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BIOGRAPHICAL MEMOIR

OF

GEORGE DAVIDSON

1825-1911

BY

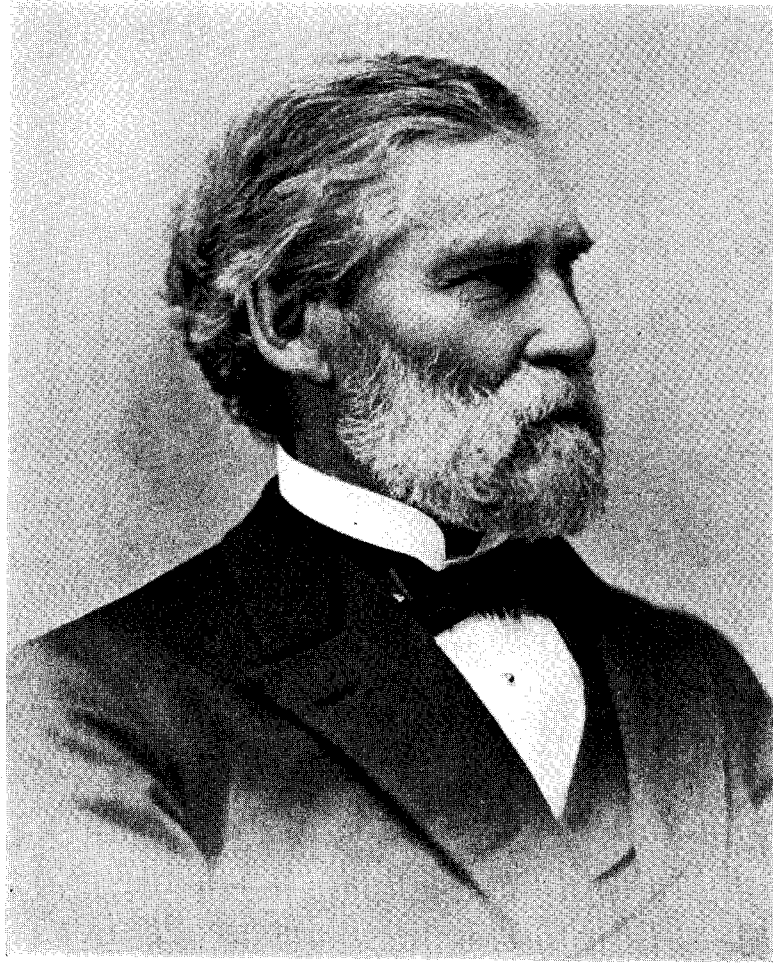
CHARLES B. DAVENPORT

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PRESENTED TO THE ACADEMY AT THE ANNUAL MEETING, 1937

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*Genl Davis*

## GEORGE DAVIDSON

1825-1911

BY CHARLES B. DAVENPORT

George Davidson was born at Nottingham, England, May 9, 1825. He was of Scottish descent, his father, Thomas Davidson, Sr., having been born 1792 in Arbroath on the rocky east coast of Scotland, and his mother Janet Drummond at Montrose on the same coast about thirty miles north. The Drummond family had warehouses in Montrose and supplied the British with sail cloth during the Napoleonic wars. Of such maritime ancestry, it was appropriate that George became a geographer of the Pacific coast of the United States and Alaska and his younger brother, Thomas Davidson, Jr., (b. 1828) a naval constructor with high rank in the U. S. Navy, who built the "Tuscarora" used by Admiral Belnap in his Pacific deep-sea soundings.

Thomas Davidson, Sr., was not very prosperous even in England and so migrated with his family to Philadelphia in 1832. The sons received the rudiments of education from their mother and George graduated from the Central High School at Philadelphia in 1845 with the highest honors of his class.

From the beginning of his high school course Davidson had been in contact with Alexander Dallas Bache who had left the army to become (1836) President of Girard College, then in course of erection. But before it opened he was elected (1838) principal of the Central High School. In November, 1842, Bache employed Davidson and one or two others to serve as observers at the Girard College Magnetic Observatory to watch for meteors. When in 1842 Bache resumed his former professorship in physics at the University of Pennsylvania, Davidson made large drawings for his lectures, working daily at Bache's home from 3 p. m. to 8 or 9 p. m. He then observed from 12:30 to 8:30 a. m. But such strenuous activity combined with his high school work could not last long and he was afterwards

placed on evening duty with general direction over night work, being responsible for the discipline and accuracy of the observers. As soon as Davidson graduated, Bache appointed him on his field party in the Coast Survey to which Bache had been appointed eighteen months previously. Davidson was now in almost hourly contact with Bache, always recording for him in his daily hours of observation.

At the end of 1845 Davidson went into the field as observer; during the winter in the South, during the summer with Bache's field party. In 1849 Bache suggested to Davidson that he be transferred to California. Davidson declined unless promoted. In May, 1850, the desired promotion was made.

Upon the acquisition by the United States of the Pacific slope in 1848, following the Mexican War, the necessity for more accurate charts of the coast was recognized and Alexander Dallas Bache in October, 1848, ordered a hydrographic survey to be made by a party in charge of Lieut. W. P. McArthur of the Navy. A reconnaissance was made before McArthur's death in December, 1850, and charts were published at the end of that year. At about the same time Commander Cadwalader Ringgold of the U. S. Navy undertook a survey of San Francisco Bay and the Sacramento River and his charts were printed in 1851. A more intensive and accurate survey of the coast was needed, and in 1850 Davidson was sent by Bache with three associates to do geographical and astronomical work while Lieut. James Alden conducted the hydrographic work. Davidson's first work was the determination of the correct position of Point Conception, the most prominent and dangerous angle on the western coast of the United States. He determined longitude, variation and dip of the magnetic needle by moon culminations and from the observed time of occultations of the stars by the moon. The longitudes of the minor stations were determined by the transportation of chronometers. At that time telegraphic methods were not available. He reported upon the best location for the proposed lighthouses in the neighborhood.

During the first four years other stations were occupied in succession at Monterey, San Diego, Cape Disappointment near

the mouth of the Columbia River, Port Orford, and Neah Bay, near the entrance to Puget Sound. Campbell, 1914, writes:

“Coastwise travel in those days was largely by sailing vessels, and surf landings were unavoidable at many stations on the capes and points. There were occasionally personal risks from hostile natives, as at Neah Bay, where the observations were made from behind breastworks with men and guns constantly ready to repel attack.”

The necessity of checking his longitude determinations led Davidson to observe for times of contact the partial solar eclipse of May 26, 1854, at Humboldt Bay, of March 25, 1857, at San Francisco; of July 18, 1860 at Sonoma Mountain. Occultations were also observed in the Pleiades in 1857 and 1860.

After main points had been carefully located astronomically, triangulation followed, as in the survey of Puget Sound, Admiralty Inlet and the northern sheet of the west coast of the United States.

Probably in consequence of his almost superhuman activity along the coast in all sorts of bad weather combined with surf wading and exposure in unsheltered spots, Davidson became very ill in the spring of 1857 and was hospitalized in San Francisco. In the early summer he took up his trigonometric survey again and again fell ill and was under treatment for a month. Finally, in October he started back to the east and reported at Washington. At headquarters Davidson brought to completion his “Directory of the Pacific Coast,” which was invaluable to mariners and for long, in its various editions, the standard of reference.

On October 5, 1858, Davidson married at Whitepost, Virginia, Ellinor Fauntleroy, the daughter of Robert H. Fauntleroy, a friend and associate on the Coast Survey, designated by Bache “one of the most meritorious officers of the Survey who lost his life in the service.” Davidson had indeed named the brig that he used in the Survey the “R. H. Fauntleroy.” Robert H. Fauntleroy had married Jane Dale Owen whose brothers David Dale and Richard Owen were leading geologists, while their brother Robert Dale Owen was, like his Scottish

father, Robert Owen, a social reformer and leader in the New Harmony (Indiana) communistic experiment. Later he was elected to Congress, forced the settlement of the Oregon boundary dispute, fathered the bill to establish the Smithsonian Institution and before the outbreak of the Civil War was a leading abolitionist. Davidson and his wife had four children, a daughter, Ellinor C., and three sons of whom one, the first, George Robert, was a precocious child who died young from a fall. The brilliant second son, George Fauntleroy (Harvard '85) died in 1900 aged 38, while the third, Thomas D., was a lawyer and, like his father, an inventor. Davidson's wife was a gracious hostess to the constant stream of visitors who were attracted by his vivid and magnetic personality and her "calm and controlled nature developed a mind unusually impartial and disinterested, so that her opinions were sought and valued." Doubtless these qualities and her charming humor and strong social instincts were helpful to her husband.

With his bride Davidson returned to San Francisco November 14, 1858, and took up the primary and secondary triangulation north of San Francisco and the astronomical observations upon which they were based. In 1860 Davidson while at Ross Mountain setting up a signal pole was severely injured and compelled to return to San Francisco. In December, 1860, he was ordered to Washington; and here he reentered into most confidential relations with his chief.

In December, 1860, the nation was on the verge of war. Davidson was assigned to a survey of the Delaware River for its defense; in 1862 he was placed in charge of the armed Coast Survey steamer "Vixen" and sent to Florida; in 1863 he was appointed Engineer of Fortification for the defense of Philadelphia on the north, and made a survey. In 1866 he went to London on leave of absence and, at his own expense, to bring the ailing Bache home to New York.

Davidson was now, at 42 years, entering into the period of his greatest responsibilities and some of his greatest achievements. Thus, early in 1867 he was detailed on duty as engineer of a party sent to Panama to search for the best location for

a ship canal. In August, 1867, he was in Alaska making a preliminary geographical survey of that territory, the purchase of which was then being negotiated by the United States. This assignment was doubtless in appreciation of his ability to make reconnaissances quickly and adequately. In November he submitted a report on Alaska. This was of necessity largely based on information derived from Russian surveys, but it also made use of the knowledge of the principal Indian Chief of Alaska, who knew his vast territory as no one else. The Chief made a map of it for Davidson and gave him information that even the Russians did not have. Davidson always got on with Indians—he treated them as men. The report met the warm approval of Secretary of State Seward and greatly influenced the consummation of the purchase. In 1869 he visited Alaska again and observed the solar eclipse of August 7 on the Chilkah River.

In 1868 Davidson was promoted to take charge of the U. S. Coast Survey on the Pacific Coast, a position which he retained until June, 1895. In this capacity he not only directed the work of the various field parties and made some notable geodetic and astronomical surveys but he served on government commissions in various parts of the world.

Davidson was now coming to be recognized as the leading man of science on the Pacific Coast. In November, 1870, he was elected by the regents of the University of California as professor of astronomy and geodesy (non-resident and without salary since he was a salaried officer of the government.) In 1872 he was elected president of the California Academy of Sciences and continued as such until 1887. In March, 1874, he was detailed to give special instruction in the University on the methods employed in the Survey. Later in the year he went to Japan to observe the transit of Venus and continued around the world under a government commission to investigate the methods of irrigation in India, Egypt, Italy and Holland. In June, 1877, he became a regent of the University of California. In 1878 he visited the Paris exposition to examine instruments of precision; in 1882 he went to New Mexico to

observe another transit of Venus. In 1881 he was instrumental in organizing the Geographical Society of the Pacific of which he acted as president until his death.

Many scientific societies elected him to membership: Bureau des Longitudes de France; Berlin Geographische Gesellschaft; Royal Geographical Society; Scottish Royal Geographical Society; Swedish Society of Anthropology and Geography; Paris Academy, Institut de France; the Philadelphia Academy of Science in 1853; the National Academy of Sciences in 1874, and many others. In 1876 he received the degree of Doctor of Philosophy from Santa Clara College; the degree of Sc.D. from the University of Pennsylvania in 1889; and LL.D. from the University of California in 1910. Norway conferred upon him the Cross of the Royal Order of St. Olaf in 1907, and the American Geographical Society awarded him the Charles P. Daly Medal in 1908.

He was called upon by the federal government for many special services. Thus in 1872 and again in 1884 he was appointed by the President upon the Assay Commission to test the weight and fineness of the coins of the Philadelphia mint and in both instances made all the weighings and introduced new methods. Twice he was appointed by the Secretary of the Treasury to examine the assay coin and bullion weights and the balances and beam of the U. S. mint at San Francisco. In 1873 he was appointed by President Grant one of the three Commissioners of Irrigation of California. In 1888 President Cleveland appointed him a member of the Mississippi River Commission. In 1889 President Harrison appointed him delegate to the International Geodetic Convention at Paris and he was commissioned to bring to Washington the international prototypes of the standard meter and kilometer. While in Europe he was received with high honors at the observatories of Paris, Berlin and Greenwich.

One of the greatest achievements of Davidson, almost equal to his definitive survey charts of the Pacific Coast line of the United States, was his measurement of the base lines upon which all distances in the extensive triangulation of the State of



California depend. The first was the Yolo base line measured twice by him in 1881 and the Los Angeles base line measured three times in 1888-89. Davidson tells of his methods in "Appendix" to the Coast and Geodetic Survey Report for 1882. The Yolo base was 17490 meters long (or more precisely as worked out from Davidson's record by C. A. Schott in Report of U. S. C. & G. Survey for 1883,  $17486.51193 \pm .00957$  meters). The N.W. end was 80 feet higher than the other (S.E.) end. The elevation above sea level was carefully determined. For measuring, two compensated base bars 5 meters long contained in boxes were used. These rested in a "trestle" on 3-legged stands, whose feet rested on foot plates. The temperature of the box was read each time the bar was set in place; also a Broca scale that measured defect in temperature compensation. At the beginning of the day's work the base bars were compared with a standard 5-meter bar. The end points of the base having been established, the bars were kept accurately in line by telescopes and by apparatus for adjusting for altitude and azimuth. The deviation of the bar from the level was read by a device attached to each bar. The bars and operators were covered with an elongated tent-like cover, or "buggy," which was pushed along on wheels. There were twenty-one men in the base party. Davidson's account of the methods of procedure shows his meticulous care with every detail.

"Every officer and man had a specific duty assigned to him, and no deviation was allowed therefrom. The forward movement may be said to commence at the command 'Break,' when the contour slide of the forward bar was drawn back and the after bar was drawn back, lifted out of the trestle which held the box, and moved forward. The tripod men relieved the tightening of the legs, picked up the tripods and moved forward, when the tripods were put in line and in position by an officer; the plates followed and were placed outside the position of the legs; then the tripods were placed on the plates, accurately distanced, leveled and clamped. The 'buggy' moved forward as soon as the plates were passed. One officer, near the sector (leveling device), guarded the bar which remained in position. An officer then received in his hands the forward bar and was then responsible for it until the next 'break' of contact.

“The details of aligning the bar, raising or depressing the after end, making approximate contact, reading the Borda and mercurial thermometers, reading the sector and making final contact, fell into their regular and necessary sequence . . . The sector readings for inclination were checked by a re-reading, and in the second measurement one officer read the sector and left it without announcing his reading until the second officer had given the degrees and minutes.”

Every precaution was taken against disturbance of the line during the night while the bars and standards were placed in position for the morning comparison. In the morning comparison of lengths of base bars and adjustment of the sectors was made; the after bar was “plumbed” over the night mark with the aid of a theodolite and at the command “Break” the bars moved forward.

The base line was all measured twice and part of it a third time. The actual time of laying the 8,494 bars, not including any delays, was 247 hours, an average of  $34\frac{1}{3}$  bars an hour. This is less than 2 minutes for all the above cited operations required for bar laying and contact making. Apparently Davidson did the final work in each bar contact. He says: “Davidson receives and controls end of bar coming in, adjusts distances, levels, aligns, makes contact by eye, directs other readings, reads Borda, makes contact under magnifier, ‘Breaks,’ holds back contact slide until after bar is removed.” The result of all these precautions and Davidson’s personal attention to the critical points was that the probable error (computed by Schott) in determination of the base line of 17,486.5 meters was 9.57 mm. or  $\pm 0.547$  millimeters per kilometer (i.e.  $0.55 \mu$  per meter). Other base lines measured earlier in the United States had a probable error of  $\pm 2.44 \mu$  to  $1.77 \mu$  per meter.

Dr. R. S. Holway states:

“The location of the north-eastern boundary line of California, the 120th meridian, was finally determined by him in 1873, and the diagonal boundary of 405 miles from Lake Tahoe to the Colorado River was located and marked under his supervision in 1893. This line is interesting because at each end it terminates in a body of water.”

This brief account affords but an imperfect idea of the breadth and scope of the work of Professor Davidson. Says Holway:

“The fact that in all the many problems of his main work his scientific accuracy stands practically unchallenged is due to his wonderful capacity for untiring effort, to his acute eyesight as an observer, and to his fixed habit of patiently and conscientiously verifying every observation.

“In the seventies, when reoccupation of some of his old stations by later parties threw some doubt on his observations fixing the exact position of Mount Tamalpais, he boldly asserted that his work was right, that the mountain might have moved, but that he had correctly determined its location at the time. After the earthquake of 1906 there was made a careful and extensive survey of central California, which, compared with the surveys before and after the earthquake of 1868, confirmed the accuracy of Professor Davidson's original observations and also his explanation of the apparent discrepancies.”

Closely associated with his geodetic work was Davidson's determination of the longitude of a point in San Francisco in 1869 after telegraphic methods became available. The San Francisco *Alta* of March 2 gives the following account of this operation which was made by connection with Cambridge, Massachusetts, and via cable with Valencia and Greenwich:

“He had, by permission of the city authorities, erected a small building of about 100 sq. ft. area on Washington Plaza. This contained a clock, to mark sidereal time, a transit instrument, or mounted telescope, a chronograph, and an operating apparatus with its batteries and telegraphic connections. There was a moveable telescope, for casual uses. It is said that Davidson had already since 1852 taken three hundred independent determinations of longitude along the coast, but his present equipment was designed to secure greater accuracy. The transit was used to determine the hours of the clocks by the transits of about 15 stars before and after exchanging clock signals. During twelve nights between February 18th and April 4th the signals were sent to Cambridge and returned. The time of passage was determined to be  $\frac{9}{10}$ ths of a second. The Western Union Telegraph Company cooperated cordially and without expense to participate in this public service of determining the precise longitude of San Francisco.”

Davidson's early contributions to astronomy have been already cited. Some of his later astronomical activities may be quoted from the account of Dr. W. W. Campbell:

"In the late 1880's the question of the variation of terrestrial latitudes was prominent, and observations at widely separated stations were urgently called for. As a labor of love Professor Davidson undertook the observations of latitude pairs, by the Talcott-Horrebrow method, at his observatory in San Francisco. Between May, 1891, and August, 1892, approximately 2500 pairs of stars were observed for this purpose; to be exact, 5308 observations on 283 stars were secured. An additional series of observations was made by him in the years 1893-94. The results agreed with those secured at European, Atlantic Coast and Hawaiian stations, confirming the fact that the latitudes of points on the earth's surface are constantly changing by minute amounts.

"Professor Davidson's programs of observation, whether for the determination of latitude, time and azimuth, of magnetic declination and dip, of refraction constants, or for research in pure astronomy on his own account, were characterized by the very great numbers of observations planned for and secured, as well as by the observance of precautions for ensuring that the individual observations be as accurate as possible.

"It is a remarkable fact that the first investigating astronomical observatory planned for California, and in fact for the western half of the United States, the Lick Observatory, was on a large scale for its time. The first observatory completed in California, however, was that of Professor Davidson. This was established in LaFayette Park, San Francisco, about 1879. It was erected at Davidson's personal expense. It contained a 6.4 inch Clark refracting telescope. This instrument was used to observe the total eclipse of January 11, 1880, on Santa Lucia Mountain; to observe several partial solar eclipses and the 1882 transit of Venus; to make drawings of the principal planets; and to observe star occultations and comets. The observatory was dismantled several years ago, following a permanent affection of Professor Davidson's eyesight, which prevented him from making further observations."

One of the greatest contributions made to astronomy by Davidson was an indirect one. It appears that attached to the Central High School of Philadelphia was an astronomical observatory and two men whose names later became linked with

astronomy observed there. One was Charles Tyson Yerkes, who later distinguished himself in Chicago traction and who gave to the University of Chicago the great observatory that bears his name. The other was Davidson, who came to know, at San Francisco, James Lick who had become wealthy in dealings in real estate. William Churchill writes in the Bulletin of the American Geographical Society for 1912:

“James Lick was seeking to dispose of his wealth. He had no knowledge of astronomy, no interest in the science, but he knew Davidson and respected the man who disregarded money-making for a higher though less gainful pursuit. His thought was drawn in the direction of a great telescope. He learned from Professor Davidson that the greatest refractor was thirty inches. His idea was to multiply the Poltava glass by two; in other words, California should have a five-foot glass. He wrote in his will that the glass to bear his name should be twice as large as the biggest in the world. It took long argument from Davidson to secure the formation of a plan which was within human possibility. The observatory which crowns Mount Hamilton in the dry sky above the Santa Clara valley is the Lick Observatory, but we owe it to George Davidson.

“Word came to Professor Davidson, one day, that a butcher in Oakland was working to become an astronomer, beginning at the bottom, striving to make his own telescope and mount. Davidson went across the bay and talked astronomy to the butcher, took him to his own observatory on the summit of a San Francisco hill and gave the young enthusiast his first glimpse at the heavens through a powerful equatorial. Together they worked over the young man’s home-made observatory. In Oakland a certain rich man and George Davidson brought it to pass that the wealth of the rich man and the butcher’s zeal for the heavenly science were harnessed for the public good. The city of Oakland was the first city of the world in which an observatory was made a part of the public school system, the Chabot Observatory; and the butcher who had sacrificed so much to make his own glass was appointed Director and had the rare pleasure of installing a good glass.”

In connection with his astronomical and geophysical work must be mentioned one invention which grew out of his recognition of the weak points in existing instruments employed by the Coast and Geodetic Survey. His inventive genius suggested

many improvements which were embodied in the Davidson meridian instrument for determining time, longitude and latitude, described in the Survey report for 1867. This instrument was extensively used in subsequent work of the Coast Survey throughout the United States.

Among his 260 publications, books, pamphlets and papers, is included his "Pacific Coast Pilot," a volume of 700 pages with much valuable historical and geographical information; also two field catalogs of time stars, one of 983 and the other of 1278 stars and a table of star factors A, B and C for the reduction of time observations.

The last few years of Davidson's life were spent in comparative quiet, but though enfeebled physically he remained alert of mind, maintained an active interest in scientific matters and retained his wonderful memory and wrote articles on geographical subjects to the end. He contracted a severe cold which affected his heart, weakened by age, and so he died at his residence in San Francisco in his eighty-seventh year.

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George Davidson, born of a race that lived on the mountains of Scotland near the seashore, came to be active among the mountains and on the sea coast removed one-third way around the globe. Amidst a crowd of fortune-seekers, adventurers and speculators he stood as a representative of solid, accurate applied science and contributed perhaps more than any other one man to the early development of San Francisco as a scientific center.

According to Dr. Alexander McAdie, who knew him well in California, Davidson was about five feet eleven inches in height with white beard and piercing eyes. Straight as an arrow he walked with the easy swing of a sailor. In the earlier part of his life in California he was more or less profane, using a picturesque English acquired on the Brig when he had to command a crew of rough sailors in a way they could understand and obey; and later useful in dealing with sea-faring men. But this habit was abandoned after he was appointed

Professor of Geography at the University of California at Berkeley. Miss Davidson says:

“The University asked him to organize a College of Commerce, something new at that time. There were no text books and nothing to go on. He used his own books and maps and wrote his lectures from his own fund of knowledge—they add considerable bulk to his other writings. He lectured only, and to large classes of seniors only. The course was very popular because he found jobs for those who intended making commerce a profession. When it became a ‘going concern,’ that is a regular part of the University, Mr. Holway took it over.”

Says McAdie,

“Twice a week or so he went over from his city home and at the lunch hour about eight of the professors would gather in Professor Armes’ room at the Club and there we were all boys together.

“His appointment to the University came about after his abrupt dismissal from the Coast and Geodetic Survey. . . . It was a time of ‘slaughter’ (as the administration changed and he had reached the age limit.)

“He was naturally interested in seismology. He was long president of the American Seismological Society. And in 1865, after a severe shock he and his son fixed up a rough seismograph in his home.”

Holway writes of him:

“Simple and unassuming in appearance, he bore the mark of one accustomed to command, and possessed a strong and dominating personality. The men who served under him learned at once to obey unquestioningly his slightest order, yet his warm-hearted and generous nature caused them to be strongly attached to him. It has been said that his life work extended through sixty-eight years of active manhood, and rightly so, although one infirmity partially disabled him in later years. He was made Professor Emeritus in 1905 and freed from any obligation to do University work, yet he voluntarily continued his classes for two years in spite of failing eyesight. The necessity of submitting to an operation for cataract finally compelled him to give up lecturing. Although the operation was but partially successful, several papers were prepared by him in these later years. Professor Davidson’s indomitable will kept him at work when he was able to read only

through a narrow slit in blackened cardboard under favorable light and with the help of the strongest glasses.

"Under such circumstances he wrote and published in 1908 his paper on 'Francis Drake on the Northwest Coast of America', and in 1910, the paper on 'The Origin and Meaning of the Name California.' Both these papers necessitated the careful reading of old maps and manuscripts and yet every point was verified and compared in his manuscript and also in final proof with his original source of information.

"To the last he stood as erect as a young soldier, and his voice rang with the courage that he never lost. To those who knew him personally his memory will be treasured because of his warm heart and manly character. The record of his life is an inspiration toward untiring conscientious scientific work."

His daughter, Ellinor Davidson, states that his parents had planned educating him for the church.

"He was reading in the Bible at four, in the Latin Bible at six, and knew the hymns of that period by heart. The early hair-raising sermons on predestination (19th and lastly) preached in Philadelphia at that day served to turn him away. He thought it a horrible and untrue doctrine. Instead he became a scientist and a Mason. But he knew the Bible from beginning to end, and asked his friends among the Jews (Rabbi Voorsanger) to translate passages which are known to be incorrectly done into English. He corresponded with the two English women who discovered the versions of the testament in Syria, etc. He loved Shelley and Homer. He believed Bacon wrote Shakespeare, and corresponded with Mrs. Gallop and Dr. Owen who did the deciphering. He tried his own hand at it and a passage in Latin came out to his delight."

At his death the editor of the *San Francisco Call* wrote:

"This kindly and gentle old man always held a wonderful store of scientific knowledge at the service of the people. Among newspapermen an especial favorite because of the pains he was always ready to take to explain difficult problems of current interest. Always accessible and liberal of his store of knowledge, his house on the hill was the constant resort of seekers after information on topics of scientific interest and difficulty.

"Professor Davidson was keenly interested in everything relating to the sea. All the old mariners knew him and trusted him implicitly. They brought to him all records of strange happenings and went to him for advice, which was always forth-



coming and invariably good. He made a special study of shipwrecks and has helped more than any one man to make safe travel by water along this coast."

George Davidson, a child of a race that was of the sea and the mountains, with limitless energy, an extraordinary memory for the countless things that interested him, a lover of the detail as well as the vast universe of the stars, who considered thousandths of a millimeter in the measurement of base lines that the form of the earth might be accurately ascertained, was a man born to command and one who at the same time made firm friends of his associates in science and the world of affairs. Coming early to the Pacific coast, against whose hidden dangers navigators were inadequately warned, he soon became responsible for the proper placement of light houses and beacons and the making of accurate coastal charts for a distance of two or three thousand miles. He was both a distinguished cartographer and an expert on maps. His name is preserved in connection with a number of physical features of the coast. A list of places named after him has been provided by Miss Davidson.

Davidson Glacier	Lynn Canal, Alaska, named for G. D. in 1867 by the Superintendent of the Coast Survey.
——— Point	In front of Davidson Glacier, so called by Meade, 1869.
——— Inlet	South of Kosciusko Is., Prince of Wales Arch., by Dall, 1879.
——— Mountain	S. side Sanborn Harbor, Nagai Is. Shumagin Group, by Dall in 1872.
——— Bank	Near Unimak Pass, Aleutians, by Fish Commission, 1888.
——— Range	Arctic Alaska, <i>west</i> of the boundary, by Capt. John Turner of Alaska-Canada boundary, 1890.
———'s Rock	Discovered by G. D. in 1854 and named Entrance Rock. In Rosario Strait, a submerged Rock. Put on British maps as Davidson's, and the name remained.

- Davidson's Point    On Royal Geographical Society Island, Victoria Strait, Queen Maud's Sea, named by Capt. Roald Amundsen. See Hansen's map end of Vol. II of the "North west Passage" by R. A.
- Mount Davidson    Highest hilltop in San Francisco.

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An "extinct whale from California" discovered by Prof. E. D. Cope near San Diego, was named *Eschrichtus davidsonii*.

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