
Francis Gladheim Pease Papers: Finding Aid

Finding aid prepared by Brooke M. Black, September 11, 2012.

The Huntington Library, Art Collections, and Botanical Gardens

Manuscripts Department

1151 Oxford Road

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Overview of the Collection

Title: Francis Gladheim Pease Papers

Dates (inclusive): 1850-1937

Bulk dates: 1905-1937

Collection Number: mssPease papers

Creator: Pease, F. G. (Francis Gladheim), 1881-

Extent: Approximately 4,250 items in 18 boxes

Repository: The Huntington Library, Art Collections, and Botanical Gardens. Manuscripts Department

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Abstract: This collection consists of the research papers of American astronomer Francis Pease (1881-1938), one of the original staff members of the Mount Wilson Solar Observatory.

Language: English.

Access

Open to qualified researchers by prior application through the Reader Services Department. For more information, contact Reader Services.

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Preferred Citation

[Identification of item]. Francis Gladheim Pease Papers, The Huntington Library, San Marino, California.

Provenance

Deposit, Observatories of the Carnegie Institution of Washington Collection , 1988. Approximately fifty additional separate collections form the Mount Wilson Papers of the Observatories of the Carnegie Institution of Washington and are available for research in the Manuscripts Department of the Huntington Library.

First three boxes purchased from Charles Apfelbaum, January 9, 1992.

Cataloger's Note

Boxes 15, 16, and 17 contains engineering drawings and notes by Pease. These notes were found loose in the boxes so the cataloger put them into folders for ease of use and better storage. The original order was kept and the folder titles were created by the cataloger.

- [Francis Gladheim Pease Addenda](#) (Call number: mssPease addenda)

Biographical Note

Francis Gladheim Pease (1881-1938) was one of the original staff members of the Mount Wilson Solar Observatory when it was formed in 1904. His most important contribution to the Observatory was his expertise in the design and use of astronomical instruments. Together with George W. Ritchey, Pease designed most of the equipment for the new Observatory. His most significant work was in the design of the 100-inch Hooker Telescope, the 20-foot and 50-foot Interferometers, and the 200-inch Hale Telescope. In the field of astronomical observations, Pease is best remembered for his collaborations with Albert A. Michelson, the Nobel Laureate physicist at the University of Chicago. Together, they developed new experiments for determining the diameters of stars, the velocity of light, and the non-existence of the "ether." Nevertheless, Pease will be noted for having been a major twentieth-century figure in the field of astronomical instrument design.

Pease was born on January 14, 1881, in Cambridge, Massachusetts, to Daniel and Katherine Bangs Pease. He did not reside long in Cambridge, however, for in 1889 the family moved to Highland Park [or Highwood], Illinois. There his father was a businessman and justice of the peace. One of five children, Pease attended high school at Highland Park and matriculated at the Armour Institute of Technology in Chicago. While in school Pease would work evenings at Petitdidier's optical shop. Here he received his training in the field of instrument design and construction. Pease's skills soon surfaced and before long Petitdidier could recommend the young man to G. W. Ritchey, the optician at Yerkes Observatory. Ritchey could use Pease

in his shop and employed him upon the latter's graduation from Armour with a B.S. in mechanical engineering in 1901. At Yerkes, Pease learned the trade of optical work and engineering but also took part in astronomical observations, skills which would be needed during the early years at Mt. Wilson. Pease also met his future wife, Caroline T. Furness, during his last year at Yerkes. They were married in 1905, one year later.

The director of Yerkes, George Ellery Hale had planned to establish a solar observatory on Mt. Wilson, and in 1904 he obtained funding from the Carnegie Institution of Washington to move the Snow Telescope from Yerkes to the California mountain. Pease was one of the men (along with Ritchey, Walter S. Adams, and Ferdinand Ellerman) called from Yerkes to assist in this task. When Mt. Wilson Observatory was created as a separate institution in December, he stayed on to work there, leaving his position at Yerkes.

Pease's early work at Mt. Wilson dealt with engineering and construction tasks. As a result, he does not appear very much in the early Annual Reports of the Director. Nevertheless, he was an important figure at the Observatory, designing, with Ritchey, most of the early telescopes and structures on the mountain. He was mainly, if not totally, responsible for the design of portions of the Snow Telescope, the 60-foot and 150-foot Solar Tower Telescopes, the 60-inch and 100-inch Telescopes, the 50-foot Interferometer, as well as Hale's Solar Laboratory in Pasadena. Pease also designed a hypothetical 300-inch telescope in 1926, much of which was incorporated in the early planning of the 200-inch Hale Telescope on Palomar. Indeed, after 1930 until his death, Pease spent half his time on the design of the Hale Telescope.

Astronomically, Pease is best remembered for his collaborations with A. A. Michelson. Michelson was often a Research Associate at Mt. Wilson where he would prosecute his researches on the velocity of light and stellar diameters. The latter experiment was one of the first uses of the 100-inch Hooker Telescope. Michelson and Pease attached a 20-foot long interferometer beam onto the telescope tube. By pointing the telescope at a nearby star and adjusting the distance between mirrors on the beam, they could interferometrically determine the physical diameter of the star. The success of this method in 1920 prompted Pease to construct a dedicated 50-foot interferometer on Mt. Wilson in 1928 to extend the scope of the stellar diameter research. Unfortunately, the device proved to be not sensitive enough to succeed with more distant stars.

As mentioned above, Michelson was also interested in redetermining the velocity of light. Using the distance from equipment on Mt. Wilson to a mirror on Mt. San Jacinto and back, as well as other locations, Michelson and Pease began their attempts in the mid-1920s. Unsatisfied with the results, they turned their efforts to constructing a mile-long tube at the Irvine Ranch in Santa Ana, California. Evacuating the tube, they used it as their light path in the velocity of light experiment. This work began in 1930, but Michelson died shortly thereafter. Pease, with the assistance of Fred Pearson of Chicago, continued the experiment to its successful conclusion in 1934. In a related matter, Pease in 1929 recreated the Michelson-Morley ether drift experiment using a light path 85 feet long, once again obtaining the famous negative result. Pease's papers contain a great deal of data on the velocity of light and ether drift experiments.

Other astronomical tasks that occupied Pease's research time were in taking direct photographs of the Moon, star clusters, and nebulae. He was also involved in the determination of the rotation of a spiral nebula [galaxy] by spectrographic means. In the 1920s, Pease was on the Committee for Study of the Surface Features of the Moon, established by the Carnegie Institution of Washington. After 1904, he spent almost all of his life at Mt. Wilson and Pasadena, passing away in the latter city on February 7, 1938. Only two weeks later his friend and director, George Ellery Hale, also died.

Although Pease was involved with the astronomical research of the Mt. Wilson Observatory, his most significant contribution, as noted above, was to the design and construction of the telescopes that dot the summit of the mountain. The 100-inch Hooker Telescope, the largest in the world from 1917 to 1948, was largely his design. As Walter Adams (second Director of Mt. Wilson) said, "The 100-inch telescope in particular remains as an illustration of a simple and efficient type of instrument constructed almost wholly in accordance with his design." Pease's status in the history of astronomy is best summed up by Berendzen and Hart: "In astronomical research, Pease made important, although not pioneering, contributions; in instrument design, however, he was a leading figure of the twentieth century."

Bibliography

Adams, Walter S. "Francis G. Pease." *Publications of the Astronomical Society of the Pacific* 50 (1938): 119-21.

Berendzen, Richard, and Richard Hart. "Francis Gladhelm [sic] Pease." *Dictionary of Scientific Biography*.

"Francis G. Pease." *Monthly Notices of the Royal Astronomical Society* 99 (1938): 312.

Strömberg, Gustav. "Francis G. Pease, 1881-1938." *Popular Astronomy* 46 (1938): 357-59.

Scope and Content

This collection consists of Francis Pease's research papers. It contains correspondence, manuscripts, Pease's notes (including his work notes, many of which contain various drawings and diagrams by him), reprints, photographs, etc. Topics covered in the collection are numerous and include the Mount Wilson Observatory, the Yerkes Observatory, astronomy and astronomers. The majority of it relates to Pease's research on the speed-of-light (highlighting his manuscript with A. A.

Michelson), Ether drift, his observations of the Moon, the Sun, Jupiter, star diameters, galaxies, nebulae, as well as his work on interferometers, and the design and construction of telescopes.

The first three boxes consist of correspondence between Pease and other individuals; these boxes are arranged alphabetically. In the correspondence files, the name on the folder can mean they are the author or addressee of the letters in that folder (if they are just the recipient of letters, then the word "recipient," is after their name). The correspondence folders, which contain many photocopies, may also have manuscripts in them, as well as photographs.

The next series of boxes are arranged by topic and format; these folders include correspondence, notes, manuscripts, reprints, photographs, etc. Manuscripts include drafts of "Measurement of the Velocity of Light in a Partial Vacuum," and "Modern Large Telescope Design." This series also contains Pease's research notes, work notes, and drawings and diagrams (blueprints). Topics include: the speed-of-light, Ether drift, his observations of the Moon, the Sun, Jupiter, Stars, Galaxies, Nebulae, as well as his work on interferometers, and the design and construction of telescopes.

Participants in the collection include: Giorgio Abetti, Walter S. Adams, Robert Grant Aitken, Edward E. Barnard, Paul Brockett, Clifford Crump, Arthur L. Day, George Ellery Hale, Albert A. Michelson, Robert A. Millikan, George Moffitt, Frank E. Ross, Henry N. Russell, Harlow Shapley, J. Vaurie, Latimer J. Wilson, F. E. Wright, William Hammond Wright, American Society of Mechanical Engineers, Carnegie Institution of Washington, Corning Glass Works, Crucible Steel Company of America, National Research Council (U.S.), Scientific American, inc., Southern California Edison Company, and Spencer Lens Company. There are reprints of articles by Thomas C. Chamberlin, Ejnar Hertzsprung, Sir James Hopwood Jeans, and J. C. Kapteyn.

Arrangement

The collection is arranged alphabetically by document type in 18 boxes:

- Box 1: Correspondence, A - G
- Box 2: Correspondence, E - P
- Box 3: Correspondence, R - Y, Manuscripts and Miscellaneous
- Box 4: Velocity of Light Records
- Box 5: 100" Coudé Spectrograph - Miscellaneous #2'
- Box 6: Miscellaneous Correspondence, Manuscripts, Notes, Stellar Diameters
- Box 7: Nebulae and Interferometer Observations
- Box 8: Observations, Ether Drift, Lens, Optics and Reprints of Articles by Pease
- Box 9: Ether Drift Data and Estimated Telescope Weights
- Box 10: Velocity of Light Records: Data Cards & Sheets and Experiment Record Books
- Box 11: Velocity of Light Records: Tidal Force Curves and Original Chronograph Records
- Box 12: 20-foot Interferometer and 100-inch Telescope
- Box 13: Stellar Diameter Note Cards, Notebook on Optical Glass
- Box 14: Optical work at Yerkes Observatory and Photographs
- Box 15: Engineering Drawings & Notes, folders 1 - 5
- Box 16: Engineering Drawings & Notes, folders 6 - 11
- Box 17: Engineering Drawings & Notes, folders 12 - 13
- Box 18: Articles, Manuscripts, Notes, Publications and Reprints

Indexing Terms

The following terms have been used to index the description of this collection in the [Huntington Library's Online Catalog](#).

Subjects

Pease, F. G. (Francis Gladheim), 1881-

Carnegie Institution of Washington.

Mount Wilson and Palomar Observatories -- History -- Sources.

Mount Wilson Observatory -- History -- Sources.

Mount Wilson Solar Observatory.

Yerkes Observatory.

Astronomers -- United States -- Archives.

Astronomical observatories -- California -- Wilson, Mount (Mountain)

Astronomical photography -- Equipment and supplies.

Astronomy -- Photographs.
Astronomy -- Research.
Astronomy -- United States -- History -- 20th century -- Sources.
Astrophysics -- History -- 20th century -- Sources.
Ether (Space)
Galaxies.
Interferometers.
Light -- Speed.
Nebulae.
Stars.
Telescopes -- Design and construction -- History -- Sources.
Jupiter (Planet) -- Observations.
Moon -- Observations.
Sun -- Observations.

Forms/Genres

Astronomical photography -- 19th century.
Astronomical photography -- 20th century.
Letters (correspondence) -- United States -- 20th century.
Manuscripts -- United States -- 20th century.
Photographs -- 19th century.
Photographs -- 20th century.
Reprints -- United States -- 19th century.
Reprints -- United States -- 20th century.
Research (document genres) -- United States -- 19th century.
Research (document genres) -- United States -- 20th century.
Space photography -- 19th century.
Space photography -- 20th century.

Additional Contributors

Abbot, C. G. (Charles Greeley), 1872-1973.
Abetti, Giorgio, 1882-1982.
Adams, Walter S. (Walter Sydney), 1876-1956.
Aitken, Robert Grant, 1864-1951.
Barnard, Edward Emerson, 1857-1923.
Brockett, Paul, 1872-1946.
Chamberlin, Thomas C. (Thomas Chowder), 1843-1928.
Crump, Clifford.
Day, Arthur L. (Arthur Louis), 1869-1960.
Douglass, A. E. (Andrew Ellicott), 1867-1962.
Hale, George Ellery, 1868-1938.
Hertzsprung, Ejnar, 1873-1967.
Jeans, James Hopwood, Sir, 1877-1946.
Kapteyn, J. C. (Jacobus Cornelius), 1851-1922.
Michelson, Albert A. (Albert Abraham), 1852-1931.
Millikan, Robert Andrews, 1868-1953.
Moffitt, George Wilbur, 1887-.
Ross, Frank E. (Frank Elmore), 1874-1960.
Russell, Henry Norris, 1877-1957.
Shapley, Harlow, 1885-1972.

Vaurie, J.
Wilson, Latimer J.
Wright, F. E. (Frederick Eugene), 1877-1953.
Wright, William Hammond, 1871-1959.
American Society of Mechanical Engineers.
Carnegie Institution of Washington.
Corning Glass Works.
Crucible Steel Company of America.
National Research Council (U.S.)
Scientific American, inc.
Southern California Edison Company.
Spencer Lens Company.

Box 1	Correspondence, A - G
Folder 1	Charles Greeley ABBOT (1923-1928). 3 items.
Folder 2	Giorgio ABETTI, recipient (1921-1924). 5 items.
Folder 3	C. E. ADAMS (1915-1916). 2 items.
Folder 4	Walter Sydney ADAMS, recipient (1924, May 1). 1 item.
Folder 5	Robert Grant AITKEN (1915-1932). 10 items.
Folder 6	ALUMINUM CASTING Company, recipient (1925, Feb. 13). 1 item.
Folder 7	ALUMINUM Company of America, recipient (1925-1926). 5 items.
Folder 8	AMALGAMATED PRESS Limited, recipient (1926, Aug. 9). 1 item.
Folder 9	AMERICAN CHEMICAL SOCIETY, recipient (1917, Oct. 2). 1 item.
Folder 10	AMERICAN OPTICAL Company (1919-1920). 3 items.
Folder 11	AMERICAN SOCIETY OF MECHANICAL ENGINEERS (1917-1930). 21 items. Includes typed copy of talk given by Pease (1923, Apr. 17).
Folder 12	John August ANDERSON (1912-1915). 7 items.
Folder 13	ARMOUR ENGINEER (1920-1925). 10 items. Includes typed copy of "The Fifty-Foot Interferometer Telescope of the Mount Wilson Observatory" by Pease (1901).
Folder 14	ARMOUR INSTITUTE OF TECHNOLOGY (1922-1926). 2 items.
Folder 15	James Percy AULT (1916-1922). 4 items. Includes signed, printed copy of "Sailing the Seven Seas in the Interest of Science," by Ault (1922).
Folder 16	S. A. BAGGS, recipient (1929). 2 items.
Folder 17	Solon Irving BAILEY, recipient (1920, Nov. 16). 1 item.
Folder 18	BAKER Iron Works (1923, Mar. 1). 1 item.
Folder 19	Edward Emerson BARNARD (1913-1922). 17 items.
Folder 20	C. F. BARTH (1927). 3 items.
Folder 21	BAUSCH & LOMB Optical Company (1920-1930). 13 items.
Folder 22	Bernard BENFIELD, recipient (1925, June 8). 1 item.
Folder 23	Charles Henry BENJAMIN (1926, Jan. 12). 1 item.
Folder 24	M. A. BLAGG (1921, Sep. 1). 1 item.
Folder 25	Frank Parkhurst BRACKETT (1922). 2 items.
Folder 26	John Alfred BRASHEAR Company, recipient (1920, Mar. 1). 1 item.
Folder 27	Lyman James BRIGGS, recipient (1924, July 3). 1 item.
Folder 28	Paul BROCKETT, Secretary of the National Academy of Sciences Building/Exhibits Committees (1923-1933). 38 items.
Folder 29	Lynn H. BRYANT, recipient (1924, Oct. 17). 1 item.
Folder 30	BUREAU OF STANDARDS, US (1912-1934). 6 items.

Folder 31	C. H. BURNETT, recipient (1927, Nov. 23). 1 item.
Folder 32	William Wallace CAMPBELL (1916-1917). 3 items.
Folder 33	CARNEGIE INSTITUTION OF WASHINGTON (1925-1936). 3 items.
Folder 34	Ford Ashman CARPENTER, recipient (1924, July 30). 1 item.
Folder 35	CHANCE BROTHERS and Company, Limited (1932, Oct. 20). 1 item.
Folder 36	Walter Gordon CLARK (1931). 2 items.
Folder 37	Frederic Edward CLEMENTS (1925). 3 items.
Folder 38	Herbert COATES (1920, Mar. 16). 1 item.
Folder 39	COOKE, Troughton & Simms, Limited (1922-1923). 3 items.
Folder 40	CORNING Glass Works (1922-1935). 43 items.
Folder 41	Francisco COS (1929). 2 items.
Folder 42	Henry CREW (1925). 3 items.
Folder 43	CRUCIBLE STEEL Company of America (1923-1930). 50 items.
Folder 44	Clifford Charles CRUMP (1917-1927). 17 items.
Folder 45	Heber Doust CURTIS (1913-1917). 3 items.
Folder 46	Robert Long DAUGHERTY (1921, Apr. 10). 1 item.
Folder 47	William S. DAVENPORT (1917, Aug. 31). 1 item.
Folder 48	Arthur Louis DAY (1926-1934). 11 items.
Folder 49	Peter DOIG (1925, Sep. 26). 1 item.
Folder 50	DOUBLEDAY, Page & company, recipient (1924, Jan. 9). 1 item.
Folder 51	Donald Wills DOUGLAS (1925). 3 items.
Folder 52	Andrew Ellicott DOUGLASS (1923-1930). 11 items.
Folder 53	Harry L. DUNCAN, recipient (1927, Apr. 12). 1 item.
Folder 54	Gano DUN (1923). 7 items.
Box 2	Correspondence, E - P
Folder 1	Ezra S. EATON (1932). 2 items.
Folder 2	Arthur Stanley EDDINGTON, recipient (1922-1925). 3 items.
Folder 3	W. C. ELLIOT, recipient (1927, Jan. 9). 1 item.
Folder 4	William Le Roy EMMET (1932). 2 items.
	Includes typed manuscript "Why the Markings on the Moon's Surface Cannot Be of Volcanic Origin" (1932).
Folder 5	Charles FABRY, recipient (1929-1932). 2 items.
Folder 6	J. W. FECKER Company (1927-1928). 8 items.
Folder 7	FISH-SCHURMAN Corporation (1928-1931). 16 items.
Folder 8	Ernest Harrison FREEMAN, recipient (1921, Aug. 3). 1 item.
Folder 9	Erwin Finlay FREUNDLICH, recipient (1926-1931). 2 items.
Folder 10	W. R. FURLONG, recipient (1922-1925). 3 items.
Folder 11	GAERTNER SCIENTIFIC Corporation (1927). 5 items.
Folder 12	Henry Gordon GALE (1932-1933). 3 items.
Folder 13	Willard Hayes GARRETT (1926, Oct. 18). 1 item.
Folder 14	George F. GEBHARDT, recipient (1917, Nov. 15). 1 item.
Folder 15	GENERAL ELECTRIC Company (1924-1932). 14 items.
Folder 16	Curvin Henry GINGRICH (1924, July 10). 1 item.
Folder 17	M. GOEPPINGER (1927). 2 items.
Folder 18	Walter GOODACRE (1934, Apr. 9). 1 item.
Folder 19	Bertram Grosvenor GOODHUE (1922-1923). 6 items.
Folder 20	K. GRAFF, recipient (1923, Jan. 20). 1 item.
Folder 21	GRIFFITH Machine Works, recipient (1917, Nov. 15). 1 item.
Folder 22	Sir Howard GRUBB, Parsons & Company (1928). 5 items.
Folder 23	Samuel E. W. HAINES, recipient (1927, Feb. 26). 1 item.
Folder 24	George Ellery HALE (1921-1927). 10 items.
Folder 25	Ford W. HARRIS, recipient (1927, June 20). 1 item.
Folder 26	Elwood HAYNES, recipient (1920, June 25). 1 item.
Folder 27	Fred C. HENSON Company (1927). 3 items.
Folder 28	HERCULES Float Works, recipient (1927). 2 items.
Folder 29	Ejnar HERTZSPRUNG (1922-1925). 5 items.

Folder 30	HESS-BRIGHT Manufacturing Company (1905, Nov. 14). 1 item. Includes diagram.
Folder 31	E. M. HEWLETT (1919-1924). 3 items.
Folder 32	H. S. HITCHCOCK [undated]. 1 item.
Folder 33	L. F. S. HOLLAND, recipient (1927). 2 items.
Folder 34	Henry E. HUNTINGTON LIBRARY, recipient (1925, June 4). 1 item.
Folder 35	Albert G. INGALLS (1927). 2 items.
Folder 36	Herbert Eugene IVES, recipient (1920, Aug. 2). 1 item.
Folder 37	James Hopwood JEANS (1917-1923). 4 items.
Folder 38	Lloyd Theodore JONES (1929). 5 items.
Folder 39	Clinton K. JUDY, recipient (1922, Dec. 24). 1 item.
Folder 40	Carl S. KEGLEY, recipient (1923, Feb. 28). 1 item.
Folder 41	Vernon Lyman KELLOGG (1922). 2 items.
Folder 42	Roy James KENNEDY, recipient (1925, July 9). 1 item.
Folder 43	KEUFFEL & ESSER Company, recipient (1924, Aug. 6). 1 item.
Folder 44	William S. KLEIN (1934, Apr. 20). 1 item.
Folder 45	Josef KLEPESTA, recipient (1929, Apr. 4). 1 item.
Folder 46	B. W. LAWTON, recipient (1925, Oct. 9). 1 item.
Folder 47	E. LOHMANN, recipient (1928, Aug. 14). 1 item.
Folder 48	G. H. LUTZ (1927, May 15). 1 item.
Folder 49	A. A. MacCALLUM, recipient (1924, May 16). 1 item.
Folder 50	Edwin Carleton MacDOWELL (1933). 2 items.
Folder 51	J. B. McDOWELL Company (1922-1924). 18 items.
Folder 52	Mentore MAGGINI, recipient (1924, May 19). 1 item.
Folder 53	John E. MELLISH (1927). 2 items.
Folder 54	John Campbell MERRIAM (1926). 2 items.
Folder 55	Albert Abraham MICHELSON (1921- 1930). 3 items.
Folder 56	G. R. MICZAIKA (1935, Nov. 4). 1 item.
Folder 57	Georges MIGNOT (1936). 2 items.
Folder 58	John Anthony MILLER (1921). 4 items.
Folder 59	Robert Andrews MILLIKAN (1917-1928). 3 items.
Folder 60	Edward MITTENDORF (1933, Jan. 6). 1 item.
Folder 61	George Wilber MOFFITT (1922). 2 items.
	Includes a letter by Moffitt to George Ellery Hale (1922, Feb. 9).
Folder 62	Forest Ray MOULTON (1924, July 22). 1 item.
Folder 63	Seeley Wintersmith MUDD, recipient (1917-1918). 2 items.
Folder 64	Paul M. MUELLER, recipient (1922). 2 items.
Folder 65	NATIONAL RESEARCH COUNCIL (1918-1922). 5 items.
Folder 66	Alfred N. NEATE (1934-1936). 5 items.
Folder 67	B. B. NICHOLS, recipient (1927). 2 items.
Folder 68	Brian O'BRIEN (1933, Nov. 4). 1 item.
Folder 69	Thomas H. OSGOOD, recipient (1928, June 25). 1 item.
Folder 70	J. H. PARKER (1929, July 13). 1 item.
Folder 71	PARSONS Optical Glass Company (1927-1933). 13 items.
Folder 72	PASADENA (Calif.) (1922, July 6). 1 item.
Folder 73	Fred PEARSON (1926-1932). 3 items.
Folder 74	Charles PENROSE (1924-1925). 9 items.
Folder 75	Charles Dillon PERRINE, recipient (1924, Feb. 28). 1 item.
Folder 76	O. L. PETITDIDIER, recipient (1917, Oct. 27). 1 item.
Folder 77	Theodore E. R. PHILLIPS (1925, Dec. 28). 1 item.
Folder 78	Edward Charles PICKERING (1917, Oct. 31). 1 item.
Folder 79	H. C. PLUMMER, recipient (1923, May 23). 1 item.
Folder 80	POPULAR SCIENCE MONTHLY, recipient (1926, Nov. 20). 1 item.
Folder 81	Henry Smith PRITCHETT (1922-1927). 6 items.
Folder 82	Mary PROCTOR (1926-1930). 4 items.
Box 3	Correspondence, R - Y, Manuscripts and Miscellaneous
Folder 1	Jerome Sixtus RICARD (1926). 2 items.

Folder 2	Charles RIDELL (1928). 2 items.
Folder 3	John L. RIDGWAY (1922, July 17). 1 item.
Folder 4	F. E. ROGERS (1926). 2 items. Includes printed pamphlet, "Our Solar System," by Rogers (1926).
Folder 5	Frank Elmore ROSS (1921-1934). 36 items.
Folder 6	ROSS Limited, recipient (1923, May 4). 1 item.
Folder 7	Henry Norris RUSSELL (1922-1927). 8 items.
Folder 8	SCIENCE SERVICE, recipient (1925). 2 items.
Folder 9	SCIENTIFIC AMERICAN (1917-1930). 5 items.
Folder 10	Harlow SHAPLEY (1922-1925). 5 items.
Folder 11	Donald Ellsworth SHARP, recipient (1928). 2 items.
Folder 12	John Cutler SHEDD, recipient [undated]. 1 item.
Folder 13	Alexander SILVERMAN, recipient (1918, Dec. 26). 1 item. Co-addressee R. M. Howe.
Folder 14	SKF Industries of California Incorporated, recipient (1926). 2 items.
Folder 15	W. T. SKILLING (1937, Jan. 10). 1 item.
Folder 16	Vesto Melvin SLIPHER (1916-1922). 2 items.
Folder 17	Herbert L. SMITH, recipient (1917, Oct. 31). 1 item.
Folder 18	SMITHSONIAN INSTITUTION (1923-1928). 5 items.
Folder 19	SOUTHERN CALIFORNIA EDISON Company, recipient (1929, Aug. 2). 1 item.
Folder 20	SPENCER Lens Company (1921-1927). 33 items.
Folder 21	SPERRY GYROSCOPE Company, recipient (1924). 2 items.
Folder 22	Julius SPRINGER Verlag , recipient (1931, Oct. 20). 1 item.
Folder 23	Joel STEBBINS, recipient (1924-1925). 2 items.
Folder 24	STEEL TANK AND PIPE Company, recipient (1929). 2 items.
Folder 25	Harlan True STETSON (1922-1930). 3 items.
Folder 26	De Lisle STEWART (1922-1923). 5 items.
	Includes letter by Stewart to George Ellery Hale (1922, June 9).
Folder 27	R. P. STINEMAN, recipient (1926-1927). 2 items.
Folder 28	James STOKLEY (1933). 2 items.
Folder 29	P. W. STONER, recipient (1929, Feb. 4). 1 item.
Folder 30	Otto STRUVE (1933). 3 items.
Folder 31	Kenneth E. STUART (1925). 2 items.
Folder 32	Ambrose SWASEY (1925-1935). 2 items.
Folder 33	TAYLOR, Taylor & Hobson, recipient (1921, Sep. 19). 1 item.
Folder 34	Carl Clapp THOMAS (1929). 2 items.
Folder 35	TRUSCON Steel Company, recipient (1925, Sep. 26). 1 item.
Folder 36	Herbert Hall TURNER (1921-1925). 5 items.
Folder 37	UNITED STATES NAVAL OBSERVATORY (1933-1935). 2 items.
Folder 38	UNIVERSITY OF CALIFORNIA Press, recipient (1923, Dec. 5). 1 item.
Folder 39	Wilbur Rice VAN AUKEN (1921, Jan. 22). 1 item.
Folder 40	George VAN BIESBROECK (1926, Mar. 29). 1 item. 41. J. VAURIE (1922-1929). 18 items.
Folder 42	H. C. WILLIAMS, recipient (1923, Nov. 5). 1 item.
Folder 43	Latimer J. WILSON (1925-1936). 19 items. Includes 9 photographs of the moon.
Folder 44	John C. WINSTON Company, recipient (1922, June 23). 1 item.
Folder 45	John Eliot WOLFF, recipient (1928, May 4). 1 item.
Folder 46	Robert Williams WOOD (1920-1924). 5 items.
Folder 47	Charles William WOODWORTH (1926). 3 items.
Folder 48	Frederick Eugene WRIGHT (1922-1936). 49 items.
Folder 49	William Hammond WRIGHT (1917-1937). 24 items.
	Includes 5 photographs of Mars and 2 photographs of Jupiter.
Folder 50	Ch'ing-Sung YU (1926). 2 items.
Folder 51	"Astronomical Telescopes: lecture" [c.1925]. 1 item. Autograph manuscript, 22 p., by Pease.

Folder 52	<p>"On Increased Telescopic Penetration:" [manuscript] (1926, May 26). 1 item. Typed manuscript, 18 p., by Pease. Corrections and comments in pencil by Frederick Hanley Seares.</p>
Folder 53	<p>"Measurement of the Velocity of Light in a Partial Vacuum:" [manuscript] (1923, Sep. 30). 7 items. Typed manuscript, 45 p. with 6 photographs for use as figures, by Albert Abraham Michelson, Pease, and Fred Pearson, published in <i>Astrophysical Journal</i>, vol. 82, 1935.</p>
Folder 54	<p>"Measurement of the Velocity of Light in a Partial Vacuum:" [copy proof] (1935). 1 item. 15 p., by Albert Abraham Michelson, Pease, and Fred Pearson, published in <i>Astrophysical Journal</i>, vol. 82, 1935.]</p>
Folder 55	<p>Miscellaneous photographs (1877-1919). 4 items. (1) Letter Elisha Gray to Alexander Graham Bell, March 5, 1877 [2 prints total] (2) Gibbous Moon [undated] (3) Southern portion of the Moon at last quarter, made with the 100-inch Hooker Telescope (1919, Sep. 15)</p>
Folder 56	<p>Loose Pages [undated]. 2 items.</p>
Box 4	<p>Velocity of Light Records</p>
Folder 1	<p>Velocity of Light Records (2): Correspondence & Miscellaneous: Correspondence with U. S. Coast and Geodetic Survey (1928-1937). 59 items.</p>
Folder 2	<p>Velocity of Light Records (2): Correspondence & Miscellaneous: Other Correspondence (1924-1934). 37 items.</p>
Folder 3	<p>Velocity of Light Records (2): Correspondence & Miscellaneous: Notes, Sketches, Pamphlets, Photograph (negative), etc. (1920-1934). 44 items.</p>
Folder 4	<p>Velocity of Light Records (2): Manuscripts (1931-1934). 8 items.</p>
Folder 5	<p>Velocity of Light Records (2): Time Signals and Corrections (1932-1933). 241 items.</p>
Folder 6	<p>Velocity of Light Records (2): Survey Notebooks, Vols. 1-3 (1933). 3 items.</p>
Box 5	<p>100" Coudé Spectrograph - Miscellaneous #2</p>
Folder 1	<p>100" Coudé Spectrograph (1921-1934). 21 items.</p>
Folder 2	<p>Snow Telescope (1905-1929). 36 items.</p>
Folder 3	<p>Hale Solar Lab (1924-1927). 71 items.</p>
Folder 4	<p>Interferometer (1925-1937). 12 items.</p>
Folder 5	<p>50' Interferometer (1922-1931). 37 items.</p>
Folder 6	<p>Mechanical and Optical Devices (1920-1937). 31 items.</p>
Folder 7	<p>General Notes: bound together (1910-1926). 1 item.</p>
Folder 8	<p>Miscellaneous #1 (1920-1936). 47 items.</p>
Folder 9	<p>Miscellaneous #2 (1918-1927). 60 items.</p>
Box 6	<p>Miscellaneous Correspondence, Manuscripts, Notes, Stellar Diameters</p>
Folder 1	<p>Miscellaneous Correspondence #1 (1927-1935). 29 items.</p>
Folder 2	<p>Miscellaneous Correspondence #2 (1923-1934). 59 items.</p>
Folder 3	<p>Miscellaneous Correspondence #3 (1922-1934). 84 items.</p>
Folder 4	<p>Manuscripts ([1934]-[1935]). 7 items.</p>
Folder 5	<p>Notebook: notes from class lectures by Paul Epstein & H. A. Lorentz on quantum theory given at California Institute of Technology (1922). 1 item.</p>
Folder 6	<p>Blueprints & Reprint relating to the Solar Tower at Arcetri, Italy (1921). 8 items.</p>
Folder 7	<p>Stellar Diameters (1920-1931). 69 items.</p>
Box 7	<p>Nebulae and Interferometer Observations</p>
Folder 1	<p>Nebulae: Observations & Notes # 1 (1899-1919). Approximately 100 items.</p>
Folder 2	<p>Nebulae: Observations & Notes # 2 (1895-1919). Approximately 100 items.</p>
Folder 3	<p>Nebulae: Observations & Notes # 3 (1913-1919). Approximately 100 items.</p>
Folder 4	<p>Nebulae: Observations & Notes # 4 (1902-1919). Approximately 100 items.</p>
Folder 5	<p>Interferometer Observations (1906-1935). 24 items.</p>

Box 8	Observations, Ether Drift, Lens, Optics and Reprints of Articles by Pease
Folder 1	Observations with the 100" (1924-1933). Approximately 100 items. Cataloger's Note: Other notes are included here, from other telescopes.
Folder 2	Notebook: Ether Drift Data (1927, Dec.-1928, Mar.). 1 item.
Folder 3	Lens Calculations (1930-1932). 6 items.
Folder 4	Articles on Glass & Telescopes (1850-1935). 13 items.
Folder 5	Notes: Optics [undated]. 2 items. Cataloger's Note: Negative is missing.
Folder 6	Reprints of Articles by Pease #1 (1914-1935). 7 items.
Folder 7	Reprints of Articles by Pease #2 (1915-1935). 11 items.
Box 9	Ether Drift Data and Estimated Telescope Weights
Folder 1	Ether Drift Ring Binder: Velocity of Light Materials #1 (1926-1933). Approximately 50 items.
Folder 2	Ether Drift Ring Binder: Velocity of Light Materials #2 (1926-1933). Approximately 50 items.
Folder 3	Ether Drift Ring Binder: Materials on Ether Drift (1926-1933). Approximately 50 items.
Folder 4	Ether Drift Data Dec. 1927-Mar. 1928: Notebook (1927-1928). Approximately 50 items.
Folder 5	Notebook: 100-inch Estimated [Telescopes] Weights #1 (1913-1914). Approximately 50 items.
Folder 6	Notebook: 100-inch Estimated [Telescopes] Weights #2 (1913-1914). Approximately 50 items.
Box 10	Velocity of Light Records: Data Cards & Sheets and Experiment Record Books
Folder 1	Velocity of Light Records (2): Data Cards & Sheets, Group A (1931-1933). Approximately 50 items.
Folder 2	Velocity of Light Records (2): Data Cards & Sheets, Group B (1932). Approximately 50 items.
Folder 3	Velocity of Light Records (2): Data Cards & Sheets, Group C (1932). Approximately 50 items.
Folder 4	Velocity of Light Records (2): Data Cards & Sheets, Group D (1932-1933). Approximately 50 items.
Folder 5	Velocity of Light Records (2): Data Cards & Sheets, Group E (1931-1933). Approximately 50 items.
Folder 6	Velocity of Light Records (2): Data Cards & Sheets, Group F (1931-1932). Approximately 20 items.
Folder 7	Velocity of Light Records (2): Volume 1: Record Book of Velocity of Light Experiments, Irvine Ranch (1931). 1 item.
Folder 8	Velocity of Light Records (2): Volume 2: Record Book of Velocity of Light Experiments, Irvine Ranch (1931). 1 item.
Folder 9	Velocity of Light Records (2): Volume 3: Record Book of Velocity of Light Experiments, Irvine Ranch (1932). 1 item.
Folder 10	Velocity of Light Records (2): Volume 4: Record Book of Velocity of Light Experiments, Irvine Ranch (1932). 1 item.
Folder 11	Velocity of Light Records (2): Volume 5: Record Book of Velocity of Light Experiments, Irvine Ranch (1932-1933). 1 item.
Folder 12	Velocity of Light Records (2): Volume 6: Record Book of Velocity of Light Experiments, Irvine Ranch (1933). 1 item.
Box 11	Velocity of Light Records: Tidal Force Curves and Original Chronograph Records
Folder 1	Velocity of Light Records (2): Tidal Force Curves, Series A: Vertical Component, Roll 3 (1933, Jan. 1-Mar. 15). 1 item.
Folder 2	Velocity of Light Records (2): Tidal Force Curves, Series B: Horizontal Component in Direction of Tube, Roll 6 (1933, Jan. 1-Mar. 15). 1 item.
Folder 3	Velocity of Light Records (2): Tidal Force Curves, Series C: Horizontal Component Perpendicular to Tube, Roll 7 (1931, Feb. 1-Dec. 31). 1 item.

Folder 4	Velocity of Light Records (2): Tidal Force Curves, Series C: Horizontal Component Perpendicular to Tube, Roll 8 (1932, Jan. 1-Dec. 31). 1 item.
Folder 5	Velocity of Light Records (2): Tidal Force Curves, Series C: Horizontal Component Perpendicular to Tube, Roll 9 (1933, Jan. 1-Mar. 15). 1 item.
Folder 6	Velocity of Light Records (2): Tidal Force Curves, Series C: Horizontal Component Perpendicular to Tube, Roll 10: Diurnal Constituents Only (1932, Dec. 1-1933, Mar. 1). 1 item.
Folder 7	Velocity of Light Records (2): Tidal Force Curves, Series C: Horizontal Component Perpendicular to Tube, Roll 11: Semidiurnal Constituents Only (1932, Dec. 1-1933, Mar. 1). 1 item.
Folder 8	Velocity of Light Records (2): Tidal Force Curves, Series C: Horizontal Component Perpendicular to Tube, Roll 12: Long-period Constituents Only (1932, Dec.1-1933, Mar. 1). 1 item.
Folder 9	Velocity of Light, Irvine Ranch: Original Chronograph Records, Radio Time Signals: roll tube (1931-1933). 1 item. With note about records.
Box 12	20-foot Interferometer and 100-inch Telescope
Folder 1	20-foot Interferometer Notebook (1920-1931). 52 items.
Folder 2	Notebook on Construction of 100-inch Telescope #1 (1913-1914). 4 items.
Folder 3	Notebook on Construction of 100-inch Telescope #2 (1913-1916). 34 items.
Folder 4	Sketch Sheets for 100-inch Telescope (1916-1919). 196 items.
Folder 5	Sketch Sheets for 100-inch Telescope (1917-1918). 8 items.
Folder 6	Notebook: 100-inch Reflector [undated]. 1 item.
Folder 7	Notebook: Polar Axis [100-inch Reflector] [undated]. 1 item.
Box 13	Stellar Diameter Note Cards, Notebook on Optical Glass
Folder 1	Stellar Diameter Note Cards - A (1935). 11 items.
Folder 2	Stellar Diameter Note Cards - B (1935). 3 items.
Folder 3	Stellar Diameter Note Cards - C (1900-1937). 20 items.
Folder 4	Stellar Diameter Note Cards - D (1921-1935). 2 items.
Folder 5	Stellar Diameter Note Cards - E (1900-1935). 6 items.
Folder 6	Stellar Diameter Note Cards - G (1920-1935). 5 items.
Folder 7	Stellar Diameter Note Cards - H (1900-1937). 4 items.
Folder 8	Stellar Diameter Note Cards - L (1900-1935). 11 items.
Folder 9	Stellar Diameter Note Cards - O (1920-1935). 7 items.
Folder 10	Stellar Diameter Note Cards - P (1920-1935). 11 items.
Folder 11	Stellar Diameter Note Cards - S (1921-1935). 4 items.
Folder 12	Stellar Diameter Note Cards - T (1900-1936). 2 items.
Folder 13	Stellar Diameter Note Cards - U (1900-1935). 10 items.
Folder 14	Stellar Diameter Note Cards - V (1900-1935). 3 items.
Folder 15	Stellar Diameter Note Cards - W [undated]. 2 items.
Folder 16	Notebook on Optical Glass (1895-1922). 1 item.
Box 14	Optical work at Yerkes Observatory and Photographs
Folder 1	Notebook of Optical Work at Yerkes Observatory (1901-1902, 1904). 1 item.
Folder 2	Notebook of Optical Work at Yerkes Observatory (1903). 1 item.
Folder 3	Brochures: Mount Wilson Observatory and Yerkes Observatory (1931-1933). 2 items.
Folder 4	Photographs: Galaxies, Stars and Nebulas (1910-1921). 21 items.
Folder 5	Photographs: Jupiter (1920). 2 items.
Folder 6	Photographs: Moon (1919). 5 items.
Folder 7	Photographs: Mount Wilson Observatory and Yerkes Observatory (1937). 16 items.
Folder 8	Photographs: People (some with telescopes) (1934). 10 items.
Folder 9	Photographs: Spectrums [undated]. 3 items.
Folder 10	Photographs: Sun (1917). 4 items.
Folder 11	Photographs: Telescopes and equipment (1930-1935). 56 items.
Box 15	Engineering Drawings & Notes, folders 1 - 5
Folder 1	Engineering Drawings & Notes #1 (1915-1918). 50 items.
Folder 2	Engineering Drawings & Notes #2 (1917-1922). 50 items.
Folder 3	Engineering Drawings & Notes #3 (1918). 51 items
Folder 4	Engineering Drawings & Notes #4 (1914-1935). 15 items.

Folder 5	Engineering Drawings & Notes #5 (1893-1927). 68 items.
Box 16	Engineering Drawings & Notes, folders 6 - 11
Folder 1	Engineering Drawings & Notes #6 (1904-1935). 50 items.
Folder 2	Engineering Drawings & Notes #7 (1915-1918). 50 items.
Folder 3	Engineering Drawings & Notes #8 (1916). 60 items.
Folder 4	Engineering Drawings & Notes #9 (1916-1919). 50 items.
Folder 5	Engineering Drawings & Notes #10 (1919-1920). 70 items.
Folder 6	Engineering Drawings & Notes #11 (1915-1931). 60 items.
Box 17	Engineering Drawings & Notes, folders 12 - 13
Folder 1	Engineering Drawings & Notes #12 (1916-1930). 15 items.
Folder 2	Engineering Drawings & Notes #13 (1904-1930). 56 items
Box 18	Articles, Manuscripts, Notes, Publications and Reprints
Folder 1	Articles: Witmer, Samuel (1933). 1 item.
Folder 2	Manuscripts: Pease, Francis G. (1907). 1 item.
Folder 3	Miscellaneous Notes and Letter (1899-1934). 4 items.
Folder 4	Miscellaneous Printed Items (1906-1915). 5 items.
Folder 5	Notes: Clusters (1913-1915). 13 items.
Folder 6	Notes: Jupiter (1899-1925). 5 items. 7. Notes: Novae (1901-1931). 23 items.
Folder 8	Notes: Photography (1909). 10 items.
Folder 9	Publications: Auerbach, Felix (1904). 1 item.
Folder 10	Reprints: Astronomical Institutes of the Netherlands (1920-1922). 6 items.
Folder 11	Reprints: Barnard, E. E. (1895, Aug.). 1 item.
Folder 12	Reprints: Cage, John M. (1930). 1 item.
Folder 13	Reprints: Campbell, W. W. (1900, Nov.). 1 item.
Folder 14	Reprints: Chamberlin, Thomas C. (1919-1927). 10 items.
Folder 15	Reprints: Coffin, J. H. C. (1873, Apr. 16). 1 item.
Folder 16	Reprints: Frost, Edwin B. (1902-1924). 2 items.
Folder 17	Reprints: Gould, B. A. (1895, Apr.). 1 item.
Folder 18	Reprints: Hertzprung, Ejnar (1912-1923). 5 items.
Folder 19	Reprints: Jeans, J. H. (1924-1929). 4 items.
Folder 20	Reprints: Jeffries, Harold (1924, Dec.). 1 item.
Folder 21	Reprints: Kapteyn, J. C. (1906). 1 item.
Folder 22	Reprints: Mitchell, S. Alfred (1898). 1 item.
Folder 23	Reprints: Peirce, Benjamin [1880]. 1 item.
Folder 24	Reprints: Pickering, Edward C. (1882). 1 item.
Folder 25	Reprints: Ritchey, G. W. (1901, Nov.). 1 item.