Guide to the Bethlehem Steel Corporation Mining Photographs

NMAH.AC.1242
Alison Oswald
January 2012
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Collection Overview

Repository: Archives Center, National Museum of American History
Title: Bethlehem Steel Corporation Mining Photographs
Identifier: NMAH.AC.1242
Date: 1880-1993 (bulk 1947-1980)
Extent: 19 Cubic feet (66 boxes)
Creator: Bethlehem Steel Corporation
Language: English
Summary: The collection consists of approximately 28,000 photographic negatives, slides, prints and other materials documenting Bethlehem Steel Corporation's iron ore mining operations. The photographs were taken by Richard "Jay" Angelo, a Bethlehem Steel Corporation photographer. The majority of the photographs depict Bethlehem's mining operations at its Cornwall and Morgantown, Pennsylvania mines. A smaller number of negatives document operations in western Pennsylvania, Kentucky, West Virginia, Michigan and Ontario. The negatives depict aerial views, blasting operations, tunneling, equipment and infrastructure, machinery, employees working, company personnel, and company-built community facilities. The collection documents the complete operations of a major, historic mining operation over four decades.

Administrative Information

Acquisition Information
The collection was donated to the Archives Center by Richard Angelo, Jr., and Jeanette Angelo Laverty on July 9, 2011.

Related Materials
Materials at the Archives Center, National Museum of American History
Alexander Van Valen Papers, 1849-1850 (AC0935)
International Salt Company Records, 1888-1964 (AC1158)
Industry on Parade Film Collection, 1950-1960 (AC0507)
Arthur d'Arazien Industrial Photographs Collection, circa 1939-1984 (AC0314)
Frank Klepetko Michigan Mining Cyanotype Album, circa 1880 (AC1042)
Materials in Other Organizations

Hagley Museum and Library
Bethlehem Steel Corporation records, 1714-1982
Bethlehem Steel Corporation and Bethlehem Ship Corporation photograph collection, 1786-1966
Bethlehem Steel Corporation. Predecessor and subsidiary companies, 1860-1947

Pennsylvania State Archives
Cornwall Ore Bank Company Records, 1802-1935, 1954

Processing Information
Processed by Alison Oswald, archivist, January 2012.

Preferred Citation

Restrictions
The collection is open for research use. Special arrangements required to view negatives due to cold storage. Using negatives requires a three hour waiting period. Contact the Archives Center at 202-633-3270.

Conditions Governing Use
Collection items available for reproduction, but the Archives Center makes no guarantees concerning intellectual property rights. Archives Center cost-recovery and use fees may apply when requesting reproductions.

Accruals
Approximately 2 cubic feet of additional material was donated in 2013 by Richard Angelo, Jr., and Jeanette Angelo Laverty.

Biographical / Historical
Richard "Jay" Angelo (1922-1997) was the official photographer for Bethlehem Cornwall Corporation (a subsidiary of the Bethlehem Steel Corporation) mining operations in Cornwall, Pennsylvania. The Cornwall Division operated three underground mines with concentrating and agglomerating facilities. Using a Speed Graphic camera (a portable professional camera), which used 4" x 5" film, Angelo captured between 20,000 and 30,000 negatives, mostly black-and-white, from January 1947 to January 1980. The negatives depict aerial views; each new blast in the open pit; tunneling in the underground works; installation of infrastructure such as underground bracing, head frames, railway track and agglomeration machinery; employees at work, receiving awards, or retiring; tours for corporate executives, local school teachers, and other mining executives; road and land improvements; company-built community facilities; safety program activities; installation and operation of the concentrating and agglomeration plants.
Angelo graduated from high school in 1940 and immediately began working in the mines, following in the footsteps of his father, an Italian immigrant. He joined the United States Navy in 1942 working as a radio operator aboard a communications ship. Angelo served in both the European and Pacific theaters of World War II. Angelo returned home in 1946 and worked in the mines, first in a tool room, then in the engineering department. In 1947, he began taking photographs for the company, specializing in mining. Other photographers processed color and black-and-white negatives in the company lab and photographed the company's many plants. Angelo retired in 1980.

For over sixty years (1916-1980), Bethlehem Steel Company obtained most of its iron ore from three mines it owned and operated in eastern Pennsylvania. Two mines were located in Cornwall, about fifteen miles east of Harrisburg, and one was located in Morgantown, about twenty-five miles south of Reading. Until its closure in 1980, the Cornwall mine was the longest continuously operated mine in North America. The Cornwall Mine began in 1732 when John, Thomas, and Richard Penn deeded over 9,000 acres to Joseph Turne, who assigned it to William Allen. In 1734, Peter Grubb, a prospector for iron, paid Allen for the acreage and in 1742 built the Cornwall Furnace near the ore deposit. Other parties gained access and partnership to the ore banks through purchase or inheritance, and in 1854, Grubb and the others combined to form the Cornwall Ore Banks Company. Bethlehem Steel Company acquired ownership of the Cornwall Mines in 1916 and had complete ownership by 1921. The only exception was the Robesonia Iron Company, a small independent section that remained free of Bethlehem ownership until 1926, when Bethlehem acquired it and thus gained sole control of the ore deposits. The Cornwall iron ore deposit became one of the most valuable in the United States.

There were two major ore bodies in Cornwall, Pennsylvania, south of Lebanon, Pennsylvania, called Cornwall mines number 3 and number 4. Extracting the ore was done through open pit mining when deposits of useful minerals or rock were found near the surface. Open pit mining was used at Cornwall until 1953 when the open pits became too deep and economically not viable. It is estimated that over fifty-six million tons of ore were removed from mine number 3 between 1734 and 1953. By 1953, all of the available exposed ore was removed, and it was necessary for the company to begin underground mining activities. Other forms of mining included extractive methods that required tunneling into the earth, such as long wall mining. The number 4 mine was begun in 1926 as an underground operation; by 1965, twenty-two million tons of ore had been mined. In 1948, new iron ore deposits were discovered using an airborne magnetometer (an instrument used to measure the magnetic field) during an aerial survey in southeastern Pennsylvania. Bethlehem Steel acquired the land. Construction for the mine began in 1951 and ore stripping began in 1958. The new mine was called Grace Mine after Bethlehem Chairman and CEO Eugene Grace. Mining at lasted until 1977.

The Marmoratan Mine located in Hastings County, Ontario (east of Toronto) also became part of the vast Bethlehem Steel Corporation holdings. Iron mining was an important industry in the area during the nineteenth century. The village of Marmora was originally named Marmora Iron Works. Magnetic iron ore was mined as early as 1820, but a series of failures resulted in the abandonment of the mine. In 1949, the Ontario Department of Mines, in conjunction with the Geological Survey of Canada, conducted an aerial survey of the region. Bethlehem Steel geologists became interested in the area and in May, 1950, the company obtained options to purchase a 290 acre tract of property. Bethlehem would eventually acquire 1900 acres of property at Marmora. Drilling began in 1951, and the mine closed in 1979.

The scale of operations at the three mines was prodigious. Together, these mines were second only to Minnesota's famous Mesabi Range in terms of volume and quality of iron ore extracted. In addition to ore extraction, the mines were equipped with large-scale concentrating and agglomeration facilities, where the raw ore was separated into disparate minerals through the use of magnetic separators. The iron was then further concentrated into high density pellets that were easier to ship and more economical in making steel. Bethlehem erected its first concentrating facilities at Cornwall in 1916. When Bethlehem Steel acquired the Cornwall mines its long-term plan was to expand and modernize its program by adding mill equipment and providing sintering plants. Bethlehem purchased the Pennsylvania Steel Company in 1916, which included a wet mill equipped with a Grondal magnetic separator. From 1934 to 1962, the
mines produced over twenty-seven million tons of iron concentrate, 450,000 tons of copper concentrate, and 1,650 tons of pyrite concentrate. The agglomeration plant at the Grace Mine alone produced three million tons of iron concentrate between 1958 and 1965.

Scope and Contents

The collection consists of approximately 28,000 photographic negatives, slides, prints and other materials documenting Bethlehem Steel Corporation's iron ore mining operations. The photographs were taken by Richard "Jay" Angelo, a Bethlehem Steel Corporation photographer. The majority of the photographs depict Bethlehem's mining operations at its Cornwall and Morgantown, Pennsylvania mines. A smaller number of negatives document operations in western Pennsylvania, Kentucky, West Virginia, Michigan and Ontario. The negatives depict aerial views, blasting operations, tunneling, equipment and infrastructure, machinery, employees working, company personnel, and company-built community facilities. The collection documents the complete operations of a major, historic mining operation over four decades.

Series 1, Historical Background Materials, 1923-1993, consists of typescript general histories for the Bethlehem Steel Corporation, and specifically, the Cornwall Mine, Grace Mine, and the Marmoratan Mining Company. Included are some copies of maps, newspaper articles, photographs and one letter from Charlie Neil dated 1993 containing history of the Cornwall mining operations. Other miscellaneous items include articles about concrete, a retirement brochure for Sheldon J. Shale, and bound monthly progress reports of operations for the Cornwall Division, 1923-1929. These reports detail production, ore analysis, construction of mine shafts, repairs made, and physical plant conditions.

Series 2, Logbooks, 1949-1980, consists of personal, mileage, and photograph and negative logbooks maintained by Richard R. Angelo during the course of his career as a photographer for Bethlehem Steel Corporation, Cornwall Division. The series is divided into three subseries: Subseries 1, Personal Logbooks, 1949-1981, Subseries 2, Mileage Logbooks, 1957-1980, and Subseries 3, Photograph and Negative Logbooks, 1947-1968. The bound notebooks are arranged chronologically and are approximately 4 1/2" x 7 1/2" or smaller.

Subseries 1, Personal Logbooks, 1949-1980, consists of Angelo's personal logbooks which begin in 1949 and chronicle his daily activities and include the amount of time spent accomplishing each stated activity. For example, from April of 1949, Angelo writes, "making negatives and printing, eight hours." Later logbooks do not contain the number of hours, but many contain the number of vacation days Angelo took.

Subseries 2, Mileage Logbooks, 1957-1980 and undated, consists of logbooks with the date, number of miles, and location where Angelo drove. In some instances, toll expenses are noted as well as total mileage calculated for a month.

Subseries 3, Negative Logbooks, 1947-1980, consists of logbooks detailing the date, negative number and a brief description for black-and-white and color negatives. For example, the March 3, 1951, entry is listed as "#1840-0, waste rock tunnel, mine number 3." In some instances Angelo notes if a photograph or negative was rejected. Later logbooks follow an alpha-numeric identification system. These logbooks should be consulted when using Series 4, Black-and-White negatives. The subseries is arranged chronologically.

Series 3, Indices, 1943-1960, consists of typescript lists detailing the negative number, date, and a brief description for the Bethlehem Report (BR), the early Pilot Plant and raw materials (CN), microphotographs (MP), and Pilot Plant (PP) and raw materials and office plant (RM). The person who assembled these lists or applied the alpha-numeric system is unknown. These indices should be consulted when using boxes 36 to 38 in Series 4, Black-and-White Negatives.
Series 4, Black-and-White Negatives, 1941-1963, is divided into six subseries: Subseries 1, #1-#4108, 1947-1961; Subseries 2, A1 to A400, 1941-1949; Subseries 3, B1 to B9995, 1953-1963; Subseries 4, C1 to C6999, 1963 [1969?]; Subseries 5, Chronological, 1950-1955; and Subseries 6, Topical, 1941-1961. The negatives are approximately 4" x 5" and are housed in glassine envelopes. In some instances, 4" x 5" prints are filed behind the corresponding negative.

The alpha-numeric subseries of negatives is not inclusive. There are indices (see Series 3) for the negatives in boxes 36 to 38 and the logbooks (see Series 2) maintained by Richard R. Angelo. The indices provide the alpha-numeric identification number, date, and brief description for the negative. For example, negative B-528 documents the #4 mine machine shop looking west, March 12, 1954. Researchers should use the logbooks in conjunction with the negatives.

There are some negatives that document diagrams, drawings, plans, sectional views, schematics for ore pockets, mine shafts, and flow sheets for the Lebanon Concentrator and the crushing plant at the Grace Mine. Some of the negatives were used in the creation of the Bethlehem Mines Corporation, Cornwall Division, photograph album which documents progress as of December 31, 1964.

Series 5, Color Negatives, 1964-1979, consists of approximately 940 color negatives, presumably documenting a wide variety of mining activities as well as employees. There is no index to these negatives. The negatives are arranged numerically.

Series 6, Photographic Prints, 1880s-1972 and undated, consists primarily of black-and-white prints of mining equipment, views of mine interiors (including the mine vein), aerial views, buildings, and employees. The bulk of photographs document Bethlehem mines in Pennsylvania, specifically Cornwall and Grace, but there is documentation for the Marmora Mine in Ontario, Canada. Some of the prints have captions and dates. Some oversize photographs (11" x 14") documenting the Matamora Mine in Ontario, Canada, 1958, were taken by H.R. Oakman of Peterboro, Ontario. The materials are arranged alphabetically.

Series 7, Photograph Albums, 1951-1971, consists of five bound albums and some loose materials documenting the Marmora Mine in Ontario, Canada. Many of the albums were photographed by H.R. Oakman of Peterboro, Ontario. The albums contain mounted black-and-white prints that are 4" x 5" or 11" x 17." The albums are arranged chronologically.

Series 8, Slides, 1950-1980, contains 35 mm slides in both black and white and color. The slides document a range of activities and are arranged alphabetically by mine location.

Series 9, Moving Images, 1961 and undated, consists of two color 16 mm films documenting the Grace Mine in Pennsylvania.

Arrangement

The collection is arranged into nine series.

Series 1, Historical Background Materials, 1923-1993

Series 2, Logbooks, 1949-1980

Subseries 1, Personal Logbooks, 1949-1980
Subseries 2, Mileage Logbooks, 1957-1980 and undated
Subseries 3, Negative Logbooks, 1947-1980
Series 3, Indices, 1943-1960

Series 4, Black-and-White Negatives, 1941-1963

Subseries 1, #1-#4108, 1947-1961
Subseries 2, A1 to A400, 1941-1949
Subseries 3, B1 to B9995, 1953-1963
Subseries 4, C1 to C6999, 1963 [1969?]
Subseries 5, Chronological, 1950-1955
Subseries 6, Topical, 1941-1961

Series 5, Color Negatives, 1964-1979

Series 6, Photographic Prints, 1880s-1972 and undated

Series 7, Photograph Albums, 1951-1971

Series 8, Slides, 1950-1980

Series 9, Moving Image, 1961 and undated

Physical Characteristics and Technical Requirements

Gloves must be worn when handling unprotected photographs and negatives. Special arrangements required to view negatives due to cold storage. Using negatives requires a three hour waiting period. Contact the Archives Center at 202-633-3270.

Bibliography

Bethlehem Steel. *Bethlehem in Marmora*, circa 1950s.


Larison, Dennis. "Picture this...Local photographer records mine history on film," *The Daily Sunday Magazine* (Cornwall, Pennsylvania), November 5, 1989.


Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:
Subjects:
Iron -- Pennsylvania
Iron and steel industry
Mines
Mines -- Pennsylvania

Types of Materials:
Color negatives
Color slides -- 20th century
Photographs -- Black-and-white negatives -- 20th century
Slides (photographs) -- 20th century
Series 1: Historical Background, 1923-1993

This series consists of typescript general histories for the Bethlehem Steel Corporation, and specifically, the Cornwall Mine, Grace Mine, and the Marmoratan Mining Company. Included are some copies of maps, newspaper articles, photographs and one letter from Charlie Neil dated 1993 containing a history of the Cornwall mining operations. Other miscellaneous items include articles about concrete, a retirement brochure for Sheldon J. Shale, and bound monthly progress reports of operations for the Cornwall Division, 1923-1929. These reports detail production, ore analysis, construction of mine shafts, repairs made, and physical plant conditions.

Box 44, Folder 1  General histories of Bethlehem mines, 1979-1993
Box 44, Folder 2  Cornwall mines history, 1962 and undated
Box 44, Folder 2A  Bethlehem in Marmora, Ontario, undated
Box 44, Folder 3  Articles about concrete, 1949-1950
Box 44, Folder 4  Monthly reports of operations, 1923-1929
Box 44, Folder 5  Preparation of material for lantern slides (memo from Publications Department), 1954 December
Box 44, Folder 6  Weekly reports, 1960 July-1960 October
Box 44, Folder 7  Preliminary request for material blank form, undated
Box 44, Folder 8  Sheldon J. Shale retirement brochure, 1979 August

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Series 2: Logbooks

The series consists of personal, mileage, and photograph and negative logbooks maintained by Richard R. Angelo during the course of his career as a photographer for Bethlehem Steel Corporation, Cornwall Division. The series is divided into three subseries: Subseries 2.1: Personal Logbooks, 1949-1981, Subseries 2.2: Mileage Logbooks, 1957-1980, and Subseries 2.3: Photograph and Negative Logbooks, 1947-1968. The bound notebooks are arranged chronologically and are approximately 4 1/2" x 7 1/2" or smaller.

Subseries 2.1: Personal Logbooks, 1949-1980

Subseries 1 consists of Angelo's personal logbooks which begin in 1949 and chronicle his daily activities and include the amount of time spent accomplishing each stated activity. For example, from April of 1949, Angelo writes, "making negatives and printing, eight hours." Later logbooks do not contain the number of hours, but many contain the number of vacation days Angelo took.

Box 44, Folder 9 Richard R. Angelo, 1949 April-1949 November
Box 44, Folder 10 Richard R. Angelo, 1958 February-1958 August
Box 45, Folder 11 Richard R. Angelo, 1960 August-1963 May
Box 45, Folder 12 Richard R. Angelo, 1963 May 5-1966 March 4
Box 45, Folder 13 Richard R. Angelo, 1966 March 9-1968 November
Box 45, Folder 1 Richard R. Angelo, 1968 November-1971 September
Box 45, Folder 2 Richard R. Angelo, 1971 September 3-1974 September 4
Box 45, Folder 3 Richard R. Angelo, 1974 September 5-1977 November 16
Box 45, Folder 4 Richard R. Angelo, 1977 November 17-[1980 January 30?]

Subseries 2.2: Mileage Logbooks, 1957-1980 undated

Subseries 2 consists of logbooks with the date, number of miles, and location where Angelo drove. In some instances, toll expenses are noted as well as total mileage calculated for a month.

Box 45, Folder 5 Mileage, 1957 July-1965 July
Box 45, Folder 6 Mileage, 1973 August-1980 February 2
Box 45, Folder 7 Mileage, undated

Subseries 2.3: Negative Logbooks, 1947-1980
Subseries 3 consists of logbooks detailing the date, negative number and a brief description for black-and-white and color negatives. For example, the March 3, 1951, entry is listed as "#1840-0, waste rock tunnel, mine number 3." In some instances Angelo notes if a negative was rejected. Later logbooks follow an alpha-numeric identification system. These logbooks should be consulted when using Series 4, Black-and-White negatives. The subseries is arranged chronologically.

Box 45, Folder 8 Unidentified, 1947 January-1949 April
Box 45, Folder 9 Photograph logbook, 1949 May-1952 February
Box 45, Folder 10 Photograph and color slides, 1950 June
Box 45, Folder 11 Photographs and negatives (B17-B520), 1952 February-1954 February
Box 45, Folder 12 Photographs and negatives (B521-B2338), 1954 March-1956 October
Box 45, Folder 13 Negatives (B2339-B4468), 1956 February-1959 January
Box 45, Folder 14 Negatives (B4469-B6276), 1959 January-1960 August
Box 45, Folder 15 Negatives (B6277-B8994), 1960 September-1962 November
Box 45, Folder 16 Negatives (B8995-B9995 and C1-C1867), 1962 December-1965 May
Box 45, Folder 17 Negatives (C1868-C5112), 1965 May-1968 February
Box 46, Folder 1 Negatives (C5113-C8699), 1968 March-1971 July
Box 46, Folder 2 Negatives (C8700-C14590), 1971 August-1977 March
Box 46, Folder 3 Negatives (C14591-C17714), 1977 April-1980 January
Box 46, Folder 4 Color negatives (Bethlehem Cornwall Corporation), 1964

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Series 3: Indices, 1943-1960

The series consists of typescript lists detailing the negative number, date, and a brief description for the Bethlehem Report (BR), the early Pilot Plant and raw materials (CN), microphotographs (MP), Pilot Plant (PP,) and raw materials and office plant (RM). The person who assembled these lists or applied the alpha-numeric system is unknown. Presumably these indices were created when assembling a company publication. These indices should be consulted when using boxes 36 to 38 in Series 4, Black-and-White Negatives.

Box 46, Folder 5 Negatives for the Bethlehem Report (BR1-BR76), 1959
Box 46, Folder 6 Pilot plant and raw materials (CN1-CN165), 1943-1949
Box 46, Folder 7 Microphotographs, 1950-1960
Box 46, Folder 8 Pilot Plant, 1951-1958
Box 46, Folder 9 Raw Materials Office and labs, 1953-1959

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Series 4: Black-and-White Negatives, 1941-1963

This series is divided into six subseries: Subseries 4.1: #1-#4108, 1947-1961; Subseries 4.2: A1 to A400, 1941-1949; Subseries 4.3: B1 to B9995, 1953-1963; Subseries 4.4: C1 to C6999, 1963 [1969?]; Subseries 4.5: Chronological, 1950-1955; Subseries 4.6: Topical, 1941-1961. The negatives are approximately 4” x 5” and are housed in glassine envelopes. In some instances, 4” x 5” prints are filed behind the corresponding negative.

The alpha-numeric negatives are not complete. There are indices (see Series 3) for the negatives in boxes 36 to 38 and the logbooks (see Series 2) maintained by Richard R. Angelo. The indices provide the alpha-numeric identification number, date, and brief description for the negative. For example, negative B-528 documents the #4 mine machine shop looking west, March 12, 1954. Researchers should use the logbooks in conjunction with the negatives.

There are some negatives that document diagrams, drawings, plans, sectional views, schematics for ore pockets, mine shafts, and flow sheets for the Lebanon Concentrator and the crushing plant at the Grace Mine. Some of the negatives were used in the creation of the Bethlehem Mines Corporation, Cornwall Division, photograph album which documents progress as of December 31, 1964.

Subseries 4.1: #1-#4108, 1947-1961

Box 1
1-899, 1947-1949

Box 59, Folder 1
17-45, undated

Box 59, Folder 2

Box 2, Folder 3
290-330, 1956 - 1956, 1953 - 1953

Box 59, Folder 4

Box 59, Folder 5

Box 59, Folder 6
411-530, 1953 - 1954, 1956 - 1957

Box 59, Folder 7
532-596, 1956 - 1958

Box 59, Folder 8
600-730, 1959 - 1959, 1957 - 1957

Box 59, Folder 9
731-758, 1959 - 1959, 1957 - 1957

Box 59, Folder 10
760-797, 1957 - 1957, 1963 - 1963

Box 59, Folder 11

Box 2
900-1499, 1949-1950
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<td>2201-11 to 2800</td>
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<td>7</td>
<td>3850-4108</td>
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**Subseries 4.2: A1-A400, 1941-1949**

**Box 7**

**Subseries 4.3: B1-B9995, 1953-1963**

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<td>C101808-C11399, 1973-1974</td>
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<td>C11400-C12298, 1974-1975</td>
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Subseries 4.6: Topical, 1941-1961

Box 40 Balling cone, 1957
Box 40 Balling testing machine, 1955 August 3
Box 36 Ball Mill, 1941
Box 36 Baseball and basketball teams, undated
Box 36 Bethlehem Report (BR1-BR72), 1959
Box 40 Black Hills, Benton, 1956 October
Box 40 Black Hills, Wyoming, 1953 November 9
Box 36 Brazil (BR2-BR81), 1954
Box 40 Bridgeport quarries, 1956
Box 36 Cartoon sketch by Jimmy Halo, 1942 April 2
Box 40 Centiseal pump, 1954
Box 40 Cobber reject, 1953
Box 36 Copper wheel, 1941
Box 36 Cornwall Ore Mines, 1944
Box 36 Cuba, 1954-1957
Box 36  Departments, 1941-1942

Box 40  Dorrccylone model, 1955

Box 36  Erie (E1-E93), 1954-1958

Box 36  Fan Runners, 1941

Box 36  Filtering Building, 1941-1942

Box 36  Freight storage warehouse, 1941-1942

Box 40  Furnace discharge model, 1952-1954

Box 40  Magnetic separator, 1952

Box 36  Maguire, Peter (112349), undated

Box 40  Marmora, Canada, 1960 September

Box 36  Marmora, Ontario (M1-M29), 1956-1960

Box 36  Metallizing Gum, 1942

Box 36  Autlan, Mexico (A1-A188), 1955-1960

Box 36  Mexico and South America, 1957

Box 36  Microphotographs (MP1-MP120), 1950-1960

Box 40  Mill [first mill at concentrator], 1958

Box 40  Mill dorrccylone, 1952

Box 40  Nagany Quarry, 1956 October

Box 40  New York trap rock, Clinton Plant, 1956 October

Box 36  Notices, undated

Box 36  Oliver Filter Wheel, 1941
Box 40  Pellets at Steelton (first stockpile), undated
Box 36  Pelletizing (GP3-GP-104), undated
Box 37  Pellet Plant for A Furnace (AF1-AF25), 1953-1955
Box 37  Pellet Plant for B Furnace (BF1-BF38), 1953-1955
Box 37  Pellet Plant for C Furnace (CF1-CF 46/49), undated
Box 37  Pellet Plant at Lebanon for C2 Furnance (C2F1-C2F90), 1951, 1957-1960
Box 37  Phosphate Mining in Moose Mt. Ontario (MM1-MM17), 1959
Box 37  Pilot Plants (CN1-CN163), 1943-1947
Box 37  Pilot Plants (PP1-PP314), 1951-1961
Box 40  Pit Building, 1954
Box 38  RM Laboratories (RM1-RM111), 1953-1961
Box 40  Settling test, 1953-1961
Box 38  Sintering Plant, 1956-1957
Box 40;  Slime Dam, 1941-1948
Box 38  Solids flow study (SF76-SF210), 1946-1961
Box 40  SRL pump, 1954
Box 38  Substation, 1941
Box 38  B10-B15 [maps?], undated
Box 38  OP1-OP62, 1941-1947
Box 38  Unidentified people, undated
Box 38  Unidentified, undated
Box 41-42  Miscellaneous, 1945-1948

Subseries 4.7: Drawings, plans, sections, schematics, circa 1950s

*Box 46, Folder 10*

Subseries 4.8: Unidentified, undated

*Box 46, Folder 11*

| Box 59, Folder 12 | Foundations for new hoist house, 1939 January 7 |
| Box 59, Folder 13 | tremont, 1978 |
| Box 59, Folder 14 | Hanovers Quarry (aerials), 1985 January 29 |
| Box 59, Folder 15 | Panther Valley Department (aerials), 1985 March 27 |
| Box 60, Folder 1 | #4 shaft, Cornwall Mine, new dry house, 1937 December 30 |
| Box 60, Folder 2 | #4 shaft, Cornwall Mine, new hoist house, 1938 November 7 |
| Box 60, Folder 3 | #4 shaft, Cornwall Mine, new cement house, pipe rack and hoist house, 1938 December 14 |
| Box 60, Folder 4 | #4 shaft, Cornwall Mine, 1939 |
| Box 60, Folder 5 | #4 shaft, Cornwall Mine, cave in, 1939 March 8 |
| Box 60, Folder 6 | #4 shaft, Cornwall Mine, cave in, 1939 May 12 |
| Box 60, Folder 7 | #4 shaft, Cornwall Mine, new ore dump, 1939 June 27 |
| Box 60, Folder 8 | #4 shaft, Cornwall Mine, new foundations, 1939 June 27 |
| Box 60, Folder 9 | #4 shaft, Cornwall Mine, underpass for ore conveyor, 1939 October 12 |
| Box 60, Folder 10 | #4 shaft, Cornwall Mine, new roadways into, 1939 October 14 |
| Box 60, Folder 11 | #4 shaft, Cornwall Mine, new crusher building and underpass, 1939 November 8 |
| Box 60, Folder 12 | #4 shaft, Cornwall Mine, rockbin, head frame and crushing plant, 1940 April 2 |
| Box 60, Folder 13 | #4 shaft, Cornwall Mine, dump at cave in, 1940 June 8 |
Box 60, Folder 14  #4 shaft, Cornwall Mine, 1940 September 3

Box 60, Folder 15  #4 shaft, Cornwall Mine, stockpile, 1942 August

Box 60, Folder 16  Clearing the forests, undated

Box 60, Folder 17  Cornwall Furnace, undated

Box 60, Folder 18  Miscellaneous, undated

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Series 5: Color Negatives, 1964-1979

This series consists of approximately 940 color negatives, presumably documenting a wide variety of mining activities as well as employees. There is no index to these negatives. The negatives are arranged numerically.

Box 43 1-940

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Series 6: Photographic Prints, undated 1880s-1972

This series contains primarily of black-and-white prints of mining equipment, views of mine interiors (including the mine vein), aerial views, buildings, and employees. The bulk of photographs document Bethlehem mines in Pennsylvania, specifically Cornwall and Grace, but there is documentation for the Marmora Mine in Ontario, Canada. Some of the prints have captions and dates. Some oversize photographs (11" x 14") documenting the Matamora Mine in Ontario, Canada, 1958, were taken by H.R. Oakman of Peterboro, Ontario. The materials are arranged alphabetically.

Box 46, Folder 12  A1-A49, 1941-1942
Box 46, Folder 13  A50-A93, 1942
Box 49, Folder 1  A65-A68 (loose photograph album pages), 1942
Box 49, Folder 1  A94, A96 (loose photograph album pages), 1942
Box 49, Folder 1  A97-A100 (loose photograph album pages), 1942
Box 46, Folder 14  A105-A149, 1942-1943
Box 46, Folder 15  A150-A199, 1943
Box 47, Folder 16  A200-A249, 1944
Box 47, Folder 17  A250-A294, 1944
Box 47, Folder 18  A300-A349, 1945
Box 47, Folder 19  A350-A389, 1945-1946
Box 46, Folder 20  A391, 1947
Box 61, Folder 3  B-228 to B-8795 (not inclusive), 1953 - 1962
Image(s)
Box 61, Folder 4  C-438, C-1600, 1964 - 1965
Box 46, Folder 21  C-801 to C-805 (mine #4), 1964 June 4
Box 61, Folder 5  C-1981, 1965 - 1965
Box 61, Folder 6  C-2033, C-2789, 1965 - 1966
Box 61, Folder 7  C-3008 to C-3681 (not inclusive), 1966 - 1966
Box 61, Folder 8  C-4018 to C-4867 (not inclusive), 1967 - 1967
Box 61, Folder 9  C-5018 to C-5914 (not inclusive), 1960 - 1960, 1968 - 1968
Box 61, Folder 10  C-6365 to C-6516 (not inclusive), 1969 - 1969
Box 61, Folder 11  C-7090 to C-7969 (not inclusive), 1969 - 1970
Box 61, Folder 12  C-8631 to C-8771 (not inclusive), 1971 - 1971
Box 61, Folder 13  C-9040 to C-9930 (not inclusive), 1972 - 1973
Box 61, Folder 14  C-10062 to C-10548, 1973 - 1973
Box 61, Folder 15  C-13189 and C-13422, 1976 - 1976
Box 61, Folder 16  C-11456 and C-11458, 1974 - 1974
Box 61, Folder 17  C-115662, 1978 - 1978
Box 61, Folder 18  C-11983 to C11992 (not inclusive), 1975 - 1975
Box 46, Folder 22  F6799, F7601, F7171, F7886, F7963, undated
Box 46, Folder 23  F8355 to F8365, undated
Box 46, Folder 24  F8482 to F8497, undated
Box 61, Folder 1  2311, 2768, 1951 - 1952
Box 61, Folder 2  3171, 3470, 3571, 3735, 3824, 1952 - 1953
Box 46, Folder 25  29747A/29747-2, undated
Box 46, Folder 26  Aerials (unidentified), 1989 September 9
Box 46, Folder 27  Aerials (unidentified), undated
Box 46, Folder 28  Bethlehem Cornwall Division truck, 1957 June 14
Box 46, Folder 29  Big Hill, 1880s
Box 46, Folder 30  Camp Kawanis, Penryn Park, 1972 December 7

Box 47, Folder 1  [Construction of building, Cornwall, Pennsylvania?], 1961 June 1961 August

Box 47, Folder 2  [Cornwall, Pennsylvania?], 1957 September 24

Box 47, Folder 3  Cornwall Division photograph album, 1964 December

Box 47, Folder 4  Cornwall, Pennsylvania (aerial), 1971 July 5

Box 47, Folder 5  Crushing, loading and stocking plant, mine #4, 1938-1948

Box 47, Folder 6  Employees, 1965, 1969 and undated

Box 47, Folder 7  Employees, 1970 February

Box 49, Folder 3  Friedensville, Pennsylvania, mine, 1959 January 16

Box 47, Folder 8  Giachero, John, 1959 February 10

Box 47, Folder 9  Grace Mine, Pennsylvania (C. Martin, Jim Keeney, and Fati Yaklich), 1955 April 11

Box 47, Folder 10  Grace Mine, Pennsylvania, 1955 August 16

Box 47, Folder 11  Grace Mine, Pennsylvania, 1960 June 14

Box 47, Folder 12  Grace Mine, Pennsylvania (Frank Mastroli and Waltman), 1962 July 11

Box 47, Folder 13  Grace Mine, Pennsylvania (C. Martin, Dick Dohner and Ben Bernard), 1964 October 7

Box 47, Folder 14  Greenwood Coal, circa 1970s?

Box 47, Folder 15  Greenwood Stripping Company, undated

Box 47, Folder 16  Heberling, Earl Sol, 1951 June 19

Box 47, Folder 17  Interior views and equipment, 1953 March

Box 47, Folder 18  Lebanon Plant (concentrator), 1922

Box 47, Folder 19  Lebanon Tailings Dam (aerials), 1972 December 7
| Box 49, Folder 2 | Marmora Mine, Ontario Canada (690-14-4 to 690-14-9), 1958 |
| Box 47, Folder 20 | [Marmora Mine, Ontario?], 1959 |
| Box 47, Folder 21 | Marmoratan Mining Company, 1964 |
| Box 48, Folder 1 | [Marmora Mine, Ontario?], circa 1960s |
| Box 48, Folder 2 | Men's locker room, undated |
| Box 48, Folder 3 | Millard's aerials, 1972 December 7 |
| Box 48, Folder 4 | Miners, undated |
| Box 48, Folder 5 | Mine shafts, undated |
| Box 48, Folder 6 | [Pellet Plant?], P-20-5 and P-23-8-10, 1954-1955 |
| Box 48, Folder 7 | Pellet Plant, 1955 |
| Box 48, Folder 8 | Sentinels of Safety Award, 1967 |
| Box 48, Folder 9 | Shaft headframes, undated |
| Box 47, Folder 10 | Surface mine #4, 1944 |
| Box 48, Folder 11 | #3 Mine (C. Demler and Pete Grand, Jr.), 1965 October 20 |
| Box 48, Folder 12 | Unidentified mine, 1942 May |
| Box 48, Folder 13 | Unidentified mine, 1942 May-1942 August |
| Box 48, Folder 14 | Unidentified, undated |
| Box 49, Folder 4 | Unidentified mine, undated |
| Box 62, Folder 2 | Aerial views of Hanover Mine, undated |
Box 62, Folder 3  Aerial views, 1953 - 1954
Box 62, Folder 4  Grace Mine, Morgantown Division, 1962
Box 62, Folder 5-6  Grace Mine, Morgantown Division, progress as of 1962 September 1, 1962
Box 62, Folder 7  Grace Mine, Morgantown Division, progress as of 1964 December 31, 1964
Box 62, Folder 8  Grace Mine, Morgantown Division, progress as of 1967 December 31, 1967
Box 62, Folder 9  Hanover Quarry, directors visit, 1968 October 30
Box 62, Folder 10  Cornwall open pit, loading pocket area, undated
Box 62, Folder 11  #4 shaft, scraping from caving, undated
Box 62, Folder 12-13  Miscellaneous
Box 63, Folder 1  #4 Mine, general, 1972 - 1972, 1961 - 1961, 1938
Box 63, Folder 2  #4 Mine, billboard signs, 1938, 1942 - 1949
Box 63, Folder 3  #4 Mine, billboard signs, 1946 - 1947
Box 63, Folder 4  #4 Mine, change house, 1948 - 1948, 1937 - 1938
Box 63, Folder 5  #4 Mine, change house, 1937 - 1938
Box 63, Folder 6  #4 Mine, change house, 1938
Box 63, Folder 7  #4 Mine, substation, 1937 - 1939
Box 64, Folder 1  #4 Mine, compressor, hoist house, substation, 1939
Box 64, Folder 2  #4 Mine, compressor, hoist house, substation, 1939, 1942 - 1942
Box 64, Folder 3  #4 Mine, compressor, hoist house, substation, 1942, 1944 - 1944
Box 64, Folder 4  #4 Mine, crushing, loading and stocking plant, 1940
Box 64, Folder 5 #4 Mine, compressor, hoist house and substation, 1942
Box 64, Folder 6 #4 Mine, crushing, loading and stocking plant, 1940
Box 64, Folder 7 #4 Shaft, Cornwall Mine, timber yard, 1940 November 8
Box 64, Folder 8 #4 Shaft, Cornwall Mine, timber yard, 1940 December 10
Box 64, Folder 9 #4 Mine, crushing, loading and stocking plant, 1940, 1944 - 1945, 1950 - 1950
Box 64, Folder 10 #4 Mine, dams, 1942, 1946 - 1947
Box 64, Folder 11 #4 Mine, headframe, 1947 - 1947, 1941 - 1942, 1944 - 1945
Box 64, Folder 12 #4 Mine, lamphouse, 1942
Box 64, Folder 13 #4 Shaft, Cornwall Mine, new lumber shed yard and roadways, 1939 October
Box 64, Folder 14 #4 Shaft, Cornwall Mine, new cement house, 1938 December 13
Box 64, Folder 15 #4 Shaft, Cornwall Mine, new oil house, 1939 August 28
Box 64, Folder 16 #4 Mine, pond, clearwater and dam, 1943 - 1944
Box 64, Folder 17 #4 Mine, saw mill, 1942, 1945 - 1945
Box 64, Folder 18 #4 Mine, stockpile, 1942
Box 64, Folder 19 #4 Mine, surface general truck and bulldozer garage, 1943
Box 64, Folder 20 #4 Mine, surface general truck and caved and rock dump, 1942 - 1942, 1939 - 1940
Box 65, Folder 1 #4 Mine, underground shaft extension, 1941 - 1943
Box 65, Folder 2 #4 Mine, underground, 1933, 1949 - 1949
Box 65, Folder 3 #4 Mine, underground shaft extension, 1944 - 1945
Box 65, Folder 4 #4 Mine, underground, 1946 - 1949
Box 65, Folder 5 #4 Mine, safety messages (National Safety Council), 1948 - 1950
Box 65, Folder 6  #4 Mine, miscellaneous general, 1943 - 1945
Box 65, Folder 7  #4 Mine, safety x-rays, 1946 - 1947
Box 65, Folder 8  #5 shaft, Cornwall Mine, 1938 May
Box 66, Folder 1  Chronological, 1890 - 1890, 1880, 1885 - 1885
Box 66, Folder 2  Chronological, 1900 - 1918
Box 66, Folder 3  Chronological, 1921 - 1922
Box 66, Folder 4  Chronological, 1923 - 1925
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Series 7: Photograph Albums, 1951-1971

This series consists of five bound albums and some loose materials documenting the Marmora Mine in Ontario, Canada. Many of the albums were photographed by H.R. Oakman of Peterboro, Ontario. The albums contain mounted black-and-white prints that are 4" x 5" or 11" x 17." The albums are arranged chronologically.

Box 50 Marmora Mine, 1951-1954 April
Box 50 Mamora Mine, 1954 October
Box 52 Marmoratan Mining Company, 1955 May 11
Box 51, Folder 2 Marmora Mine, 1954 April-1957
Box 51, Folder 3 Marmora Mine, 1956 November-1971 October
Box 51, Folder 1 Marmoa Mine, loose album pages, 1961 September-1962 January 1952
October-1953 March
Box 53 Premier Frosts visit to Bethlehem Mines Corporation, Marmora Mine, Marmora, Ontario, undated

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Series 8: Slides, 1950-1980

This series contains 35 mm slides in both black and white and color. The slides document a range of activities and are arranged alphabetically by mine location.

- Box 54, Folder 1: Bethlehem Corporation drawings, Morgantown, Pennsylvania, 1957-1958
- Box 54, Folder 3: Bethlehem Quarry, Pennsylvania, new plant, 1968 August
- Box 54, Folder 4: Bethlehem Quarry, Pennsylvania, new plant, 1970 September
- Box 54, Folder 5: Bethlehem Quarry, Pennsylvania, 1978 February
- Box 54, Folder 6: Bridgeport Station Mine, Pennsylvania and McCoy Mine, Pennsylvania, 1966
- Box 54, Folder 8: Charcoal Pit, 1977 February 7
- Box 54, Folder 9: Construction of building and aerials, 1978 August 2
- Box 54, Folder 10: Cornwall Flood, 1972 June 22
- Box 54, Folder 11: Cornwall Mine, Pennsylvania (miscellaneous), 1950-1980
- Box 54, Folder 12: Cornwall Mine, Pennsylvania (concentrator), 1961
- Box 54, Folder 13: Cornwall Mine, Pennsylvania (mine operations), 1966
- Box 55, Folder 1: Cornwall Mine, Pennsylvania and Grace Mine Pennsylvania, 1968 September 20
  Image(s)
- Box 55, Folder 2: Cornwall Mine, Pennsylvania and Grace Mine Pennsylvania (underground scenes), undated
  Image(s)
- Box 55, Folder 3: Cornwall Mine, Pennsylvania (concentrator), 1968
- Box 54, Folder 4: Cornwall Mine, Pennsylvania, 1969 October; 1971 July
- Box 55, Folder 5: Cornwall Mine, Pennsylvania (open pit and aerials), 1971
Box 55, Folder 6  Cornwall Mine, Pennsylvania (open pit), 1973 April 6
Box 55, Folder 7  Cornwall Mine, Pennsylvania (open pit), 1973 May 11
Box 55, Folder 8  Cornwall Mine, Pennsylvania (open pit #3), 1973 September-October; 1974 March
Box 55, Folder 9  Cornwall Mine, Pennsylvania (aerials and tear downs), 1974-1975
Box 55, Folder 10  Cornwall Mine, Pennsylvania (open pit and aerials), 1975
Box 55, Folder 11  Cornwall Mine, Pennsylvania (open pit), 1977
Box 55, Folder 12  Deer camp party and open pit, 1973
Box 55, Folder 13  Drummond Island, Michigan, 1978 August 29
Box 56, Folder 1  Grace Mine, Pennsylvania (miscellaneous views), 1951 October
Box 56, Folder 2  Grace Mine, Pennsylvania, 1951-1957
Box 56, Folder 3  Grace Mine, Pennsylvania, 1956 April 30
Box 56, Folder 4  Grace Mine, Pennsylvania (equipment), 1967-1969
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   Image(s)
   Image(s)
Box 56, Folder 7  Grace Mine, Pennsylvania, 1968, 1971 August and undated
   Image(s)
Box 56, Folder 8  Grace Mine, Pennsylvania (crusher room), 1971 May
Box 56, Folder 9  Grace Mine, Pennsylvania, 1973 November 1
Box 56, Folder 10  Grace Mine, Pennsylvania (pellet plant), 1983
Box 56, Folder 11  Grace Mine, Pennsylvania, undated
Box 56, Folder 12  Greenwood, Pennsylvania and Panther Valley, Pennsylvania mines, 1975-1976
Box 56, Folder 13  Hanover Mine, Pennsylvania, 1966 January-1966 October
Box 56, Folder 14  Hanover Mine, Pennsylvania, 1968 September and undated
Box 57, Folder 2  Hanover Mine, Pennsylvania, 1972 June-1972 August
Box 57, Folder 3  Hanover Mine, Pennsylvania, 1972 August
Box 57, Folder 4  Hanover Mine, Pennsylvania, 1978 July
Box 57, Folder 5  Hanover Mine, Pennsylvania, 1979 November
Box 57, Folder 6  Hanover Quarry, Pennsylvania, 1966 July-1966 August
Box 57, Folder 7  Hanover Quarry, Pennsylvania, 1966 October
Box 57, Folder 8  Hanover Quarry, Pennsylvania, 1969 January
Box 57, Folder 9  Hanover Quarry, Pennsylvania, 1979 March 3
Box 57, Folder 10  Hanover Quarry, Pennsylvania, 1979 June
Box 57, Folder 11  Hanover Quarry, Pennsylvania, 1979 November
Box 57, Folder 12  McCoy Mine and Millard Quarry, Pennsylvania, 1954, 1955 and undated
Box 57, Folder 13  McCoy Mine and Millard Quarry, Pennsylvania, 1955 January 29
Box 57, Folder 14  McCoy Mine and Millard Quarry, Pennsylvania, undated
Box 57, Folder 15  McCoy Quarry, Pennsylvania, 1968-1969
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Box 57, Folder 17  McCoy Quarry, Pennsylvania, 1969
Box 58, Folder 1  McCoy Quarry, Pennsylvania, 1971 August 6
Box 58, Folder 2  Marmora Mine, Ontario, Canada, 1966-1972
Box 58, Folder 3  Marmora Mine, Ontario, Canada, 1968-1972 and undated
Box 58, Folder 4  Millard Quarry, Lebanon County, Pennsylvania, 1967-1978
Box 58, Folder 5  Mine #4, 1962 October; 1966 August; 1967 April; 1967 October
Box 58, Folder 6  Mineral Specimens, undated
Box 58, Folder 7  Naginey Quarry, Pennsylvania, 1966 January
Box 58, Folder 8  Naginey Quarry, Pennsylvania, 1970 January 1
Box 58, Folder 8A  Sparrows Point, Maryland, 1966
Box 58, Folder 9  Tailings Dam (seeding), 1972 May; 1972 August
Box 58, Folder 10  Miscellaneous mining views, 1954 and undated
Box 58, Folder 11  Unidentified, 1953 December; 1954 March
Box 58, Folder 12  Unidentified, 1971 July
Box 44, Folder 14  View master stereo reels, 1974 February 1
Series 9: Moving Image, 1961 and undated

Series consists of two color 16 mm films documenting the Grace Mine in Pennsylvania.

Reel AC1242-OF0001_1  History of Grace Mine, Pennsylvania, 1961 April 1
                        1 Film reel (color; 16 mm)
                        Edited silent film with intertitles that documents the history of and work at Grace Mine. This copy is the complete film.

Reel AC1242-OF0001_2  History of Grace Mine, Pennsylvania, 1961 April 1
                        1 Film reel (color, 600 feet; 16 mm)
                        Incomplete version of AC1242-OF0001_1

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