

Guide to the Ernest Howe Papers

WA MSS S-1326



by Susie R. Bock and Alison Clemens

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Collection Overview

REPOSITORY: Beinecke Rare Book and Manuscript Library
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CALL NUMBER: WA MSS S-1326

CREATOR: Howe, Ernest, 1875-1932

TITLE: Ernest Howe papers

DATES: 1881-1932

PHYSICAL DESCRIPTION: 12.67 linear feet (20 boxes) + 25 broadsides

LANGUAGE: English

SUMMARY: The Ernest Howe Papers document his association with California mining and in particular the North Star Mines Company. The papers contain Howe's correspondence with North Star and other companies, some of their corporate records, and material on the geology and mining of northern California. The papers also document Howe's geological survey of the Panama Canal Zone, his work with the United States Geological Survey, his participation on the Hamilton Rice Amazon expedition, and other work as a geologist.

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Key to the container abbreviations used in the PDF finding aid:

b. box
f. folder

Administrative Information

Immediate Source of Acquisition

Purchased from J & J Lubrano on the Frederick W. and Carrie S. Beinecke Fund for Western Americana, 1987; Charles Apfelbaum on the Arthur Corbitt Hoskins Memorial Fund, 2008; and Carmen D. Valentino on the Walter McClintock Memorial Fund, 2006.

Conditions Governing Access

The materials are open for research.

Conditions Governing Use

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Preferred Citation

Ernest Howe Papers. Yale Collection of Western Americana, Beinecke Rare Book and Manuscript Library.

Processing Information

Collections are processed to a variety of levels, depending on the work necessary to make them usable, their perceived research value, the availability of staff, competing priorities, and whether or not further accruals are expected. The library attempts to provide a basic level of preservation and access for all collections, and does more extensive processing of higher priority collections as time and resources permit.

The June 2006 Acquisition received a basic level of processing in 2014, including rehousing and minimal organization. This acquisition has not been merged and organized with the collection as a whole.

This finding aid may be updated periodically to account for new acquisitions to the collection and/or revisions in arrangement and description.

ERNEST HOWE (1875-1932)

Ernest Howe, geologist, was educated at Yale (class of 1898) and at Harvard, where he earned his M.A. (1899) and Ph.D. (1901). In 1900, Howe joined the United States Geological Survey (U.S.G.S.) as an assistant geologist. Most of his early work was done in Colorado under Whitman Cross. Although he served with the U.S.G.S. until 1910, in 1906 Howe was appointed geologist of the Isthmian Canal Commission. After 1910 he went into private practice as a consulting geologist. In 1916-17 he joined the Royal Geographic Society of London's expedition, headed by Hamilton Rice, to the upper Amazon and in 1920 he was hired by the Mexican government to reorganize their geological survey. Throughout his career, Howe published scholarly papers, and from 1926 until his death he served as editor of *The American Journal of Science*.

Howe's stepfather was Arnold Hague, noted geologist of the U.S.G.S. Hague owned stock in the North Star Mines Company and was related to the managing director, which explain Howe's long association with this California mining operation. The company hired Howe in 1910 and 1911 to survey the North Star and Champion mines. When Hague died in 1917, Howe acted as administrator of his estate and two years later was elected a director of the North Star Mines Company. He continued to act as consulting geologist for the company and through his contacts became involved with other California mines. In 1919, Howe, along with other officers of the North Star Mines Company, invested in the Round Mountain Neocene Drift Placer Mine. This mine was located just north of Grass Valley, the home of North Star, in Nevada County, California. The North Star Mines Company might have invested in Round Mountain, but no ore was found during the development work. Howe joined other investors in the Bantam Syndicate, a financial association created to develop mining properties around West Point, Calaveras County, California. In 1922, the Syndicate, joined by North Star Mines Company, evolved into West Point Consolidated Mines, Inc.

Howe married Anne Wilson in 1905 and the couple had two children, Margaret Bruce Howe and Walter Howe. The family lived in New Haven in the winter and in Litchfield during the summer, with frequent trips

to Newport where Howe's mother resided. Howe served two terms in the Connecticut General Assembly during the 1920s.

A detailed biography of Howe was published in *The American Journal of Science*, vol. 25, no. 146, February 1933, p.97. See also *Yale Biographies and Annuals*.

Scope and Contents

The Ernest Howe Papers document his career as a geologist and, in particular, his association with the North Star Mines Company and other gold mining operations in northern California. The collection spans the period 1881-1932, but the bulk of the collection covers Howe's mining interests during the 1910s, 1920s, and 1930s.

The papers are arranged in four series. Series I, *California Mining* (Boxes 1-9), contains Howe's correspondence with the North Star Mines Company, the Round Mountain Neocene Drift Placer Mine, and the West Point Mines, as well as some of their corporate records. There is also a section of geological and mining reports on Grass Valley. Series II, *Panama Canal Zone Geology* (Boxes 10-11), consists of the reports and articles Howe wrote about his survey of the Canal Zone, as well as notes, maps, and printed material. Series III, *Geological Projects*, consists of articles, reports, notes, research material, and maps from Howe's career as a geologist. Series IV, *Personal Papers* (Boxes 12-16), contains records of Howe's nonprofessional life.

[Series I, California Mining](#) is organized into four subseries. The first three contain records of specific mining companies and the last contains other sources of information on mining and geology in the Grass Valley region. By far the largest and most comprehensive records are those of the North Star Mines Company. This collection documents the company in the early twentieth century. The Beinecke Library has another collection which contains North Star records from the latter half of the nineteenth century (*North Star Mining Company and Associated Records* collection, WA MSS S-1322). The North Star records in the Howe Papers have been arranged to parallel those in the North Star collection.

Howe's correspondence with the North Star Mines Company (Boxes 1-2) consists of letters from corporate officers, the mine superintendent, and mining engineers, as well as copies of Howe's replies. (It is similar to the correspondence in *North Star Mining Company and Associated Records*, WA S-1322, New York to San Francisco especially for 1898-99, Box 30, folders 739-43.) The majority of the letters for 1909-12 are from William Hague, managing director of the North Star Mines, and its president George B. Agnew, to Howe, hiring him to prepare a geological report on the North Star and Champion mines. There are also letters by Howe to others about the survey he completed for his report. From 1918 on, Howe writes as a consulting geologist and a director of the company. The letters from Agnew or Secretary W. D. Pagan concern such company business as finances, stock sales, and personnel issues, including strikes and the management's appraisal of mine superintendent A. D. Foote, the mine superintendent. Howe also corresponded directly with Foote and Robert H. Bedford, a mining engineer working under Foote. They often sent him progress reports which included maps of the gold vein and the mine tunnels (these have been filed in *Oversize* and annotated to show which letter they accompanied).

One of the first mining projects discussed in the correspondence is the Tightner Mines in Sierra County, California. Letters for 1917 and 1918 describe the mine and how it should be developed. By 1919 the letters indicate that the North Star Mines Company is investing in the Tightner operations. Letters from 1919 contain news of William Bourne, associated with the nearby Empire Mine, and his attempts to acquire North Star stock. There are reports of a strike in June and of suspicion is cast on Bourne as being behind the labor dispute. Letters from the 1920s refer to a number of mining properties in which either the correspondents or North Star are interested: Champion, Orlean, Sultana, Round Mountain, Tightner, Allegany, West Point, and Rainbow. Most of these properties were in Nevada County, California or neighboring counties. By 1923, Bedford was Howe's main source of news on mine operations and the two seemed to share similar views on the development of the North Star mines. In 1925 Bedford and Howe discussed a project to sink a new shaft in hopes of finding high grade ore, a project they considered carrying out with Empire. There was also discussion of selling the North Star mine to Empire if the ore value did not increase and an offer by Empire was received in 1925. These options, along with stopping

all development work on the North Star mine, was discussed from 1925 to 1927. The shaft project was undertaken and the local newspaper published a long article on it in January 1927 (Box 2, folder 18). Most of the correspondence for 1927-30 concerns non-North Star mining news exchanged by Bedford and Howe. There was talk of merging the North Star and Empire mines in 1929 and news of the Newmont Company, which eventually purchased both properties.

Scattered throughout the correspondence files are references to the William Hague family. William Hague, the nephew of Arnold Hague, was a longtime stockholder and managing director of the mine. He appointed Ernest Howe his administrator. Therefore, Howe writes to William Hague's wife Bessie in 1920, and his letters to others in 1927 and 1928 contain news about Bessie and her son James.

Many of the reports and records of North Star now in Boxes 2-5 were removed from the correspondence. Howe received these corporate records because he was both a company director and geologic advisor. Although these records do not constitute a complete archives of the North Star Mines Company, they provide a detailed picture of the company's financial affairs and operation of the mines in the 1920s.

Annual reports for 1911-12, 1915, and 1917-27 contain printed statements of the North Star Mines Company's financial position and reviews of operations for each year. Narratives describe the outlay and profits from the North Star and Champion mines, the company's two main operations, and outlays for "Improvement and Property Purchase," that is work on other mines the company took over or developed. The amount of rock mined and ore retrieved is reported along with the monetary yield per ton. New development work, such as new drifts, raises, and winzes, is described and new equipment and the expansion of mills or plants is noted. Each annual report includes three balance sheets. "North Star Mines Financial Statement" consists of two columns: (1) "Receipts," with overall costs and production in dollars for North Star and Champion mines, interest and dividends received; and (2) "Operating Expenses" with operating and development expenses for the two mines, improvement expenses, and property purchased. "North Star Mines Company Balance Sheet" records three items: "Assets," the value of mining property, plant, equipment, and cash investments; "Liabilities," the value of capital stock and dividends paid; and "Surplus account," which seems to be expenses relating to the Champion mine. "North Star Companies Summarized Statement" notes receipts and disbursements for the mining companies in the Grass Valley region, which the North Star Mines Company had absorbed over the previous decades. (For an overview of the history of mining mergers involving the North Star, see the finding aid *North Star Mining Company and Associated Records*, p. 9.)

Statements (Box 2-3, folders 27-35) are detailed financial-operating reports from which the annual reports are derived. The papers contain a complete run of statements for 1918-26. Figures from the annual reports are broken down in the statements to reveal salaries, improvement costs for individual processing plants and mills, the costs and employees at various shafts and plants, and the items which comprise administrative costs. The statements also compare the current year's figures to those of the previous year.

Monthly operations reports (Box 3, folders 36-46), covering 1918-28, are brief statements of "expenses" and "production" expenses for the North Star and Champion mines along with the record of tons-of-rock milled. The series is complete for April 1918 to November 1928, except for March and April 1922.

Superintendent's-general manager's monthly reports underground (Boxes 3-4, folders 47-59) cover 1918-29, missing only those reports dated 1918 August, 1919 February, 1920 August, 1922 July, September, October, December, and 1923 March (reports cover the previous month). The last report is for December 1928, dated January 1929. (These monthly reports underground are similar to the 1888-1901 Monthly Mining Reports of the North Star Mining Company. See WA MSS S-1322, Box 47-52, folders 1070-1237.) Submitted by A. D. Foote, and later Robert H. Bedford, the reports are narrative statements of the work completed in the North Star and Champion mines, level by level, and within each level, stope by stope or raise by raise. The description notes how far a tunnel was driven, the tons of rock produced, the quality of the ore, and the shape and direction of the vein. The reports usually end with plans for the future operation of the mills and processing plants. There are two reports filed each month, but it is unclear if one is for Champion and one for North Star. The reports are often accompanied by sketches showing how the tunnels are developing and the suspected direction of the vein. These tunnel drawings are filed in the Oversize and have been annotated to indicate which reports they accompanied.

Weekly car sample assays (Box 4, folders 60-61) cover the period from April 1924 to February 1925. There are both weekly reports and monthly compilations (thus the information is complete even though a weekly report from August 1924 is missing). Each report contains information on approximately 20 car samples, noting for each its location, weight in tons (whether of the sample, or all rock in the sample car, or rock taken that day, is unclear), the assay value in dollars, and a "total" in dollars (which might be a calculation of tons by assay value). Often more than one sample is taken for a level, the results averaged. There is also a "mills returns (estimated)."

Monthly financial statements (Box 5, folders 62-72) span 1918-1928 with only a few missing statements. Filed with the monthly reports are summarized statements for six month or nine month periods. The statements consist of "Receipts," where the value of production, interest and dividend accounts are noted, and "Disbursements," where the operating expenses for the various shafts, development and improvement costs are recorded. There is a separate page for the Champion mine.

The Photoprints (Box 5, folder 73) were found amongst Howe's North Star correspondence. The photoprints depict a road and some mine buildings across a valley.

Howe's correspondence regarding the Round Mountain Neocene Drift Placer Mine (Box 6, folders 74-82) documents the development of this mine by an investment group made up of Agnew, Walter B. Howe (Ernest Howe's brother), Arthur D. Foote, Mrs. Arnold Hague, Howe's mother, and Howe himself. In 1919 the letters describe the mine and how Foote, who was in charge of operations, wants to proceed. Many of Howe's letters (copies of the originals) are to his family, suggesting they invest. Other letters, particularly those to and from Agnew, discuss the syndicate that is set up and how shares will be distributed. Most of the letters for 1920 discuss expenses, and members of the syndicate are asked to contribute more money. By 1921 Foote wants to incorporate the Neocene River Company in Reno, Nevada, and raise more capital by selling shares. In May, W. D. Pagan puts together a history of the Neocene mine based on abstracts of Foote's letters. In 1922 Foote's letters suggest they have hit pay dirt and in 1923 correspondents discuss setting up an operating company. Unfortunately, the rock appears to have been valueless, and although Foote's last letters still talk about mining, Bedford and Howe become convinced the mine holds no hope. Accompanying the correspondence are two oversize maps of the Neocene claims and a summary of the investor's contributions and shares (Box 19, folder 264).

There are a few corporate records of the Neocene: agreements, leases, and financial statements which chronicle who invested and how the investors were organized (Box 6, folders 82-83).

Howe's West Point Mines correspondence (Box 6, folders 85-91) documents his investment in mining property in Calaveras County, California. Letters between Howe and Eugene H. Outerbridge discuss the financial side of the partnership, the Bantam Syndicate, while Howe's correspondence with J. B. Stapler documents Stapler's employment as mine supervisor. The letters for 1920 show Howe playing his familiar double role of corporate officer and consulting geologist. Howe visits the area in April 1920 and reports on two mines, the Keltz group and the Lone Star mine. Later that year Howe and Outerbridge discuss forming a company to operate the mines, and make overtures through Agnew to bring the North Star Mines Company into the partnership. Letters for 1921 and 1922 chronicle the agreement between the Bantam Syndicate and North Star Mines to form West Point Consolidated Mines, Inc. By 1924, however, Howe's correspondence shows North Star had closed down the West Point mines. Several oversize maps of the West Point claims accompany the correspondence for 1919-20 (Box 19, folder 265); other maps (folder 266) were not were not attached to letters.

Other documents regarding the West Point mines include the 1919 agreement forming the original syndicate (Box 7, folder 92), two reports on the geology of the mines (folders 93-95), one ore sample report from 1920 and a financial statement for 1919-20 (folders 96-97).

Geological Reports on North Star and Grass Valley (Boxes 7-9) is the last subseries of Series I. It consists of reports and articles on the mines of North Star Mines Company prepared by Howe and others. Reports by Howe have been identified with an "(EH)" attached to the folder title. Other authors include William Hague, Robert H. Bedford, and A. D. Foote, who were all associated with North Star. There are a few reports on other properties, such as the Banner Consolidated Mines of Nevada County, California, which Howe probably collected because of his interest in the geology of the region. Most of the reports are

accompanied by research materials, notes, and maps of the mine being investigated. This subseries includes Howe's first geological reports for the North Star Mines Company (Box 7, folders 98, 101) and Robert H. Bedford's report on the Company's last major shaft, sunk in 1924 (Box 9, folder 134).

[Series II, Panama Canal Zone Geology](#) (Boxes 10-11), documents Howe's work as geologist to the Isthmian Canal Commission. Howe was appointed to survey the canal zone in 1906, and in 1907 he produced a report for the Commission on his findings. He also published a scholarly account in *The American Journal of Science*. The collection includes the articles (Box 10, folders 142 and 143) as well as correspondence, printed works on the Canal, notes, and maps. The correspondence (Box 10, folders 145-53) covers not only Howe's work for the Isthmian Canal Commission, but also his early years on the U.S.G.S. Most of the letters are from Whitman Cross discussing Howe's projects and manuscripts. Correspondence of 1906 documents Howe's appointment to the Panama project. In late 1906 many of Howe's letters concern the analysis of samples from the Panama survey, and in 1907 the letters discuss the writing of his report. The majority of the correspondence after 1907 is between Howe and other geologists who request information concerning Panama's geology.

[Series III, Geological Projects](#) (Boxes 12-16), documents the other major aspects of Howe's career. Arranged chronologically, this series contains Howe's professional articles and reports, often accompanied by maps and other background data. His work with the United States Geological Survey is reflected in correspondence (Box 12, folder 167), articles (Box 13-14, folders 180, 196), maps and notes on Colorado (Box 12-13, folders 166, 176-179), and annotated survey maps of California, South Dakota, and Wyoming (Box 20, folder 286). The collection contains correspondence, notes, and Howe's report concerning the proposed Holter Dam in Montana (Box 14, folders 197-202). Howe inspected the geology of the region before construction. In 1916 Howe was asked to join Dr. Hamilton Rice's expedition to the upper Amazon, and the collection contains notes from the trip, as well as photoprints and postcards of the river, the expedition team, the native Indians (Witotoan), and their homes.

[Series IV, Personal Papers](#) (Boxes 17-18), contains fragmentary records of Howe's nonprofessional life. The diaries from 1907-1931, with many years missing, are more nearly appointment books than journals of personal thoughts.

[Oversize](#) (Box 19, broadsides) contains material from Series I-III. The arrangement, based on the size of the material, parallels the order of the collection.

Arrangement

Organized into five series: I. California Mining, 1909-1932. II. Panama Canal Zone Geology, 1900-1924. III. Geological Projects, 1898-1930. IV. Personal Papers, 1883-1932. V. June 2006 Acquisition, 1893-1907.

Collection Contents

Series I: California Mining, 1909-1932

3.5 linear feet (9 boxes)

The series is organized in four subseries. The first three represent mining companies in which Howe was involved. Within these subseries material has been arranged by record type and then chronologically. The order of the corporate records parallels the arrangement used for the *North Star Mining Company and Associated Records* collection (WA MSS S-1322). The fourth subseries *Geological Reports on North Star and Grass Valley* represents Howe's work and interest in Grass Valley geology. Material is arranged chronologically. Reports or articles written by Howe are indicated by "(EH)" at the end the folder title.

NORTH STAR MINES COMPANY

Geological reports for the North Star Mines Company have been filed in the last subseries.

b. 1, f. 1-2	Correspondence	1909-12
b. 1, f. 3-13	Correspondence See also: Oversize, Broadsides, folders 254-58 and Box 8, folder 112	1917-23
b. 2, f. 14-21	Correspondence See also: Oversize, Broadsides, folder 259; folder 260; and Box 9, folder 136	1924-30
b. 2, f. 22	Correspondence	1932
b. 2, f. 23	Correspondence	n.d.
b. 2, f. 24	Annual reports	1911-12
b. 2, f. 25	Annual report	1915
b. 2, f. 26	Annual reports	1917-27
b. 2, f. 27-29	Statements	1918-20
b. 3, f. 30-35	Statements	1921-26
b. 3, f. 36-46	Monthly operations reports	1918-28
b. 3, f. 47-50	Superintendent's-General manager's monthly reports underground See also: Oversize, Broadsides, folder 261 and folder 262	1918-20
b. 4, f. 51-59	Superintendent's-General manager's monthly reports underground See also: Oversize, Broadsides, folder 263	1921-29
b. 4, f. 60-61	Weekly car sample assays	1924-25
b. 5, f. 62-72	Monthly financial statements	1918-28
b. 5, f. 73	Photoprints	[1919 May ?]
ROUND MOUNTAIN NEOCENE DRIFT PLACER MINE		
b. 6, f. 74-82	Correspondence See also: Oversize, Broadsides, folder 264	1919-23

ROUND MOUNTAIN NEOCENE DRIFT PLACER MINE (continued)

b. 6, f. 83	Agreements, incorporation, lease	1919-23
b. 6, f. 84	Financial statements	1920-23
WEST POINT MINES		
b. 6, f. 85-90	Correspondence See also: Oversize, Broadsides, folder 265	1919-22
b. 6, f. 91	Correspondence	1924-25
b. 7, f. 92	Agreement to form syndicate	1919 Oct 8
b. 7, f. 93	Notes, outline, report on Keltz Group (EH)	1920
b. 7, f. 94	"Notes on the Geology of the Lone Star, Read & Hillary, and Keltz Veins, West Point, Calaveras County, California," typescript and diagrams See also: Oversize, Box 19, folder 279	1922 Jan 9
b. 7, f. 95	"Notes on the Geology of the Lone Star, ...", background material	[1922]
b. 7, f. 96	Ore and bullion records	1922
b. 7, f. 97	Financial statements	1920
Maps See: Oversize, Broadsides, folder 266		
GEOLOGICAL REPORTS ON NORTH STAR AND GRASS VALLEY		
Geological Survey of the North Star Mine		
b. 7, f. 98	"Report on the Geology of the North Star Mine," typescript and map (EH) See also: Oversize, Broadsides, folder 267	1910
b. 7, f. 99	"Underground notes North Star Mine," notebook	1910
b. 7, f. 100	Ore and production notes See also: Oversize, Box 19, folder 280	1909-11, n.d.
Geological Survey of the Champion Mines		
b. 7, f. 101	"Report on the Geology of the Champion Mines," typescript (EH)	1911 Mar 29
b. 7, f. 102-04	Notes, notebook, and map See also: Oversize, Box 19, folder 281	1911
b. 7, f. 105	"The Champion Mines Production 1893 to 1910," typescript	1911
b. 7, f. 106	North Star Mines history by William Hague, untitled typescript	1913 May 25
b. 7, f. 107	Cost data North Star and general, 1911-20, notes	[1913-20]
b. 7, f. 108	Reports on the Tightner Mine, typescripts, maps, and notes (EH) See also: Oversize, Broadsides, folder 268	1913-17

GEOLOGICAL REPORTS ON NORTH STAR AND GRASS VALLEY (continued)

b. 8, f. 109	<i>The North Star Mines, Grass Valley, California, Statistical Statement for Visiting Members of the American Institute of Mining Engineers</i>	1915 Sep
b. 8, f. 110	Articles on North Star Mines from <i>Mining and Scientific Press</i>	1914-15
b. 8, f. 110a	Journal containing a report on the geology of the Sierra Nevada Purchased from Charles Apfelbaum on the Arthur Corbitt Hoskins Memorial Fund, 2008.	1916
b. 8, f. 111	Oriental mine report by Robert Bedford, typescript, maps, and correspondence See also: Oversize, Broadsides, folder 269	1919-20
b. 8, f. 112	X - Sultana - Daisy Hill mines, correspondence, map, and notes See also: Oversize, Broadsides, folder 270	1920
b. 8, f. 113	"Memorandum on the Vein Relations at Grass Valley. November 1921," typescript and maps See also: Oversize, Broadsides, folder 271	1921 Dec 9
b. 8, f. 114	<i>Report on the Properties of the Banner Consolidated Mines, Inc.</i>	[1921?]
b. 8, f. 115	Statement of Howe's work for North Star Mines	[1921?]
b. 8, f. 116	"Notes on the Geology of the Rainbow Mine Alleghany, California," typescript (EH)	1922 Jan 15
b. 8, f. 117	"The North Star Mines, Grass Valley - California, Notes on Development and Prospects," by Guy N. Bjorge, typescript and map See also: Oversize, Broadsides, folder 272	1922 Oct
	"Grass Valley Geology" (EH)	
b. 8, f. 118	Typescript first draft and letter to Bedford	1922
b. 8, f. 119	Typescript/holograph second draft	[1922?]
b. 8, f. 120	Typescript third draft	[1922?]
b. 8, f. 121	Notes on petrography of North Star and New York Hill mines	1922-23
	"The Gold Ores of Grass Valley, California" (EH)	
b. 8, f. 122	Typescript first draft and notes	1923 Jan-Feb
b. 8, f. 123	Typescript partial draft and notes	1923 Mar-Oct
b. 8, f. 124	Typescript second draft	1923 Sep 27
b. 8, f. 125	Typescript third draft	1924 Feb 27
b. 8, f. 126	Typescript fourth draft	1924 May 17
b. 8, f. 127	Typescript fifth draft	[1924 May?]
b. 8, f. 128	Typescript sixth draft	[1924?]
b. 8, f. 129	Typescript seventh draft	[1924?]

GEOLOGICAL REPORTS ON NORTH STAR AND GRASS VALLEY > "The Gold Ores of Grass Valley, California" (EH) (continued)

b. 8, f. 130	Typescript eighth draft	[1924?]
	"Wall Rocks and Ore Deposits North Star Mines" (EH)	
b. 9, f. 131	Petrographic notes	1923-24
b. 9, f. 132	"Summary of Petrographic Notes"	1923
	Article in <i>Mining and Scientific Press</i> regarding Carson City Gold and Silver Mining Company v. North Star Mining Company See: Oversize, Box 19, folder 282	
b. 9, f. 133	"Notes on Polished Specimens of North Star Ore," typescript (EH)	1924 Jan 22
b. 9, f. 134	"Analysis of Deep Shaft Project of North Star Mines," by Robert Bedford, typescript, graphs, and maps	1924 Mar
b. 9, f. 135	<i>The Nevada City District Mines of Nevada County California in Relation to the Western Mines Consolidated, Inc.</i> , report by the president, A. D. Foote	[1925?]
b. 9, f. 136	Massachusetts Hill Mine development, report and correspondence	1929 Jan

Series II: Panama Canal Zone Geology, 1906-1908*1 linear foot (2 boxes)*

The series documents Howe's service as geologist to the Isthmian Canal Commission. The material is organized into *Howe's Report and Article*, *Correspondence and Notes*, and *Diagrams and Maps*. Within each subseries material is arranged chronologically.

HOWE'S REPORT AND ARTICLE

b. 10, f. 137	"Preliminary Outline of Isthmian Geology"	[1907]
b. 10, f. 138	[A Preliminary Report on the Geology of the Canal Zone]	[pre-1907 Feb]
b. 10, f. 139	"A Preliminary Report on the Geology of the Canal Zone"	1907 Feb 4
b. 10, f. 140	"Preliminary Report on the Geology of the Canal Zone"	[1907 Feb]
b. 10, f. 141	"Geology of the Site of the Proposed Dam and Locks at Gatun," drafts	[1907 May]
b. 10, f. 142	"Final Report. Geology of Canal Zone"	1907
b. 10, f. 143	"Report on the Geology of the Canal Zone"	1907
b. 10, f. 144	"The Geology of the Isthmus of Panama," reprint from <i>The American Journal of Science</i> , vol. 26	1908 Sep

CORRESPONDENCE AND NOTES

b. 10, f. 145-53	Correspondence	1900-24, n.d.
b. 10, f. 154	<i>Special Message of the President of the United States concerning the Panama Canal</i>	1906
b. 11, f. 155	Index to notebooks (may refer to Howe's field notebooks, which are not in the collection)	[1906]
b. 11, f. 156	Panama Canal clippings	1906-14, n.d.
b. 11, f. 157	Notes on cement and seawater	[1906]
b. 11, f. 158	Notes on Panama Canal zone geology	1906-07, n.d.
b. 11, f. 159	Notes on Panama Canal zone rocks collected in 1906	1906-07
b. 11, f. 160	Printed articles on Panama Canal	1909, 1912
b. 11, f. 161	Publications of the Isthmian Canal Commission	1910, 1913
b. 11, f. 162	References on Panama Canal zone geology	n.d.
b. 11, f. 163	Miscellaneous papers	n.d.

DIAGRAMS AND MAPS

Isthmian Canal Commission maps of the Canal Zone
[See: Oversize, Broadsides, folder 273](#)

b. 11, f. 164	Geological cross sections of Panama canal zone	[1906-08]
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DIAGRAMS AND MAPS (continued)

b. 11, f. 165

Panama Canal relief map

n.d.

Series III: Geological Projects, 1881-1930*2 linear feet (5 boxes)*

This series contains a variety of material documenting Howe's professional career. Material is arranged chronologically. Reports or articles written by Howe are indicated by "(EH)" at the end the folder title.

	3 maps from U.S. surveys of west coast of North America, from Alaska to Washington Territory See: Oversize, Box 19, folder 283	
	Geological sketch of Newport; topographical map of Providence; street map of Harvard University; mineralogy notes See: Oversize, Box 19, folder 284	
b. 12, f. 166	Illustrations (photoprints) for <i>Geologic Atlas of the United States: Ouray Folio, Colorado</i> . USGS, Dept. of Interior	[1898-1907]
b. 12, f. 167	United States Geological Survey correspondence See also: Box 10, folders 145-53	1898-1910, n.d.
b. 12, f. 168	"Laccoliths," holograph article (EH)	1899 Apr 26
b. 12, f. 169	"Types and Distribution of Rock Phosphates in the United States," holograph article for <i>Geology</i> , vol. 18, notes, and map (EH) See also: Oversize, Box 19, folder 285	1899 May
b. 12, f. 170	Howe's thesis notes, granite intrusions of Cascade, Oregon	1900, n.d.
	Petrographic Notes	
b. 12, f. 171	Conglomerates and breccias	n.d.
b. 12, f. 172	Gabbro	[1900]
b. 12, f. 173	Gabbros, basic dikes, Aminos Canyon	1900
b. 12, f. 174	Granites, pegmatites, aplites, granitic dikes, Aminos Canyon	1900
b. 12, f. 175	General petrography	[1900-15]
	Engineer Mountain Survey, USGS, Colorado	
b. 12, f. 176	"Notes on the Igneous Rocks of the Wichita and Arbuckle Mountains," typescripts (EH)	[1901]
b. 13, f. 177	List of thin sections	1900
b. 13, f. 178	List of photographs of rock formations	1901
b. 13, f. 179	Notes	[1900-01]
	Geological survey maps of California, South Dakota, and Wyoming with annotations See: Oversize, Box 19, folder 286	
b. 13, f. 180	<i>The Laccoliths of the Black Hills... with a Chapter on Experiments Illustrating Intrusion and Erosion</i> , Dept. of the Interior - U.S. Geological Survey (EH)	1901

"Recent Tuffs of the Soufrière, St. Vincent"

b. 13, f. 181	Printed copy and typescript draft (EH)	1903
b. 13, f. 182-83	Notes	[1903]
b. 13, f. 184	Photoprints	[1903]
b. 13, f. 185	Background material See also: Oversize, Broadsides, folder 274	1903-12
b. 13, f. 186	Review of A. Lacroix's <i>La Montagne Pelée et ses Éruptions</i> , typescript and notes (EH)	1905
b. 13, f. 187	Photoprints of Hawaii and Vesuvius	[1905]
b. 13, f. 188-89	Geological bibliography	[1906]
b. 14, f. 190	Geological bibliography	[1906]
Muncey - Tuscarora coal properties		
b. 14, f. 191-92	Reports on coal properties in Gunnison County, Colo., typescripts (EH)	1908-09
b. 14, f. 193	Notes	[1889, 1908]
b. 14, f. 194-95	Correspondence, alphabetical by surname	1908-10
b. 14, f. 196	<i>Landslides in the San Juan Mountains, Colorado, including a Consideration of their Causes and their Classification</i> , Dept. of the Interior - U.S. Geological Survey (EH)	1901
Holter Dam, Montana		
b. 14, f. 197	Report on Geology at the Holter Dam Site, typescript (EH)	1910
b. 14, f. 198-200	Correspondence, alphabetical by surname	1910
b. 14, f. 201	Field notes	1910
b. 14, f. 202	Photoprints	1909-10
	Profile of dam, cross-section of rock layers; and data on the geologic units of Montana See: Oversize, Broadsides, folder 275	[1910]
b. 14, f. 203	"Report on Lands Belonging to Saint Luke's Hospital, Shenandoah County, Virginia and Hardy County, West Virginia," typescript and correspondence (EH)	1911
b. 14, f. 204-05	"Landslides and the Sinking of Ground Above Mines," typescripts and correspondence (EH)	1913
b. 14, f. 206	Review of report by the Royal Ontario Nickel Commission, typescript and notes (EH)	1913
"Sudbury Ore Deposits"		
b. 14, f. 207	Typescript first draft (EH)	1913 May 5
b. 14, f. 208	"Sudbury Nickel deposits, general notes"	[1913]

"Sudbury Ore Deposits" (continued)

b. 14, f. 209	List of specimens	1913
b. 15, f. 210	Notes	[1913]
b. 15, f. 211	Background material	1913-14
b. 15, f. 212	Printed guide and maps See also: Oversize, Broadsides, folder 276	1913
	Material on the refractive index of minerals See: Oversize, Box 19, folder 287	
b. 15, f. 213-15	"Sulphide-bearing Rocks from Litchfield Connecticut," reprint, typescript, draft, and notes	1915
	Geological survey maps of California See: Oversize, Box 19, folder 288	
b. 15, f. 216	Ross Precision Computer promotional material	[1916-18]
	Brazilian Expedition - Upper Amazon Region	
b. 15, f. 217	"Rice Expedition 1916-1917, Amazon and Rio Negro, Brazil," typescript of Howe's original notes (EH)	1924
b. 15, f. 218	"Amazon Geology," holograph article (EH)	[1917]
b. 15, f. 219	Photoprints by W. T. Councilman	[1916-18]
b. 15, f. 220	Photoprints and postcards	[1916-17]
b. 15, f. 221	Weather journal	1916-17
b. 15, f. 222	Notes	[1916-17]
b. 15, f. 223	Amherst Meeting of the Geological Society of America, Paleontological Society, Mineralogical Society of America, and Society of Economic Geologists, program, letter, and photoprint	1921 Dec
b. 15, f. 224	"Review of 'The Ore Magmas' - J. E. Spurr," typescript (EH)	[1923]
b. 16, f. 225-26	Twin Vein Mining Company, Virginia, correspondence and map See also: Oversize, Broadsides, folder 277	1924-25
b. 16, f. 227	"Report on the Loring and Hague Lands, Houghton Michigan," by C. H. Baxter, correspondence, maps, and typescript See also: Oversize, Broadsides, folder 278	1929-30
b. 16, f. 228	Field notebook - Newport, R.I.	n.d.
	Profile of California from Cuyawa River to Kern River to Owens Lake See: Oversize, Box 19, folder 289	

Series IV: Personal Papers, 1883-1931*0.75 linear feet (2 boxes)*

The papers in Series IV. are alphabetically arranged by heading. Miscellaneous papers have been placed at the end.

b. 17, f. 229	"The Aspen," by Ernest Howe in <i>The Yale Courant</i> , vol. 31, no. 10	1895 Mar 23
b. 17, f. 230	Correspondence	1902-32
b. 17, f. 231	<i>Descendants of Louis Guion</i> , printed genealogy	1900
b. 17, f. 232	Diary	1907
b. 17, f. 233	Diary	1909
b. 17, f. 234	Diary	1911
b. 17, f. 235	Diary	1913
b. 17, f. 236	Diary	1915
b. 17, f. 237-39	Diaries	1920-22
b. 18, f. 240	Diary	1925
b. 18, f. 241-44	Diaries	1928-31
b. 18, f. 245	Letters to Arnold Hague	1915
b. 18, f. 246	Newport Chapter, American Red Cross, notes from meetings	1917 May
b. 18, f. 247-50	Newport Natural History Society, notes and correspondence	1883-1915
b. 18, f. 251	Notes on photographs taken at Grand Canyon	1923 Mar 3
b. 18, f. 252	Photoprints	1911, [1919], n.d.
b. 18, f. 253	Miscellaneous	1904, n.d.

Oversize, 1881-1930*5 linear feet (1 box, 25 broadside folders)*

Oversize contains oversize material from Series I, II, and III. The arrangement is based on the size of the material, but it also parallels the order of the collection.

SERIES I

North Star Mines Company

b. BSD, folder 254	Correspondence	1918-24
b. BSD, folder 255	Correspondence	1918-24
b. BSD, folder 256	Correspondence	1918-24
b. BSD, folder 257	Correspondence	1918-24
b. BSD, folder 258	Correspondence	1918-24
b. BSD, folder 259	Correspondence	1918-24
b. BSD, folder 260	Correspondence	1925-27
b. BSD, folder 261	Superintendent's-General managers monthly reports underground	1918-19
b. BSD, folder 262	Superintendent's-General managers monthly reports underground	1920, 1923
b. BSD, folder 263	Superintendent's-General managers monthly reports underground	1927-29
Round Mountain Neocene Drift Placer Mine		
b. BSD, folder 264	Correspondence	1920-22
West Point Mines		
b. BSD, folder 265	Correspondence	1920-21
b. BSD, folder 266	Maps	1919, n.d.
Geological Reports on North Star and Grass Valley		
Geological Survey of the North Star Mine		
b. BSD, folder 267	"Report on the Geology of the North Star Mine," map (EH)	[1910]

SERIES I > Geological Reports on North Star and Grass Valley (continued)

b. BSD, folder 268	Reports on the Tightner Mine, maps (EH)	1913, n.d.
b. BSD, folder 269	Oriental Mine report by Robert Bedford, maps	1919 Nov 18
b. BSD, folder 270	X - Sultana - Daisy Hill mines, Daisy Hill data, map	[1919-20]
b. BSD, folder 271	"Memorandum on the Vein Relations at Grass Valley. November 1921," maps	1921-22
b. BSD, folder 272	"The North Star Mines, Grass Valley - California, Notes on Development and Prospects," by Guy N. Bjorge, map	1922-23
SERIES II.		
Diagrams and Maps		
b. BSD, folder 273	Isthmian Canal Commission maps of the Canal Zone	1905, 1907
SERIES III.		
b. BSD, folder 274	"Recent Tuffs of the Soufrière, St. Vincent," background material	1903
b. BSD, folder 275	Holter Dam, Montana, Profile of dam; cross-section of rock layers	[1910]
b. BSD, folder 276	"Sudbury Ore Deposits," printed maps	1907-13
b. BSD, folder 277	Twin Vein Mining Company, Virginia, map	
b. BSD, folder 278	"Report on the Loring and Hague Lands, Houghton Michigan," by C. H. Baxter, maps	[1929]
SERIES I.		
West Point Mines		
b. 19, f. 279	"Notes on the Geology of the Lone Star, Read & Hillary, and Keltz Veins, West Point, Calaveras County, California," diagrams	1922 Jan 7
Geological Reports on North Star and Grass Valley		
b. 19, f. 280	Geological Survey of the North Star Mine, table of production and tonnage, 1884-1911	[1911]
b. 19, f. 281	Geological Survey of the Champion Mines, map	[1911]
"Wall Rocks and Ore Deposits North Star Mines" (EH)		
b. 19, f. 282	Article in <i>Mining and Scientific Press</i> regarding Carson City Gold and Silver Mining Company v. North Star Mining Company	1896 Mar 28

SERIES III.

SERIES III. (continued)

b. 19, f. 283	3 maps from U.S. surveys of west coast of North America, from Alaska to Washington Territory	1881-85
b. 19, f. 284	Geological sketch of Newport; topographical map of Providence; street map of Harvard University; mineralogy notes	1897-98, n.d.
b. 19, f. 285	"Types and Distribution of Rock Phosphates in the United States," topographical map of Colorado	[1898-99]
b. 19, f. 286	Geological survey maps of California, South Dakota, and Wyoming with annotations	[1900]
b. 19, f. 287	Material on the refractive index of minerals	1913-16
b. 19, f. 288	Geological survey maps of California	[1916]
b. 19, f. 289	Profile of California from Cuyawa River to Kern River to Owens Lake	n.d.

Series V: June 2006 Acquisition, 1893–1907*0.42 linear feet (1 box)*

Notebooks and maps from Howe's 1906-1907 geological excursion to Panama.

Former call number: Uncat MSS 1120

b. 20, f. 290	Algebra notebook with enclosed Yale College material and photographs	1893, undated
b. 20, f. 291	Map of Panama Canal region 1/50,000 Cristobal to Ahorca Lagarto	undated
b. 20, f. 292	Map of Panama Canal region 1/50,000 Ahorca Lagarto to Las Cascadades	undated
b. 20, f. 293	Map of Panama Canal region 1/50,000 Las Cascadades to La Boca and Naos Island	undated
b. 20, f. 294	Boring records and Bohio Dam site	1906–1906
b. 20, f. 295	Field notes	1907–1907
b. 20, f. 296	Panama notes and sketches	1906–1906
b. 20, f. 297	Panama notes	1907–1907
b. 20, f. 298	United States Geological Survey traverse notebook	undated

Selected Search Terms

The following terms have been used to index the description of this collection in the Library's online catalog. They are grouped by name of person or organization, by subject or location, and by occupation and listed alphabetically therein.

Subjects

Geologists -- United States
Geology -- California -- Nevada County
Geology -- Panama
Geology -- West (U.S.)
Gold miners -- United States
Gold mines and mining -- California
Mining engineers -- United States
Witoto Indians -- Portraits

Isthmian Canal Commission (U.S.)
North Star Mines Company
Round Mountain Neocene Drift Placer Mine
West Point Consolidated Mines, Inc

Geographic Names

Amazon River -- Pictorial works
Brazil -- Pictorial works
Canal Zone -- Surveys
Colorado -- Pictorial works
Nevada County (Calif.)
Panama -- Surveys

Genres / Formats

Photographs -- Great Britain -- 20th Century
Photographs -- United States -- 20th Century

Occupations

Geologists -- United States -- 20th Century
Gold miners -- United States -- 20th Century
Mining engineers -- United States -- 20th Century

Names

Agnew, George B.
Bedford, Robert H.
Foote, A. D. (Arthur DeWint), 1849-1933
Hague, William, - 1918
Howe, Ernest, 1875-1932
Outerbridge, Eugene H.
Pagan, W. D.
Stapler, J. B.

Corporate Bodies

Geological Survey (U.S.)