



Rev. Brock

MEMORIAL OF REGINALD WALTER BROCK

BY M. Y. WILLIAMS

Reginald Walter Brock was born at Perth, Ontario, January 10, 1874. He lost his life in an aeroplane accident at Alta Lake, British Columbia, on July 30, 1935.

R. W. Brock's grandfather, William Brock, a native of Fermanagh, Ireland, emigrated to Canada in 1849 with his wife and twelve-year-old son, Thomas, and settled on a farm near Petrolea. Here, Thomas Brock grew up.

In 1858, Thomas Brock was received as a minister into the old Methodist Conference. He married Marian Jenkins, daughter of Charles Jenkins, of Ottawa, Ontario, and granddaughter of John Counter, who not only was the first mayor of Kingston, Ontario, but held that post of honour for eight consecutive years. Three children, Norma, Reginald Walter, and Stanley, were born of this union.

Born and cradled in the Parsonage, Reginald Walter moved with his parents from the town of Perth in the Ottawa Valley to southwestern Ontario, living in Mount Forest, Brantford, and Paris. In the vicinity, virgin forests still awaited the woodsman's ax, and gave sanctuary to a wealth of wild life. The Mohawk Indians, of the Brantford Reserve, maintained many of their primitive accomplishments, including skill in the use of the bow and arrow. In such an environment, R. W. Brock spent his early boyhood, gaining a love and appreciation for wild life and considerable skill in woodcraft. Smaller game fell readily to his shaft, and he longed for an opportunity to test his prowess against the larger mammals. Meanwhile, his sense of proportion was shocked by the wasteful methods of clearing the land. The burning of log heaps of oak, maple, beech, and ash, and the sale of black walnut and hickory for firewood, at the bare cost of wood-cutter's wages, left a lasting mental impression. The creaking oil pumps of Petrolea, which were keeping Canada well to the fore in petroleum production, called to him of the mystery of oil fields; and glacial moraines and far-travelled granite and gneiss boulders, the fossiliferous rocks of the canyon of the Grand River, and its meanders near Paris, intrigued the ever-inquisitive mind of the budding geologist.

When R. W. Brock was twelve years of age, his father died, having spent twenty-eight strenuous years in the ministry. From then on, the young school-boy became virtual head of the family. Having attended

Paris and Mount Forest high schools, he matriculated from the Ottawa Collegiate Institute in 1890, and entered Toronto University that autumn.

In the spring of 1891, Brock was appointed field assistant to the veteran geologist, Dr. Robert Bell of the Geological Survey of Canada, who was working in the Sudbury district, north of Lake Huron. His initiation into field geology was as inauspicious as it was portentous. Seated in the bow of his chief's canoe, the immature, seventeen-year-old college student broke a favorite paddle as he made his first landing. This mishap, and the lecture that followed, had not passed out of his mind, when an historic ax was dulled by the initiate as he attempted to help pitch camp. The chief's free expressions of disapproval had scarcely subsided, when, moving a little apart, his boyish apprentice expressed his admiration of the sunset in enthusiastic whistling. There followed a stern warning to prepare to return home in the morning. Needless to say, the kindly geologist relented, and, as his boyish assistant developed rapidly into a magnificent specimen of athletic young manhood, Dr. Bell grew so confident of his physical and mental ability as to give him more and more difficult tasks to perform during the five successive summers of their association.

That first summer gave Brock a taste of field geology, and, what was perhaps still more important, he was associated with Willet G. Miller, a senior assistant, who became his best friend and adviser.

The winter of 1891-1892 was spent at the University of Toronto and the succeeding summer with Dr. Bell and Miller in the Sudbury district.

Due to illness, Brock missed a year and a half from college, but made good use of his time by acting as clerk in a lumber shanty on the Ottawa River, clerking in the mail-order department of T. Eaton & Co., Toronto, and by reporting on the old Toronto News and the newly founded Toronto Star, ending up in the press gallery of the legislature. The summer of 1893 saw him back with Dr. Bell and Miller in the Georgian Bay. That autumn, Miller left the field early to become lecturer in geology at the School of Mining in Kingston, which was just opening its doors in affiliation with Queen's University. The following January, Brock registered at Queen's in order to study under Miller. So it was, that in the spring of 1895, he graduated from Queen's with the degree of Master of Arts, taking the medal in mineralogy and tying for the medal in chemistry.

In addition to his academic achievements, Brock made history in athletics. He was a member of the first seven of the original Toronto University hockey team, and he belonged to Queen's hockey and football teams. The Toronto Saturday Night, of December 12, 1907, stated that "for many years he figured in the final O. H. A. matches, oft on the winning teams. . . . He took part in the historic football battle in 1896 on the Toronto campus between Queen's and Varsity when 'Big Jim' Corbett remarked that 'the prize ring was good enough for him.' "

Brock spent the winter of 1895-1896 at Heidelberg, studying under Rosenbusch. A photograph, taken in the laboratory at Heidelberg in 1895, includes D. H. Newland, later of the New York Geological Survey; K. von Kraatz; F. R. Van Horn, later of the Case School of Applied Science; J. Mathews, later of Johns Hopkins; W. G. Miller, later Provincial Geologist for Ontario; Charles Palache, later of Harvard; Thomas Jaggard, later of Harvard and the Volcanic Observatory of Hawaii; A. Osann, of Freiberg; Johansson; and Brock.

During the summer of 1896, he was again with Dr. Bell in the field, this time in northern Quebec. From Lake Shabogama, Brock travelled by canoe with one Indian through lakes Mekiskan and Waswanipi, the Waswanipi River to Lake Mistassini; thence, via Ashuapmouchouan River, to Lake St. John. Much entirely unexplored country was mapped and studied, and the canoe trip, which started originally at Mattawa on the Ottawa River, was approximately 700 miles. This was Brock's most extensive exploration in the pre-Cambrian Shield, and his last summer's work in eastern Canada. Moreover, during the long trip with the Indian guide, through lands inhabited almost entirely by Indians, Brock learned much of their language and customs.

The winter of 1896-1897 was occupied as lecturer in mineralogy at Queen's University, the succeeding summer being spent as assistant to R. G. McConnell, who was starting work on the West Kootenay map-sheet of British Columbia. Thus, during his last summer as assistant, Brock made his first contacts with the province that was to become his by adoption. That autumn he was appointed to the staff of the Geological Survey of Canada, and was especially selected by the director, G. M. Dawson, to continue the latter's work in British Columbia. Succeeding summers were spent in the West Kootenay, Boundary, and Lardeau districts.

On November 28, 1900, R. W. Brock married Miss Mildred Britton, youngest daughter of the late Hon. Mr. Justice B. M. Britton, of Kingston, Ontario. That winter was spent by the young couple at Heidelberg, where Brock continued his post-graduate studies. In March, Dr. Dawson died and the newly appointed Acting Director, Dr. Bell, instructed Brock not to go up for his doctor's degree. Although Heidelberg was deprived of honoring him with its degree, Rosenbusch was ever free in expressing his admiration for the ability and scholarship of his young Canadian student.

In the autumn of 1902, Brock was appointed professor in charge of the Department of Geology and Petrography at Queen's University, on the recommendation of Miller, who had resigned in order to organize the newly established Bureau of Mines of Ontario. The succeeding five years were busy ones for the young professor, who relieved the routine of teaching with active summers in the field, and service on numerous commissions. During this time the School of Mines grew to a leading place among schools

of engineering, training geologists who hold outstanding positions in the world of today.

During this period, too, Brock rounded out his field work in southern British Columbia. The West Kootenay and Boundary sheets, with their accompanying reports, elicit the highest praise from recent workers in this field. Not only was the field work done with meticulous care, but discoveries of the utmost value were made. The Nelson batholith was shown to be composite, consisting of at least three separate intrusions. The relationships between ore accumulations and igneous intrusions were pointed out, when lateral or vertical segregations of ore bodies were held to be their normal origin. It was also shown that granites might mineralize themselves along shear zones. Brock's work in Rossland was completed and ready for publication, but C. W. Drysdale was finally sent into the area to bring the mining data up to date and the report appeared in his name.

Field work and teaching alike were interrupted, when, on November 28, 1907, Brock was appointed Director of the Geological Survey and acting Deputy Minister of the Department of Mines. Selected by Dawson himself as his successor in British Columbia, it was not unfitting that he should eventually succeed to the position which Dawson had so highly adorned.

The immediate cause of Brock's appointment to the Geological Survey was the continued illness of its former director, Dr. A. P. Low, who was elevated to the newly created post of Deputy Minister of Mines, although he was never able fully to perform his duties. Indeed, a crisis had been slowly arising, which culminated when, with the setting up of the Mines Branch, plans were laid to abolish the Survey, and to combine its activities with those of the sister institution. To combat this danger, influential mining organizations had asked that Brock be appointed as Director of the Geological Survey and acting Deputy Minister of Mines. The young administrator faced a difficult task, but his accomplishments were proportional to the difficulties faced. The Survey was not only saved, but it was reorganized and enlarged. A topographical branch was established under W. H. Boyd, and the drafting and photographic divisions were modernized. Upon moving into the newly completed Victoria Memorial Museum, in 1911, scientists of standing were appointed to the various natural history divisions, and a start was made toward the development of a worthy National Museum. But it was in the selection and training of scientists that Brock showed his real genius. Ever opposing political preferment in the selection of his staff, he made an arrangement with Canadian colleges by which recommended students were appointed as field assistants, and from these he selected the most promising for directed post-graduate work and final appointment to his staff. This scheme had

been initiated by A. P. Low, but Brock perfected it and made the attainment of the doctor's degree a prerequisite to an appointment. At the same time, generous leave of absence was allowed the younger men, already on the staff, in order that they might complete their post-graduate work. The reorganized institution soon gained an international reputation, in recognition of which the late C. D. Walcott, then emeritus Director of the Geological Survey of the United States and Secretary of the Smithsonian Institution, proposed himself as an honorary member of the Geological Survey of Canada.

Administrative duties prevented Brock from participating in field work, but, in 1910, he accompanied his Excellency Earl Grey, then Governor General of Canada, on a trip to Hudson Bay. Leaving Norway House, Lake Winnipeg, on August 8, the party travelled in twelve canoes down the Nelson River to York Factory, where they boarded the Canadian government steamer Earl Grey, crossed Hudson Bay, and sailed south along the Labrador coast to Sydney, Nova Scotia.

The culmination of Brock's regime as Director was reached, when, as secretary of the Twelfth International Geological Congress, he welcomed its members to Canada in 1913. Much "geological housecleaning" had been done in preparation for the guests, and, during the lull preceding the World War, the eye of the geological world was focused with appreciation upon Canada, its Geological Survey and its young Director.

Having acted as Deputy Minister for seven years, Brock was finally given the appointment upon the superannuation of Dr. Low, early in 1914. About this time, however, a voice was calling him back to the west; it was none other than that of Dr. Frank Fairchild Westbrook, newly appointed president of the infant University of British Columbia. Dawson's memory, his love for, and belief in, Canada's western province, and his interest in education were all luring him away from the attractive path he was on—a path, however, often made weary by political interference and bureaucratic stagnation. As few others saw it, Brock also sensed the coming world struggle, and he felt it would be easier to free himself from his new duties than from his national post of responsibility—for he never doubted but that duty would involve him in overseas service. And so it was that he resigned as Director of the Geological Survey and Deputy Minister of Mines, the highest Canadian position attainable for a geologist, to become Dean of the Faculty of Applied Science in a University in the building.

Dean Brock had not yet settled in Vancouver and was, in reality, in England looking for teachers for the University, when war broke out, interrupting the building program of the University and retarding its organization. In December, Brock joined the 72nd Regiment Seaforth Highlanders of Canada, in which he rose, in 1915, to the rank of major,

commanding C company. The University of British Columbia opened its doors in the autumn of 1915, under the shadow of war, and on February 14, 1916, there came into existence at Winnipeg, the 196th, or Western Universities, Battalion. The recruiting and organization of "D" Co. (M. D. 11) British Columbia, was entrusted to Major Brock, ably assisted by the late Captain O. E. LeRoy, with headquarters at the University. Major Brock was, accordingly, transferred from the 72nd Seaforth Highlanders, and commanded the University Battalion at Camp Hughes until the arrival of the Commanding Officer, Lieutenant Colonel MacKay. Major Brock went to England with the Universities Battalion, where he was appointed Second-in-command of the 19th Reserve Battalion (Canadian) and commanding officer of a school of map-reading and topography for officers. The efficiency of his organization resulted in the 19th Battalion securing the training championship for the Canadians against the pick of all the British forces.

Near the end of October 1917, Capt. E. H. Corbett, of the Y. M. C. A., was sent to Seaford to organize a college in the Canadian camp, and on November 2 the Khaki College was started, with Brock representing the training school. In this way, Brock was able to utilize his ability and enthusiasm as an educator, and many of the beneficent results of the famous college are directly due to him.

Major Brock was later attached to headquarters Seaford camp and finally to the general headquarters Egyptian Expeditionary Force, as a special intelligence officer. Accompanying Lord Allenby on his successful Palestine Campaign, Major Brock reported on water supply and incidentally made a first-class geological survey of Palestine. His adventures in the desert included succor and entertainment of Colonel Lawrence, and contacts with many other interesting persons. A firm friendship was established between Lord Allenby and Major Brock, the leader of the Expedition always stopping with his former intelligence officer when visiting in Vancouver.

Major Brock was discharged from active service at the close of the war and returned to Canada September 1919, when he was posted to the Second Reserve Battalion. In 1928, he was transferred to the first Battalion as second in command. On the first of November 1933, he was raised to the rank of Lieutenant Colonel in command of the 72nd Seaforth Highlanders, Vancouver division, which command he held at the time of his death.

On his return to Canada, Dean Brock threw his energy anew into the development of the University of British Columbia and more especially the Applied Science Faculty, which was directly under his charge. Every facility was given returned men to rehabilitate themselves, and several hundreds entered the various faculties, many choosing that of Applied Science. By the spring of 1935, more than forty graduates of the Uni-

versity of British Columbia, majoring in geology, had taken their doctorate at well-established graduate schools in England, in the United States, or in eastern Canada, and the graduates of the various departments of Engineering were holding excellent positions, not only in Canada but in many foreign lands. The great graduate schools of the world had for some time recognized both the bachelor's and the master's degree in geology from the University, as equivalent to that of any Canadian or American institution. In 1928, A. F. Buddington, in *Science*, pointed out that the University of British Columbia was turning out more professional geologists than any other college in America. J. Austin Bancroft, who has employed graduates of many American and European colleges in his explorations in South Africa, has expressed his satisfaction with graduates of the University.

In 1923, Brock enlarged his department to include geography, thus making the University of British Columbia the first Canadian university to provide for the teaching of this science.

But ever during his educational activities, Dean Brock sought opportunities for travel and field work, just as he always encouraged his staff to continue their work in nature's laboratory, the great world itself. In the summer of 1920, he did field work for the last time for the Geological Survey of Canada, in the Eutsuk Lake district of British Columbia, and carried out his program in spite of a serious knee injury received overseas.

In 1922, in company with native guides, he made a reconnaissance across the largest island of Fiji and "proved that the continent of Asia once included the Fijian archipelago" (Brock's notes). Continuing to Australia, he attended the Second Pacific Science Congress, and afterward, in company with Alfred H. Brooks, E. O. Hovey, and Nevin M. Fenneman, crossed the desert between Broken Hill and Great Cobar, visiting the important mines of the eastern half of Australia. On the homeward journey, Dean Brock made a reconnaissance of Hong Kong and the New Territories and perfected arrangements for a detailed geological survey of the colony. This survey was carried out by the government of the Colony, Dean Brock being asked to direct it, on the advice of the British Government.

Thus, started the survey of Hong Kong. S. J. Schofield, the author, and the late W. L. Uglow spent the winters from 1923 to 1926 on the work, and Dean Brock spent the winters of 1927-1928 and 1932-1933 bringing the field work to a conclusion. Although the area is relatively small, it includes hundreds of islands, and the weathered nature of the rocks and the heavy regolith make geological investigation difficult. The igneous geology is complex, and, as this was the first detailed survey to be undertaken in southeastern Asia, Dean Brock was most anxious to make it a standard of excellence. The geological work was undertaken while a new base map

was being constructed, and when the new map was finally published, in 1931, it was evident that it varied so much from the older map that another field season would be required in order to fit the former work into place. To this end, Dean Brock spent the winter of 1932-1933 in the Colony. The geological maps were completed by January 1935, and Brock was doing his utmost to round out the report, when so disastrously interrupted on July 30.

On his last journey home from Hong Kong, Dean Brock made studies of North China, under the guidance of the Director of the Chinese Geological Survey; of Manchuria, under the guidance of the geologist of the South Manchurian Railway; and of Korea, with the Director of the Korean Geological Survey. He also made some geological excursions in Japan and visited Kilauea under the guidance of Dr. Jaggard.

In 1929, the Province of British Columbia started an investigation of the natural resources of more than 30,000 square miles of land, set off as a subsidy to the Pacific Great Eastern Railway. Dean Brock was selected as chairman of the commission to investigate the mineral resources, the other members being professors of the University, S. J. Schofield, J. M. Turnbull, head of the department of Mining, and the writer. Dean Brock took the field and spent a busy summer, personally investigating the metallic resources. His report has played an important part in increasing the gold production of the Province.

In 1930, in connection with the continuation of the Pacific Great Eastern Survey of Resources, Dean Brock investigated crossings of the Cottonwood River for the railway.

In 1931, Dean Brock spent a week on the geology of the island of Skye, and three months on the geology of Finland, northern Norway, and Swedish Lapland, under the guidance of J. J. Sederholm. He also attended the International Geographical Congress in Paris, was a guest of the British Association centenary meeting in London, and was a representative of the British Association at the Lord Mayor's dinner, Liverpool, and at the Liverpool Cathedral ceremony.

Dean Brock had served on commissions and governing boards as follows:

- 1903—Royal Commissioner to report on the Frank landslide.
- 1904—Valuator for properties entering the Consolidated Mining and Smelting Company.
- 1907—Valuator for the Temiskaming and Northern Ontario Railway Commission in the La Rose right-of-way case.
- 1909—Councillor of Queen's University.
- 1910—Governor, School of Mining, Kingston, Ontario.
- 1911—With F. T. Congdon he drafted the mining law for the Dominion of Canada.
- 1913—General Secretary and Treasurer of the 12th International Geological Congress, retaining this position for the Brussels Congress in 1922.
- 1930-1932—Member of the board of advisors of the Royal Military College of Canada (chairman 1930, 1931).

He was a member of the committee on pre-Cambrian nomenclature, and of the Committee on the International Geological Map of the World. He was a Fellow of the Royal Society of Canada, the Geological Society of London, the Geological Society of America; Fellow, ex-Vice President, and Chairman of Section E of the American Association for the Advancement of Science; Director, American Institute of Mining Engineers; Councillor, Canadian Institute of Mining and Metallurgy; member of the Mining and Metallurgical Society of America; honorary member of the Mining Society of Nova Scotia, the Vancouver Chamber of Mines, the Canadian Geographical Society, and the Geological Society of China; member of the Institution of Mining and Metallurgy, London, and the Archaeological Society of America, and the Museum Associations.

His club membership included the Athenaeum, London; the Rideau Club, Ottawa; the Vancouver Club and the Jericho Country Club, Vancouver.

In 1921, Queen's bestowed the LL.D. degree upon him, and the University of Hong Kong honored him similarly in 1933. On the occasion of the Jubilee celebration of King George V, in May 1935, he was granted two Jubilee Medals, and on May 24, 1935, the Royal Society of Canada honored him by electing him President.

In the autumn of 1934, the Hon. R. B. Bennett, then Premier of Canada, asked Dean Brock to accept the position of Chairman of the Harbour Commission of Vancouver. In December, this request was pressed as a patriotic appeal, on the understanding that he would be able to continue with the major part of his college duties. Dean Brock was already heavily burdened with teaching, administering his department and the Faculty of Applied Science, and he was striving to complete his Hong Kong report. Upon this national appeal, however, he placed the request before the Board of Governors of the University, and a committee of the Board advised him to accept. This he did, but he offered to contribute gratuitously his general supervision and teaching services in the University. This offer was not accepted by the Board of Governors, and Dean Brock was on leave of absence from the University, from January 17, 1935, to the time of his death. He was in charge of the Harbour Commission during the distressful days of the opening of the longshoremen's strike and was largely responsible for keeping the port open to shipping. Although thoroughly interested in the welfare of this great port, he, nevertheless, looked forward to the time when he could return to his college duties and activities. He continued his work on the Hong Kong report to the very last.

Well over six feet in height, Dean Brock was of strong, athletic build. Of fair complexion, he was commonly taken for a freshman during his professorship at Queen's, and he remained perennially youthful, not only

in appearance but physically and mentally, throughout his strenuous life. When not engaged in field work, he chose golf as his means of exercise, and was noted for his long drives. In spite of the injury to a knee, received overseas, he was active in the mountains, tiring out much younger men.

Fearless and resourceful, Dean Brock had many adventures, and his bear stories of the Slocan always held an audience. He outwitted a bandit in the great Pyramid of Gizeh, pretending his pipe was a "gun," and his hearty laugh caused Chinese soldiers to lower their rifles, when they captured him on a border path between Chinese and Hong Kong territory. Tense and highly absorbed when hard at work, Dean Brock was the soul of good fellowship when at mining conventions or on field parties, and his hearty songs and thrilling tales were always welcome entertainment.

On July 30, Dean Brock accompanied David Sloan, a former student of his at Queen's and the General Manager of the Pioneer Gold Mines Ltd., on a trip to Gun Lake, to visit Ben Smith, a shareholder of the mine. In a plane, piloted by William McCluskey, a wartime Canadian pilot, the party flew over the mountains from Vancouver to Alta Lake, where they landed to pick up Mrs. Brock, who was stopping at her summer home with her sons, David and Thomas. On taking off, the plane was caught in a down draft, causing it to collide with a stump on the mountain side. Dean Brock and Pilot McCluskey were instantly killed. Mrs. Brock died on the way to the hospital, and Mr. Sloan died five days later.

The love and respect of their fellow citizens were overwhelmingly accorded Dean and Mrs. Brock in the largest funeral Vancouver has ever seen, the ceremony being carried out with full military honors. "Happy were they in their lives, in death not divided" was an apt summary by the press.

Five sons remain to mourn the loss of father and mother: Lieutenant Commander P. Willet Brock, of the Royal Navy of Great Britain; Byron Britton Brock, B.A.Sc., Ph.D., chief geologist for the N'kana Concession, Northern Rhodesia; David Hamilton Brock, B.A., barrister, Vancouver; Thomas Leith Brock, B. A., B. A. Sc., graduate of the Royal Military College, Kingston, and Lieutenant in the 1st Battalion Seaforth Highlanders of Canada; Philip Holton Gilbert Brock, student at the University of British Columbia. A brother, Stanley Brock, is in business in Montreal.

A great geologist, R. W. Brock may well be listed with predecessors who directed the Geological Survey of Canada,—Logan, Selwyn, and G.M. Dawson. As an educator, he compares favorably with his beloved Principal, the late George Monroe Grant, of Queen's University. A staunch Britisher, his horizon included the whole world, as he clearly showed at International Relations Congresses and in scientific assemblies of international character. Understanding men, he was a great administrator. His family life was ideal, and his intimate friends were treated as members

of his family. Of rigid integrity, Dean Brock was nevertheless considerate in judgment of the mistakes of others. Such a combination of physical strength, mental power, and force of character are rarely found united, and the world is left the poorer for his untimely passing.

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