done in 1972.

The third pit 125 feet to the northeast of No. 2 pit is approximately 50 feet wide x 40 feet wide x 30 feet deep.

The last series of pits average approximately 25 feet wide and extending over a length of 250 feet.

The northeast shaft is located approximately 300 feet to the northeast from the most northerly pit. It appears as a pit about 30 feet

in diameter x 10 feet deep. The shaft was plugged in 1972 but settling has taken place since then. The shaft is approximately 460 feet deep.

The Beach Glen mine was probably first operated in 1760 but it was not until 1808 that mining work was first recorded, when the surface was stripped and the ore excavated to a depth of a few feet. The mine was abandoned shortly afterwards and remained closed until 1851 when two openings were made. Intermittent mining was done until 1885 when the place was closed, the later operations were concentrated on the western main vein. The mine was reopened in 1896 and worked as an open pit till 1900. In 1901 the N. E. shaft was sunk to a depth of 460 feet, operations continued until 1903. The mine remained idle from 1903 till 1920. Intermittent operations continued till 1930 when the place was abandoned. Some development work was done from the main slope during 1956 to 1957. The total aggregate production from this mine is estimated to be approximately 400,000 tons.

The prospect, known as the Tichenor Diggings, was located 1,000 feet northeast of the N. E. shaft at the Beach Glen mine. Three shallow shafts were sunk between 1868 and 1872 and a small quantity of ore was raised. Sims reports the workings, in the 1950's, consisted of two small pits caved to shallow depths. The place was abandoned in 1872.

PARDEE MINE

The Pardee mine lies along the old railroad bed east of Green Pond Road a little over a half mile from Kinney - Smith Building, as shown on Plate X. The old workings of the Pardee are up on the hill, pronounced by a long open cut approximately 450 feet long, 20 feet wide by 20 to 25 feet deep, with practically vertical walls. Large dumps between the open cut and the railroad bed are still visible. The Pardee was also known as the Mutual Mine and the open-cut known as the Canfield Open-Cut. The mines were opened around 1870 and worked for two years, during which time 2,500 tons of ore was shipped. The mine was idle for about 10 years and re-worked until the end of 1884 at which time it was abandoned. The deposit strikes N. E., dips 75° to vertical, and plunges 25° N. E. Review of some old maps indicate older Pardee workings approximately 500 feet S. W. down the trail from the Pardee along the base of the Conglomerate Ridge, a series of explorations were undertaken in 1870 known as the Chester Iron Company mine, however very little was done to develop this property. Neither of these areas appear to be hazardous at this time. The total ore production from the Pardee operations is estimated at 5,000 tons.

WINTER MINE

The Winter mine lies directly south of the Pardee mine across the railroad bed on flat land. The workings consist of three (3) shafts,

several small pits and several rock dumps, refer to Plate X. The mine was operated intermittently between 1882 and 1886 but only a small amount of ore was raised. The north shaft is 150 feet south of the Pardee open cut, the south shaft is 450 feet S. W. of the north shaft and the northeast shaft is 400 feet northeast of the south shaft all presently caved. The mine worked two deposits; the north deposit about 300 feet in surface length and about 8 feet thick worked by the north shaft. The north deposit striking N. E., dipping steeply S. E. and plunging 17° to 20° N. E. The south deposit was 3 feet thick with a N. E. strike. Both deposits were small and probably do not extend much beyond the present workings. The mine was abandoned in 1886 when the workings were allowed to flood with water. Total production from the Winter mine was approximately 10,000 tons.

The area is swampy and probably will not be used for development in the near future, however when development does take place the shafts could be hazardous and corrections should be made prior to building over them.

DAVENPORT MINE

The pits of the Davenport started on the west side of Green Pond Road and stretched along the road going up the side of Copperas Mountain in the direction of the Pardee mine, refer to Plates I and X. The pits

near Green Pond Road have been filled in and its possible the white house near the Kinney - Smith shop is over some of the old pits. The pit shown directly north of the pond is still in evidence, filled with rubbish. No search was made for the pits along the mountainside.

The mine was opened in 1880 on a deposit that dipped 40° S. E. The deposit was 12 feet wide at its northeast end but narrowed to the southwest. The workings consisted of four shallow shafts and a few open pits that opened the deposit along a distance of about 450 feet. Operations ceased in the spring of 1884 when the place was abandoned. The total production of ore from the Davenport operation is estimated at 40,000 tons.

GREEN POND MINES

The Green Pond mine workings are divided into two groups, the northwest and the southeast. The northwest group of openings are on both sides of Green Pond Road as shown on Plate XI, approximately 1,500 feet northeast of the Davenport mine. This deposit was reported to be 70 feet high, 20 to 25 feet thick, dipping 25° S. E. and plunging about 30° N. E. Near the road, on both the east and west sides the remains are visible as a series of pits and dumps as shown on Plate XII. Some of these pits are hazardous and should be protected. Development work in this area should not take place without taking into con-

sideration the corrections of possible hazards.

The southeast workings are on the lower slope of Copperas Mountains in an area presently used as a lardfill by the Township. The pits have been filled in and several show signs of settling. The filled in pit areas should not be used for building until all settling has stopped. The largest opening was at the southwest end as shown on Plate XII. The deposit in the S. W. group dipped 35° to 55° S. E. and plunged about 35° N. E. and was 20 feet wide. The Green Pond mines were opened in 1872 by several pits and a trench which exposed a width of 50 feet of ore. In the first year 3,000 tons were removed. Intermittent mining was carried on until 1882 with an additional 18,000 tons raised. In 1899 the mine was abandoned, its total aggregate production estimated to be 50,000 tons. In 1880 two shoots were worked to a depth of 320 feet, a third to a depth of 125, and a fourth to a depth of 85 feet. In 1899 three slopes were working, No. 1 to the S. W. was 360 feet deep measured on the slope, No. 3 was 74 feet to the northeast of No. 1.

COPPERAS MINE AND BANCROFT SHAFT

This area is on the west side of Jacobs Road as shown on Plate XIII, about 1,200 feet northeast of the No. 1 Green Pond shaft. The remains of an old railroad bed and stone walls are visible in the valley

beyond the small ridge along the west side of Jacobs Road. Traveling S. E. along the valley for several hundred feet, up the hill looking northwest the remains of several tunnels are visible, which are partially open. Further up the hill are several rock dumps and two shaft locations. Shaft No. 1, the southwesterly of the two appears as a pit 30 feet in diameter x 15 feet deep with a timbered 4 feet x 6 feet opening visible at the bottom full of water. Shaft No. 2 is about 100 feet northeast of No. 1 and has caved in. A small shallow pit appears between the two shafts. There are several small pits southwest of the shafts located about 800 feet northwest of the last group of the Green Pond openings.

The Copperas mine was never a producer of iron ore. The mine was operated during the war of 1812 to obtain Copperas (ferrous sulfate).

The Bancroft shaft, about 500 feet northeast of the Copperas No. 2 shaft, was an exploration made in 1874. No information is available on the depth of this shaft or any record of production.

WHITE MEADOW MINE

The White Meadow mine comprised an extensive series of openings northeast of White Meadow Lake as shown on Plate XIV. The mines were opened before 1840 as the Kitchell and Muir mines on a vein that was reported to be 6 inches wide at the surface but which increased to a width

of 2½ feet at a 30 foot depth. Before 1855 it had been worked to a depth of 130 feet along a length of 200 feet. It was actively operated between 1855 and 1868 but was abandoned sometime before 1873. The southwest group had been mined to shallow depths for a distance of 2,200 feet prior to abandonment. The production of ore from this operation is estimated to be 5,000 tons.

Plate XIV shows the shaft location on the east side of Iowa Avenue in the playground area which was capped in the late 1950's after a cave-in. Cave-ins also occurred in the front yards of 9 and 11 Erie Avenue in the 1960's, probably the result of a collapsed stope, but were filled in at that time. The northeast openings, north of Valley View Road, which comprised of several pits were fenced in by the owner in the late 1960's.

CHARLOTTESBURG MINE

The Charlottesburg mine is on the south side of the Charlottesburg Reservoir. According to the 1910 survey the workings consisted of a series of open pits and shafts on both sides of the Charlottesburg-Lyonsville Road as shown on Plate XV. The mine was probably opened sometime before 1765, for the furnace and forge at Charlottesburg was built about 1765. The first openings apparently were made near the road; later openings were made on the north slope of the hill east of the road. In

1874 the explorations made to the east of the old mine holes revealed two new veins, these were worked until 1884. The mine was reopened in 1886 and worked until 1888 when the place was permanently abandoned. The principal deposit in the eastern group was worked by several shafts and was 40 feet wide in places but to the northeast narrowed to 12 feet. The dip was 75° S. E. and the pitch gently northeast. The deposits were reported to be worked to a depth of 200 feet. The mine produced an estimated 100,000 tons of iron ore. The area will be examined in early 1978.

RIGHTER, MERIDEN, FAIRVIEW, BIRCH AND GREENVILLE MINES

The above mine locations are shown on Plate XVI. The aggregate production from these mines can be considered as negligible and we anticipate no development problems as a result of these mine workings. Field examinations of these areas will be undertaken by the Mine Safety Section in the spring of 1978.

The Righter mine workings were on the east side of the valley of the stream that flows out of Split Rock Pond. Sims reports the workings consisting of an adit near the base of the hill and a small pit about 100 feet up the hill. The place was opened before 1872 on a deposit that dipped 87° N. W. and plunged 23° N. E. A small prospect pit approximately 1,200 feet southwest of the Righter mine is very likely the Meridan mine

referred to by Bayley.

The Greenville mine was opened in 1872, a small quantity of ore shipped and abandoned shortly afterward.

The Birch mine, on the south side of the Public Service power line, as reported by Sims, consisted of a 35° inclined shaft that briefly worked a deposit 3 feet thick dipping 25° to 30° N. E.

The Fairview mine, 500 feet southeast of the Birch mine, reported by Sims as consisting of a 50° inclined shaft about 20 feet deep and a few shallow open cuts.

COGILL MINE

The Cogill or Cogswell mine was on the west slope of the hill north west of Lake Telemark as located on Plate XVII. Explorations were made prior to 1868 and a shaft 70 feet deep was sunk. The place was worked intermittently between 1868 and 1900 and Bayley reports the place abandoned in 1910. There were 3 shafts on the deposit, the main shaft just below the crest of the hill 85 feet northwest of an 200 foot long x 5 foot wide open cut. The deposit was about 1,200 feet long, striking N. E. and dipping 70° S. E. at the surface and averaging 2 feet in thickness. Production from the mine was estimated by Sims to be less than 1,000 tons, evidently nothing more than an exploration.

Plate XVII also shows location of several prospects described

by Sims. Prospect 1 consisted of a single shallow pit approximately 1,500 feet northeast of the Cogill mine. Prospect 2, 1,300 feet further northeast on the hill northwest of Lake Telemark consisted of two groups of surface workings separated about 500 feet apart. The southwest openings consisted of a caved shaft and open stopes, the northeast openings consisted of two shallow test pits. The area was not examined, Mine Safety Section personnel will complete the field examination in the spring of 1978.

SPLIT ROCK POND MINE

The Split Rock Pond mine shown located on Plate XVIII, was at the north end of Split Rock Pond, presently under water in the Split Rock Reservoir. The mine was an old one and its early history is not known. It evidently was worked for two years during which a shaft 100 feet deep was sunk. Intermittent operations were carried on till 1880 when the place was abandoned. Two deposits about 50 feet apart were worked; the east deposit was 14 feet wide, the west deposit was 8 feet wide by 25 feet high. Production from the mine is estimated to be about 5,000 tons.

WOOD MINE

The Wood mine consisted of a series of small openings on the

west side of the Charlottesville - Lyonsville Road as shown located on Plate I. The principal workings according to Sims were two inclined shafts about 1,000 feet apart. Only a small quantity of ore was shipped from the mine. The surface length of the deposit was about 1,200 feet. The place was originally opened in 1873 and operated intermittently until 1883 when the mine was abandoned.

COBB MINE

The Cobb mine, also known as the Split Rock mine, consisted of a series of openings worked down to the water level for a distance of about 1,700 feet. The mine opened before 1868 and the workings at that time were at two places; the largest near the foot of the hill, the other near its summit. The mine was inactive in 1873, reopened in 1878 and operated until 1887 when it was abandoned. The deposit strikes N. E. dips about 70° to 77° S. E., plunges 20° N. E. and ranging from 2 to 5 feet in thickness. Production from the mine is estimated to be about 25,000 tons. The location is shown on Plate XVIII.

DENMARK MINE

The Denmark mine consisted of three separate groups of openings on the low hill south of Lake Denmark as shown on Plate XIX.

The history and development is unknown. The northernmost group of openings consisted of a shaft and abandoned stopes, as reported by Sims. The central group consisted to two small pits on opposite sides of the road about 400 feet south of the shaft. The southernmost group of workings consisted of several pits the largest of which was an open cut about 50 feet long. Total production of ore is estimated by Sims to be about 1,000 tons, apparently the place was not much more than an exploration.

SWEDES MINE

Swedes mine was one of the important mines of 1850 located off Swedes Mine Road generally as shown on Plate ~~XX~~. Up to 1855 the ore had been removed along a distance of 860 feet and to a 175 foot depth. Operations continued until 1875 at which time the mine was 220 feet deep, 1,300 feet long and was entered by two shafts and two adits. The adits about 550 feet apart entered the side hill at about 100 yards from the Morris Canal. The two shafts were approximately 720 feet apart. Toward the southwest the ore deposit was 1 to 3 feet wide, farther northwest it was 13 feet wide and in the extreme northeast portion it was 9 feet wide. The deposit had a N. E. strike and dipped 57° N. W. The mine was abandoned in 1882. The total production from the Swedes mine was approximately 200,000 tons.

The area was used as a dump site at one time and in late 1958 the northeast shaft caved creating a hole 15 feet in diameter by 122 feet to the water level on the south side of Swedes Mine Road between Extrom Street and Sunny Hill Road on the property owned by John Kinney. The Township had the opening sealed and should have the exact location of the cave-in information in its files.

SIGLER MINE

The Sigler mine was about three fourths of a mile northwest of the Swedes mine, as shown on Plate I. The vein was 2 feet wide worked down 60 feet in 1869 and abandoned about that time. The mine was nothing more than an exploration. The area was not examined.

DOLAN MINE

The Dolan mine was about 1,200 feet northwest of the Baker mine on the north side of Richard Mine Road as located on Plate I. Bayley reports it was opened in 1869 by a shaft 120 feet deep. In 1883 it was reopened by a shaft 140 feet deep and operated for four years until it was abandoned in 1886. The mine was never worked extensively, about 1,000 tons being raised in 1884. Most of the work in 1885 and 1886 was for development purposes, a new slope sunk to 170 feet and some drifting being done. The deposit was in two veins 42

feet apart, they dipped 60° S. E., pitched 45° N. E. and were 6 feet to 8 feet wide. The overall production of ore from this mine is estimated to be 5,000 tons. About one-quarter mile east of Route 15 and Richard Mine Road intersection is the remains of a tunnel in the side of the hill which conceivably could be part of the Dolan operation.

HOWELL EXPLORATIONS

The Howell Explorations were northeast of the Green Pond mines several hundred feet east of Jacobs Road as shown on Plate I. Between 1874 and 1879 a trial shaft was dug and about 100 tons of ore removed. The place was worked again in 1885, several more prospect shafts dug but nothing of importance was ever developed.

BUSH MINE

The Bush mine is located 2800 feet northeast of the Spencer Shaft and on the same mineralized zone as the Spencer mine, as reported by Sims. The workings consisted of two cribbed shafts, 400 feet apart and several small test pits. The northeast shaft was reported by Sims to be 45 feet deep, the southwest shaft 35 feet deep. The place apparently nothing more than a prospect.