

ROCK STARS

Andrew Cowper Lawson (1861–1952): How a Boy from Canada Became a Legendary Professor of Geology at Berkeley

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Born in Scotland, Andrew Cowper Lawson came to Hamilton, Ontario, when he was six years old, graduated from the University of Toronto in 1883, worked for the Geological Survey of Canada, gained his doctorate at Johns Hopkins in 1888, and moved to California in 1890.

His father was William Lawson, born in Kirkcaldy, Scotland, a seaman whose health was ruined in a shipwreck in 1865. His mother was Jessie Kerr, a name she took after her adoption by her maternal grandparents. William and Jessie were married in 1860, and Andrew was their first child, born in Anstruther, Scotland, on 21 July 1861. The family, including Andrew's brother and two sisters, emigrated to Canada in 1866 and settled in Hamilton, where William was employed in a shipyard. He retired in 1873 because of his health. Six more children were born in Canada.

Andrew attended the Hamilton Collegiate Institute (HCI), one of a small number of superior high schools that offered a classics-based education. After her husband's retirement, Jessie managed to support the family by writing short stories, which she sold to magazines in Scotland and Canada under a variety of pen-names, and Andrew and his sister, Katherine, had to take over many of the tasks and responsibilities that would normally have been assumed by their parents. One of Andrew's brothers, James, showed artistic talent, which was encouraged (and subsidized) by his headmaster at HCI, George Dickson, who was an amateur geologist.

In 1879, James left for Europe, where he became a well-known artist, changing his name to Kerr-Lawson in order to avoid confusion with another artist with a similar name. The family moved to Toronto in 1881.

While at school, Andrew delivered newspapers, including the *Hamilton Spectator*, which is still the local newspaper. After graduating from HCI "with great distinction," he worked part time as a reporter for that newspaper. In his last year at HCI (1879–1880), Andrew studied chemistry with Joseph Winthrop Spencer, a geologist later known for his work on the Great Lakes. Dickson and Spencer probably made him aware of geology, but when he enrolled in the University of Toronto, it was to study classics, not science. In the summer of 1881, he was offered a job as a legal reporter in Montreal. He accepted, and in the fall of 1881 took courses at McGill University in geology (from William Dawson), mineralogy, and medicine (from William Osler). He soon discovered he was too squeamish for medicine and not inclined to pursue a career in journalism. Instead, in 1882, he worked as a field assistant in the western prairies with Robert Bell of the Geological Survey of Canada (GSC), then based in Montreal. He described this experience in detail much later in his life: he enjoyed the exploration but seems to have learned little geology from Bell.

The following summer, Lawson and J.W. Tyrrell (a topographer) began mapping the Precambrian of the Lake of the



Figure 1. Lawson aged 20, the age at which he first took a course in geology from William Dawson at McGill (Geological Survey of Canada photo 201995).

Woods region, nominally under Bell's supervision, but working largely by themselves. Returning to the University of Toronto, Lawson graduated in 1883 with a gold medal for excellence in classics, mathematics, modern languages, and natural science. He then worked full-time for the GSC, in charge of the Precambrian mapping he had begun the year before, while studying geology part time at Toronto (M.A., 1885). This work continued during the summers, even after he began graduate studies in geology at Johns Hopkins University. Perhaps E.J. Chapman, then Professor of Geology at Toronto, had suggested that he go to Hopkins to learn the new polarizing microscope techniques from George Williams. Lawson's doctorate was awarded in 1888. He was the first of many GSC geologists to have their doctoral studies supported while they remained employees of the GSC. In 1888 he obtained leave to travel to the International Congress of Geology in London in 1888, followed by field excursions in Scandinavia, France, Germany and Italy. He returned to the GSC, but resigned in 1890 to become a consultant in Vancouver, British Columbia, and spent the summer prospecting for coal. In November, he moved to the University of California at Berkeley and remained there for the rest of his long life.

Lawson was known for his field studies of the Precambrian rocks of western Ontario, and Minnesota (1891). In 1885–1888, he established that the old granitic rocks, known as Laurentian,

were intrusive into metamorphic and volcanic rocks (Keewatin), and so were younger than them rather than older as previously thought. Lawson thought the intrusive granites were remobilized older crust and continued to call both Laurentian. His ideas were published promptly by the GSC in 1885 (Lake of the Woods Report) and again in 1887–1888 (Rainy Lake). His observation that the Laurentian granites were intruded into the Keewatin was soon accepted, but his interpretation of the stratigraphy of the Keewatin and its associated metasediments (called Couthiching by Lawson in 1887) remained controversial for almost a hundred years. In 1911, he returned to Ontario and recognized a further stratigraphic unit (Seine) and two periods of intrusion, which he called Laurentian and Algoman. The stratigraphic controversy continued, and was resolved only partially by the application of way-up techniques, unknown to Lawson in the 1880s. It finally ended in the 1980s, with the application of refined age dating and recognition that the Superior Province contains many structurally juxtaposed terranes.

At Berkeley, Lawson began teaching a seminar for graduate students, as well as a field course, both innovations in America. With help from his students, he began detailed geological mapping of coastal California, and established *The Bulletin of the Department of Geology*. After the 1906 earthquake, he supervised the production of volume 1 of *The Report of the State Earthquake Investigation Commission* (1908), and

established a laboratory at Berkeley that became a famous center for earthquake studies. He was one of the founders of the Seismological Society of America. He also served as a consultant on mining and engineering projects, including the Golden Gate Bridge.

Lawson had strong views on the methodology of the earth sciences (including the importance of field studies). Philosophically, he rejected his Presbyterian upbringing and was a positivist but held near-mystical views about nature, which he generally expressed in poetry (see Vaughan's 1970 biography). A rather private, reserved man, he was also a

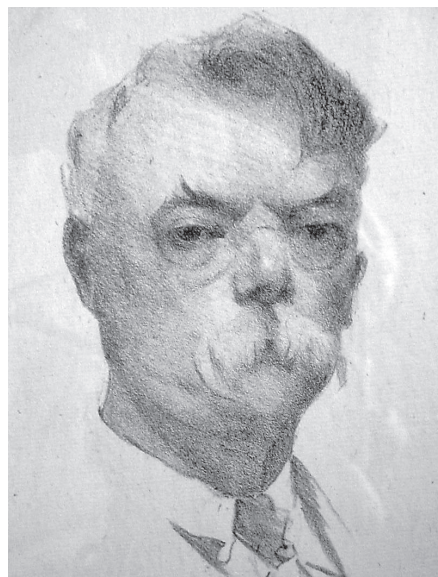


Figure 2. Portrait by his younger brother, James Kerr-Lawson. A characteristic pose, which nicely illustrates why he was called "the King."

forceful teacher who had many famous pupils. A ruthless critic, he was rarely persuaded to alter his own opinions. His personality earned him the nickname "The King" at Berkeley. He served as department chair on several occasions for a total of 20 years and was Dean of the College of Mining at Berkeley from 1915 to 1918.

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