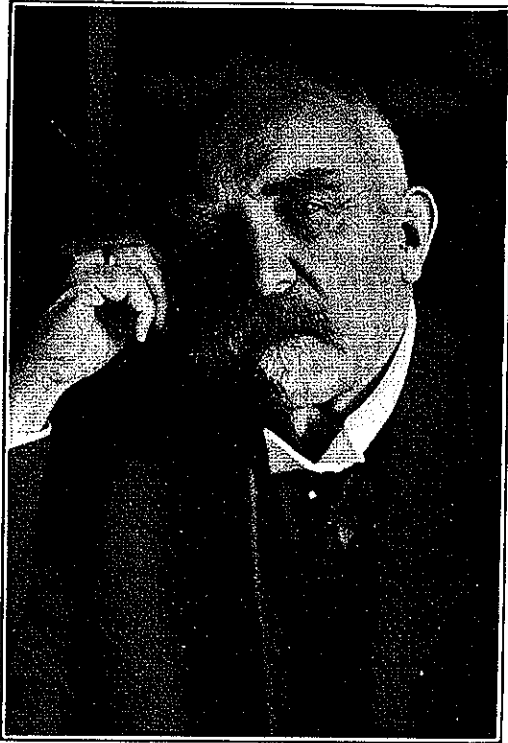


OTTO J. KLOTZ



In the year 1837 Otto Klotz, Sen., came to Upper Canada from Kiel, in the Duchy of Holstein, at that time a part of Denmark, where he was born in 1817. "He was of a family of grain dealers and shipping men, and came to New York, without definite intention of remaining in America, on a sailing vessel belonging to one of his uncles, carrying a cargo of wheat to supply a shortage on this side, and taking eleven weeks for the voyage. He went first, with an acquaintance, to the flourishing village of Harperhey, not far from Seaforth, now not even a post office, intending to take up land and pursue farming.

He remained only two months, by which time he concluded that he was better fitted for some other occupation. Hearing of Preston as a German settlement, he without loss of time went there, and soon decided to remain. He purchased a small brewery, which, it appears, had been abandoned, and carried on a brewing business for some time with a Dr. Ebert as chemist." In 1839 he erected a hotel, which he conducted for over forty years. In 1862 he started a starch factory, which did not prove satisfactory and was discontinued.

He was a leading man in the community, and took a leading part in civic affairs and in education. He compiled and published a German grammar, was appointed School Commissioner for the County of Wellington 1841, Clerk of Division Court 1848, was School Trustee for many years, and founder of the Preston Mechanics' Library with books from his own library in 1871. In 1882 he retired to private life. He was a

member of Grand River Lodge, A.F. and A.M., and Grand Master for the district.

On April 1st, 1839, he married Elise Wilhelm, who was born at Breitenbach of Hesse Cassel, Germany.

He died at Preston on July 6th, 1892, and his widow on August 22nd the same year.

They had five sons and two daughters, as follows:

(1) Dorothea F., born Dec. 28th, 1839, married Dr. Rudolf Mylius, Kitchener.

(2) Jacob E., of Kitchener, born Dec. 21st, 1840, died Jan. 5th, 1924.

(3) Christian H., born Oct. 22nd, 1843, died April 12th, 1874, at Preston.

(4) Augusta W., born Aug. 20th, 1845. Unmarried. Kitchener.

(5) Carl E., dentist, St. Catharines, born July 24th, 1847.

(6) Otto Julius, Ottawa, born March 31st, 1852, died Dec. 28th, 1923.

(7) Emil W., Toronto, born Dec. 15th, 1854.

Dr. Carl has one son, Waldemar C. Emil had one son, Herbert N., killed in Great War, April 23rd, 1915, also one daughter, now Mrs. Wm. O. Langdon of Timmins, Ont.

Otto J. received his primary education at the Public Schools and the Galt Grammar School, then conducted by the renowned Dr. Tassie, to which he walked every day from his home in Preston. He then (1869) matriculated at the University of Toronto in Arts and in Medicine, but decided to follow Engineering. In 1870 he went to Ann Arbor, Michigan, where he obtained the degree of C.E. in 1872, being the youngest graduate in his class.

During the summer holidays in 1871 he acted as assistant to Hugh Wilson, P.L.S., of Mount Forest. After graduating, he opened an office as Engineer in Guelph, then at Preston, where he continued to practice until 1879.

It may be remarked here that Dr. Klotz commenced a diary on 16th Aug., 1866, in ledger form, which he continued in its original form without one missing day, which indicates that he enjoyed exceptionally good health. To be strictly accurate, there is one day missing, the day he lost when he went around the world. This diary of thirty-odd volumes is now filed with

Federal Archives, Ottawa, but is not to be made public for twenty-five years.

He served under articles with Milton Schofield, P.L.S., for either two or three years, and qualified as a Provincial Land Surveyor on January 6th, 1876.

In 1875 he had been employed in Manitoba for the Dominion Government, this being his first visit to our great West. In 1877 he qualified as a Dominion Land Surveyor, and in 1879 as a Dominion Topographical Surveyor. It was in this year that his career as a surveyor in Western Canada began, his first work being a contract survey in the Turtle Mountains District, Manitoba. Lindsay Russell, then Surveyor-General, expressed the opinion that Mr. Klotz's work was too good for contract work, and next year, 1880, he was engaged on outline surveys in the Touchwood Hills. His work in the following years to 1918 was epitomized by Dr. Klotz as follows:

1881—Base Line Survey, 3rd base north of Moose Mountain, the Great Buffalo Plains.

1882—Base Line Survey, 5th base west of 4th meridian, 110 degrees west. Drove 1,000 miles via Calgary, Macleod, Ft. Walsh, Benton to Butte (Mon.), thence by rail to Salt Lake and California, and home by Yuma.

1883—3rd Base Line west of 4th meridian to R. 20. 2nd Base Line west from R. 24 to 4th meridian.

1884—Exploratory Survey to Hudson Bay via the Saskatchewan River. He went from Winnipeg by train to Swift Current, thence overland 30 miles to the waters of the South Saskatchewan, thence 350 miles to the Forks, where the real journey began. He was told by H.B.C. people that he was the first white man to descend Nelson in canoe in nineteenth century. He attended a grand ball at Norway House on this trip. J. G. M. Christie, now of Toronto, was then an officer of H.B.C. at Norway House, and remembers well this function and his first acquaintance with the young scientific explorer.

1885—Inauguration of systematic longitude or astronomical field work from Pacific Coast eastward in railway belt. Word "Astronomer" used for first time by Department, and Mr. Klotz was so designated.

1886—Complete Azimuth Survey of C.P.R., Rocky Mountains to Revelstoke. In this year he sent a collection of trilobite fossils from Mt. Stephen to the University of Michigan which created great interest.

1887—Astronomic work, determining longitude of Wapella, Port Arthur, Kalmar. Appointed on Board of Examiners, D.L.S.

1888—Astronomic work, Kamloops occultations, longitude of Edmonton.

1889—Computations, B.C. railway belt surveys. Confidential mission to Alaska and San Francisco. Elected Fellow of American Association for Advancement of Science.

1890—Re-survey of 12th base east of Prince Albert and 14th base west of 3rd meridian.

1891—Exploratory survey, Cedar Lake, Manitoba.

1892—Trans-Atlantic longitudes. In this year his family moved to Ottawa from Preston.

1893—Commenced survey of Alaskan boundary. In charge of steamer "Thistle," Port Simpson to Juno.

1894—Continuation of Alaskan survey. In charge of steamer "Mystery." Measured motion of Baird glacier with photo-topographic camera.

1895—Office work.

1896—Surveys along north shore of Lake Erie for International boundary purposes. Longitude of Port Stanley and Winnipeg. W. F. King and C. H. McLeod connect Ottawa and Montreal.

1897—Lake Erie survey and computations.

1898—Confidential mission to London, Paris and St. Petersburg re Alaskan boundary. Found valuable original documents re 49th parallel survey, 1858-61, at Greenwich. Visited observatories at Greenwich, Paris, Pulkowa, Berlin, Kiel, Hamburg, Leipzig, and Stuttgart. Conference at Quebec between U.S. and Canada. This was his first visit to Europe.

1899—Office work.

1900—Determined longitudes Rose Point, Owen Sound, Chalk River, Vancouver, Rayside, and Wilno.

1901—Longitude work, Midway, B.C. and Vancouver.

1902—Longitude work, White River. At Washington observing with pendulum, also at Ottawa, Toronto and Montreal.

1903—In charge of Trans-Pacific longitudes, Vancouver, New Zealand and Australia.

1904—Trans-Pacific longitudes. Completing first astronomic girdle around the world. He travelled as follows:

Ottawa, Vancouver, Bamfield, Fanning Island, Suva, Fiji, Norfolk Island, Brisbane, Southport, Sydney, Wellington, Auckland, Doubtless Bay, Melbourne, Adelaide, Freemantle, Perth, Colombo, Aden, Port Said, Cairo, Naples, Rome, Milan, Stuttgart, Berlin, Kiel, Munich, Heidelberg, Oxford, Edinburgh, Leipzig, Greenwich, to Ottawa.

1905—Connect Seattle and Vancouver in longitude. Connect points Lower St. Lawrence, observe at Cambridge (Mass.), and connect Harvard with Ottawa. Moved into new Observatory at Experimental Farm, Ottawa, at Easter.

1906—Observations, Vancouver, Seattle and 141st meridian for longitude of latter. Visited California to study results of great earthquake that destroyed San Francisco; also visited Grand Canyon. Two Bosch seismographs installed at Observatory.

1907—Office work. Began magnetic survey of Canada. Delegate to International Seismological Association at the Hague. Visited European observatories. Attended meeting of American Association of Advanced Science, Chicago.

1908—Office work. Visited Washington. Began issuing monthly seismological bulletins.

1909—Office work. Delegate to International Seismological Association meeting at Zermatt, Switzerland. Visited European observatories. Attended meeting of A.A.A.S. at Boston.

1910—Office work.

1911—Office work. Delegate to International Seismological Association meeting at Manchester. Visited observatories at Winnipeg in autumn.

1912—Office work. Visited observatories in United States, and later visited Victoria, Calgary, Edmonton, Winnipeg, Halifax, St. John's, Nfd.; Charlottetown, Quebec and Toronto.

1913—Office work. Another visit to U.S. Undographs installed at Chebucto, N.S., Victoria, Vancouver, Calgary and Winnipeg. Attended meeting of A.A.A.S. at Atlanta.

1914—Office work. Delegate from Canada to International Seismological Association at St. Petersburg, intending to observe total eclipse of sun on Aug. 21st near Kiev. European war had broken out on arrival at London and stopped journey. Visited observatories.

1915—Office work—Attended A.A.A.S. meeting at San

Francisco. World Exposition. Return via Vancouver, Saskatoon and Winnipeg.

1916—Office work. Spends first holiday since in Government service on Atlantic coast.

1917—Office work. In October appointed Chief Astronomer in succession to late Dr. W. F. King, who died April 23rd, 1916.

1918—Directorship of Observatory and its multifarious duties. Went to Denver in June to observe total eclipse of sun.

1919—Official duties at the Dominion Observatory, Ottawa.

1920—Official duties at the Dominion Observatory, Ottawa.

1921—Carried out determination of Fort Norman on the Mackenzie River by wireless. Duties at the Observatory at Ottawa.

1922—Representative for the Dominion of Canada to the International Meeting of Seismology at Rome, and also representative to the 600th Anniversary of the University of Padua. Also on official business went to London, England, and to Paris. Shortly after his return home he was confined to his house by illness.

1923—Suffered, during year, attacks of angina pectoris. Was able to attend to his duties at Observatory only intermittently. Died December 28th, 1923.

In 1884 the Dominion Government despatched the steamer "Neptune" to Hudson's Bay under the command of Dr. Gordon, to study the navigation problem. Observers were landed at various points to make scientific notes during the season. At the same time Dr. Klotz was entrusted with the command of an overland expedition via the Saskatchewan, Lake Winnipeg and the Nelson River. Near the Forks of the Saskatchewan he occupied the hut of Major Butler, who wrote there "The Great Lone Land." From Fort Nelson Dr. Klotz went on to York Factory. This trip was made in two Peterborough canoes and four men, making on the trip 2,000 miles and eighty-seven portages. He reported adversely on Port Nelson as a contemplated railway terminus owing to the shallow water, and he questioned the commercial value of a railway to Hudson's Bay. For a more detailed account of this exploratory, see Tuttle's "Our North Land" and Departmental Reports.

On Jan. 25th, 1921, Dr. Klotz wrote Mr. John G. M.

Christie, a Hudson Bay Co. official for over forty-five years, but now of Toronto, as follows:

"The name of J. G. M. Christie, what a panorama is opened to my eyes. Norway House in 1884, where I was present at the celebration of the coming of the new factor, Ewan Macdonald, and the departure of Roderick Ross; where the celebrants were mostly Indians; the fiddler the usual half-breed, moving hands, and feet, and arms in unison; the gaudy 'kerchief; the noiseless embroidered moccasins; the loud-voiced caller of the figures of the quadrille and eight-hand reel; the Indian etiquette whereby each man takes his position on the floor and beckons to his lady of choice to join him; the apparent decorum of the daughters of Eve, sitting on one side, and those of Adam on the other, presumably fearing the inflammability of the material. I may say that I learned to play cribbage there on my return from Hudson's Bay in the fall of 1884."

Mr. Christie was at Norway House as accountant in 1881, 1882, 1883 and 1884. His father, William Christie, was chief factor of the Edmonton district for many years, and his grandfather Christie was twice elected Governor of the District of Assiniboia, and at the same time was chief factor at Fort Garry. He built the upper fort in 1834, and designed the lower stone fort, and part of it was built under his supervision about 1832. The north gateway of the upper fort is the only portion of the walls now in existence, everything else being destroyed in 1881-1882. The lower stone fort has been preserved as it was originally built, and is probably the most interesting point on the Red River.

On his survey in 1886 he named many of the now well known mountain peaks in B.C.—Macdonald, Tupper, Mackenzie, Tilley, Begbie, Burgess, Dennis, Hector, and others, and determined their elevations.

Dr. Klotz was the first surveyor to make a return on the nature of the soil, as shown by the pits excavated around the corner posts of sections and townships (in 1891), which method was afterwards adopted by the Dominion Government.

Dr. Klotz and Dr. King had for years advocated the erection of a permanent observatory in Canada. They succeeded in 1902 in inducing the Minister of the Interior, Hon. Clifford Sifton, to authorize the work, and the Dominion Observatory at Ottawa was opened in 1905.

In 1902 he began geophysical investigations by gravity observations with a half-second pendulum, and in recent years he introduced the torsion-balance, by means of which differential gravity observations are obtained for the study of the presence and extent of gas, oil, and salt in the subterranean strata of the earth.

Dr. Klotz made the study of seismology a specialty, and suitable instruments were installed at the Observatory under his supervision.

In 1907 he inaugurated an extensive magnetic survey from the Atlantic to the Pacific and to the Arctic.

He contributed ninety-nine articles to scientific publications, and received recognition from several universities—Toronto, 1904, LL.D.; Michigan, D.Sc.; Pittsburgh, 1916, LL.D.

He was a member of many learned societies, among the more important being the Royal Astronomic Society of England; Royal Society of Canada (President Section III, 1922); Royal Astronomical Society of Canada; New Zealand Institute; Seismological Society of America.

His writings covered astronomy, seismology, terrestrial magnetism, gravity and the wider fields of geophysics. He had a gift of popular exposition of scientific subjects seldom found in the scientist, and similarly his public lectures had a breeziness and charm that put him in instant touch with his audience.

Dr. Klotz filled a worthy place in the early development of science in Canada. The Dominion Observatory, together with a number of special scientific lines of investigation which he inaugurated and carried on, and trained others to follow, will ever remain a lasting memory of him. His cheerfulness was infectious, and in official life he maintained that respect and decorum characteristic of the old school.

Otto Klotz was one of twelve Provincial Land Surveyors who convened the meeting held in the old Parliament Buildings on Front Street West, on February 23rd, 1886, when our Association was organized. Three only of these conveners now survive. Mr. Klotz was the first speaker at this meeting. In drafting the Constitution and By-laws he took a leading part. He took an active interest in the early years of our Association, attended the annual dinners, at which he could

always be depended upon for an address full of encouragement for the Surveyors. In 1905 he was elected Vice-President, and in the following year President of the Association. His opening address as President in 1907 contains much that may be read with profit by the Surveyors of to-day. He presided at the annual dinner at McConkey's on February 27th, 1907. Thos. Fawcett was Vice-President, Killally Gamble Chairman of Committee. There was a large attendance. He contributed to our proceedings the following papers:

- 1894—Photo-Topography.
- 1895—Aneroids.
- 1895—Coefficient of Refraction.
- 1898—Lake Erie Survey.
- 1900—Azimuths by Polaris.
- 1901—Local Deflection of the Plumb-line.
- 1902—North West Angle.
- 1907—The Surveyor and Earthquakes.

He attended meetings in 1886, 1887, 1889, 1891, 1905, 1907 and 1909. He was Chairman of Topographical Committee for many years, and member of Committee on Biography since 1916.

At his last attendance in 1909 a group photograph was taken of ex-Presidents (see Report, 1909), all of whom were then living excepting Major Sankey.

On Dec. 4th, 1873, he married Marie Widenmann, daughter of the late German Consul for Michigan. They had the following children:

(1) Max, born Sept. 25th, 1874. M.D., Ottawa. Died Jan. 31st, 1921.

(2) Julius, born Dec. 15th, 1875. M.D., Westboro.

(3) Oskar, born Jan. 21st, 1878. M.D., Toronto, Department of Pathology and Bacteriology, University of Toronto.

Dr. Max left four children: Marie, Dorothea, Josephine and Otto.

Dr. Julius has two children. Thusnelda and Carl.

This sketch has been prepared from information furnished by his son, Oskar, of Toronto, and by R. Meldrum Stewart, his assistant at the Dominion Observatory at Ottawa for many years, and now Acting Director.

The erection of an Astrophysical Observatory by the Dominion was authorized in 1913, and the order placed for the optical and mechanical parts. Construction of the building was carried on in 1914 and 1916, but it was not until April, 1918, that the mounting of telescope was completed. This is a reflecting instrument with 72-inch mirror. The glass disc was shipped from Antwerp about one week before war was declared in 1914.

Dr. W. F. King and Dr. J. S. Plaskett designed this Observatory, and the latter is now the Director at Victoria.

Mr. Elihu Stewart, one of the Committee who, with Mr. Otto Klotz, drafted the original Constitution of our Association in 1886, and who was an intimate friend, has contributed the following:

" I venture to say that in the history of this country it would be difficult to find any single individual who excelled in so many different pursuits. His activities were so varied (and he excelled in them all) that one wonders how so much could have been accomplished in the time allowed him.

He was a scientist but the very antithesis of the ordinary scientist who seeks out a specialty and disregards all other fields as unworthy his attention, like the old German Professor who had given his life to the study of Greek nouns, and when about to pass away regretted that he had not confined himself to the dative case. Dr. Klotz was perhaps above all an astronomer, who was at home among the stars, but he kept his feet squarely planted on this earth. He took up cosmology, and was the one man who, in this country, developed the use of the seismograph, till Canada now stands high among the nations of the world in this regard. He devoted great attention in later years to this subject, and was one of the foremost men in their international gatherings. It was my privilege when in Ottawa to frequently go with him of a Sunday morning up to the observatory to see whether this old earth had shown any feverish tremors during the previous night.

Mention has already been made of his great work in filling up a large gap in girdling the globe after the laying of the Pacific cable made this possible. Heretofore Greenwich had been connected up with points in Australia by the aid of the telegraph through Europe and Asia, and it was left to Dr. Klotz to carry out the work across the Pacific.

He first stationed himself at an improvised observation station at Vancouver, while he had his assistant at Suva, on one of the Fiji Islands, over 4,000 miles away. As one observed, the hum was flashed across to the other, and vice versa. A great number of observations were made at each of these points. Then Klotz hied himself away to Suva, where he took the place of his assistant, while the latter had moved on to another point, and so on, till finally the point already established through Europe and Asia had been reached. Thus was the girdle completed and the exact position of these and other stations established.

Dr. Klotz was absent on this observatory work a whole year. But for fully six months after his return to Ottawa he was busily engaged in working out the calculations and averaging differences, thus eliminating errors as far as possible.

He had told me that he would have the work completed at a certain time, and we arranged to meet at the Rideau Club at 5 o'clock p.m., when he would know how the work closed. As he came in I told him that from his appearance I was sure the result was satisfactory. Less than 100 feet difference, he remarked, adding at the same time that he would have been satisfied if it had been many times greater, considering not only his own work, but that of so many other observations.

As already intimated, Klotz was a man of many parts. His record as a Land Surveyor in his early days and his travels in the great wilderness of the West and North during that time are alone such as anyone might be proud of, but amid all the foregoing he in some way found time to acquire a wide knowledge of general literature, and in no place was he more interesting than in his own library, which was well stocked with choice books on almost every subject. It was here that I saw most of him. During the eight years of my residence in Ottawa it was my good fortune to have the privilege of a very intimate acquaintance with him. Scarcely a week ever passed when he was at home that we did not have an evening together, either at his home or at the Club, more frequently at the former. We always sat in the library. His dear wife would generally stay with us and enliven the conversation till about 10 o'clock, when she would retire, and more frequently than not it was midnight when I left him. It was hard to get away.

The conversation would lead to a quotation, and in a moment he had the book in hand, and in the next the quotation. He was the most orderly person I ever met. I never knew him to have the least difficulty in finding anything he possessed.

On leaving him I would often say, "Well, I have again succeeded in lessening your sleep by a couple of hours." In his genial way he would say: "No, you have given me a rest. From now to two o'clock I can accomplish all I have to do. You know I seldom go to bed before that hour, five or six hours are all I require."

Notwithstanding, I fear that his days were shortened by too little sleep. The last thing he did, every night, was to write up his diary. He carried this always with him, whether to the Saskatchewan, to St. Petersburg, or to the islands of the South Seas. This, I notice, is not to be made public for twenty-five years, and, of course, under the circumstances, I will never see it in full, though he used frequently to refer to it, and often read passages from it.

When it is made public it will in itself be an autobiography. Dr. Klotz was a big man, both physically and mentally, and his heart corresponded with both. Strange as it may seem, he wrote with a very fine pen, and though he wrote fast I am sure I never saw any writing that equalled his, and it was legible as type.

Pardon a personal note. It is hard, very hard, for me to realize that one so full of life as my very dear friend has really passed into the unknown land. My visits to Ottawa can never hereafter be as before. No other greeting so cheerful; no more Sunday walks to the Observatory; no more good-byes at midnight.

"The day Thou gavest Lord is ended,
The darkness falls at Thy behest."