Title: Collection on Federal Telegraph Company
Date: 1906-1993
Date (bulk): 1909-1929
Collection number: 2003-37
Collectors: Perham, Douglas M.
Extent: 2.75 linear feet
Repository: History San Jose Research Library
San Jose, CA 95112
Abstract: Reports, scrapbooks, photographs, equipment descriptions and diagrams, and notes regarding the organization of the Poulsen Wireless Telephone and Telegraph Company and subsequently, Federal Telegraph Company. Much of this material was collected by early company electrical technician Douglas M. Perham, and includes many items given to him by fellow Federal Telegraph Company employees such as Leonard Fuller, Cyril F. Elwell, and Harold F. Elliott.
Physical location: History San Jose Collection Center
Languages: The contents of the collection are in English.
Access
The papers are available for researchers by appointment through the Curator of Library and Archives.
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Preferred Citation
Acquisition Information
Acquired from the Perham Foundation in 2003 as part of the Perham Collection of Early Electronics.
Processing History
Processed by Roxanne Nilan and Catherine Mills, History San Jose Research Library, 2012, under a grant from the Council on Library Resources' Cataloging Hidden Special Collections and Archives program.
Related Collections
The Joseph A. Knight Collection (2011-47) and Fred M. Hoehn Photographs (2003-42) both contain significant amounts of material related to the Federal Telegraph Company. The Harold F. Elliott Papers (2003-36) contain approximately 6.5 linear feet of Elliott's records of his work with Federal between 1916-1925, including correspondence, work diaries, engineering reports, photographs, and technical drawings.
A limited amount of Federal material can be found in the Lee and Marie de Forest Papers (2003-34), the Perham History Files (2003-33), and the Perham Collection of Early Electronics Photographic Collection (2003-1).
Associated material in other repositories includes:
- Cyril Frank Elwell Papers, M0049, Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.
- Francis P. Farquhar Papers, C-B 517. The Bancroft Library, University of California, Berkeley.
- Leonard Franklin Fuller papers, [ca. 1915-1958], 79/91c/1. History of Science and Technology Collection, The Bancroft Library, University of California, Berkeley.
- Charles Vincent Litton Papers, 1912-1972, Banc Mss 75/7c. The Bancroft Library, University of California, Berkeley.
- Herman Potts Miller, Jr. Papers, [ca. 1914-1967]. The Bancroft Library, University of California, Berkeley.
Douglas M. Perham (1885-1967) was an early wireless experimenter and radio broadcaster, and a talented technician and craftsman. In 1909, Cyril Elwell rented Perham's Palo Alto bungalow to serve as Poulsen/Federal's first laboratory, hiring Doug as the first American employee of Poulsen Wireless. Over the next two decades he worked, on and off, with many of Federal's notable personalities. He also took part in early installations in Stockton, San Francisco, Southern California and Texas, 1910-1919.

Born in Stockton, California, Perham came to Palo Alto in his teens when his parents took up graduate study at Stanford University. He worked locally, and then briefly in Santa Barbara as an electrician. At his 913 Emerson Street bungalow (at the corner of Emerson and Channing), he experimented with wireless transmission. He built a 2 1/2-watt spark set and experimental transmission station in his backyard, and constructed a tall radio tower in the front yard. He sold a spark-set radio transmitter to Cyril Elwell, an electrical engineer and recent Stanford graduate, but it was Doug's radio tower that really caught Elwell's eye. In 1909, Elwell rented Perham's house, and the corrugated iron shop behind it, for his Poulsen Wireless Telephone & Telegraph Company, later renamed Federal Telegraph Company. (Federal purchased the property in 1912).

Elwell had obtained a license from Danish inventor Valdemar Poulsen to manufacture a newly patented radio transmitting device that was a dramatic improvement over the Marconi spark system. Doug's first assignment was to build the first Poulsen arcs to be made in the United States. He worked on Federal's four water-cooled 5kW arcs, more efficient than the original Danish design, and built Federal's first 250-watt arc. With F. Albertus and Peter V. Jensen, Perham worked on the first complete Poulsen arc transmitter and receiver.

Over the next several years, Perham worked with many of Federal's talented engineers, including the company's first two Chief Engineers, Elwell (until Elwell left for England in 1911) and in 1912, Leonard Fuller. In July 1911-12, in his own old shed, Doug worked with Lee de Forest, Herbert Van Etten and C. W. Logwood as they developed the two devices that made large scale radio transmission possible, the Audion amplifier and the vacuum tube oscillator. (A state historical plaque marks the spot).

As the company expanded, stations were quickly built in 1910 to demonstrate Poulsen transmitters to potential stockholders. Doug was first dispatched to install a transmitting station in Stockton (for a Stockton-Sacramento transmission). Later that year, Doug was at Federal's third station, the San Francisco "Beach Station" (near Ocean Beach), with its two 300-foot wooden lattice towers, where he heard the first musical broadcast in the United States.

On October 11, 1911, Federal's Los Angeles station went on the air, the first radio system built for solely commercial purposes, in this case E. F. Hutton and Company, which used the San Francisco-Los Angeles connection to transmit brokerage transactions. This successful communication with San Francisco put Federal in direct competition with two existing wire telegraph stations, particularly since they offered a lower rate. Doug headed off yet again to help build Federal stations in San Diego, El Paso and Fort Worth. Other stations were built in Portland, Seattle, Kansas City, and Chicago, with relay stations at Medford, Oregon, and Phoenix. Photographs of some of Perham's early stations in California and Texas are in the collection.

In 1912, a larger station was built in San Francisco and one in Honolulu, beating out a competitor. San Francisco's localnewspapers quickly went from 120 to 1500 words a day of outside news coverage. "Transmission of speech had not been entirely successful, but stations were handling telegraph traffic at 180 words per minute, having reached nearly 300 words per minutes in some tests," writes Will Jensby. "It was evident that stations had an immediate commercial value handling message traffic along with demonstrations to prospective investors." 2

After Elwell proved the superiority of Federal's Audion amplifier to the Navy Department, Federal was contracted in 1912 to install radio stations to communicate with the fleet. The company expanded dramatically during the First World War. As the company changed hands and management style, however, Perham was among many who left Federal, although his reasons were also personal -- a divorce and remarriage in Texas. 3

During the 1920s, Perham lived in Iowa, where he built and operated radio station WJAM, the first licensed broadcasting station in Iowa, and the first station to be affiliated with a newspaper, the Cedar Rapids Gazette. Perham returned to California and rejoined Federal in 1928 after selling WJAM. There he became reacquainted with Leonard Fuller and Harold Elliott, and met Charles V. Litton. Perham left the company in 1932 when Federal, recently merged with MacKay, moved the Palo Alto facility to New Jersey. Perham continued to work with local electronics firms, including Heintz
and Kaufmann, and Varian Associates.

Although much of Doug Perham's documentation of his early career has been lost since his death in 1967, the Perham Collection of Early Electronics includes his several scrapbooks, along with notes and photographs. Leonard Fuller, Harold Elliott, and other colleagues also contributed material in the 1960s and 1970s to the Perham Foundation (then at the Foothill Electronics Museum, Foothill College, Los Altos Hills) regarding Poulsen and the Federal Telegraph Company.

(Abridged from "Douglas M. Perham, A Collector of Sorts," by Roxanne L. Nilan)

References:
1 Douglas Perham curriculum Vitae.
3 Regarding early Federal's several reorganizations, see Francis P. Farquhar's "Federal Telegraph Company/Poulsen Wireless Corporation," 8 p. typescript (1956). Farquhar served as company accountant 1911-1912, and summarized his experience in his 1918 memorandum.


Scope and Content Summary
The collection contains reports, scrapbooks, photographs, equipment descriptions and diagrams, and notes regarding the organization of the Poulsen Wireless Telephone and Telegraph Company and subsequently, Federal Telegraph Company. Much of this material was collected by early company electrical technician Douglas M. Perham, and includes many items given to him by fellow Federal Telegraph Company employees such as Leonard Fuller, Cyril F. Elwell, and Harold Elliott.

Of special note is the 1914 Report to the Board of Directors of Poulsen Wireless Corporation/Federal Telegraph Company by company president Beach Thompson; Perham's scrapbooks of notes and printed material on the Poulsen system, arc transmitters, and related activities, collected by Perham between 1910 and 1919; and publications regarding Federal and Kolster radio compass products. Also included is an insightful typescript analysis of Federal's financial stability in 1919, recalled years later by accountant Francis Farquhar, and comments by Leonard Fuller on a brief history of the company authored by the Foothill Electronics Museum (1972).

The material is divided into four series.

Indexing Terms
Related materials may be found under the following headings in online catalogs.

Subjects
Elwell, C. F. (Cyril Frank), 1884-1963.
Fuller, Leonard Franklin, 1890-1987.
Perham, Douglas M.
Federal Telegraph Company
Kolster Radio Compass
Poulsen Wireless Corporation
Poulsen Wireless Telephone and Telegraph Company
Telecommunication--History--20th century.
Telegraph, Wireless.
Radio--History.
Electric arc.
Electronic industries--California--Santa Clara Valley--History.

Genres and Forms of Materials

- correspondence
- scrapbooks
- administrative records
- photographs
- clippings (information artifacts)
- manuals (instructional materials)
- manuscripts for publication
Guide to the Perham Collection on Federal Telegraph Company

technical reports

Box 1, 2


Physical Description: .75 linear feet.

Series Scope and Content Summary

Correspondence, reports, technical drawings, and product literature relating to the Poulsen Wireless Corporation and its successors, the Federal Telephone and Telegraph Company and the Federal Telegraph Company, as well as Federal Telegraph's Kolster Radio Compass.

Box 2

Series 2. Cyril Elwell biographical material 1920-1993

Physical Description: .25 linear feet.

Series Scope and Content Summary

Assorted biographical material on Cyril Elwell, founder of the Poulsen Wireless Telephone & Telegraph Company, and Federal Telegraph's first Chief Engineer.

Box 3, 4


Physical Description: 1 linear foot.

Series Scope and Content Summary


Box 5

Series 4. Reference material on Federal Telegraph Company 1906-1985

Physical Description: .5 linear feet

Series Scope and Content Summary

Assorted journal articles, clippings, and reports about Federal Telegraph Company and its related companies, compiled by both Douglas Perham and members of the Perham Foundation.