

The George Lawson Medal, Part I.

An expanded portrait of George Lawson, outstanding contributor to Canadian botany

Frédérique Guinel¹ and Jennifer Doubt²

1. Professor Emerita, Biology Department, Wilfrid Laurier University

2. Curator, Botany, Canadian Museum of Nature

The CBA Bulletin [Number 2 of 1969](#) featured an announcement that the George Lawson Medal in Botany, the most prestigious award of the Association, would be conferred for the first time at that year's annual banquet. A short biography of Lawson followed, based mainly on an article published by Rousseau and Doré in 1966. At the time, little was known about Lawson, but in the last few decades, three historians have shed more light on his botanical life and accomplishments; furthermore, the archives of Queen's and Dalhousie Universities have become much more accessible. In our ongoing effort to record, more fully and consistently, the history of CBA awards, we plan a three-installment Lawson 'miniseries' in the Bulletin volumes of 2023, to

- I. paint a fuller picture of Lawson the botanist, based on resources made available since the 1969 Bulletin,
- II. share the history of the Lawson medal and some statistics about the medal recipients, and
- III. provide an overview of the Botanical Society of Canada (1860-63), which Lawson founded.

Part I is below. Enjoy!

From the start: Curious, brave, and driven

Lawson was born in Newport, Fifeshire, in Scotland on October 12th, 1827 (MacKay, 1896). He loved being outside, observing, and studying what he saw. In his late teenage years, he was apparently of an adventurous mind and quite bold. Zeller (1990) recounts that in 1846, 19 year-old Lawson wrote to prestigious botanist Sir William Hooker, Director of the Royal Botanic Gardens, Kew, and founder of its prominent herbarium. In need of advice on behalf of a supposed friend, Lawson asked Hooker if one “willing to undergo *any* hardships, dangers, or difficulties” and ready “to devote his lifetime in searching out the riches of the trans-Atlantic forests” would be “rewarded by brilliant discoveries.” That Hooker apparently never answered (Zeller, 1990) did not discourage Lawson who, in 1848, entered the University of Edinburgh where he studied Natural Sciences.

During his studies, Lawson met John Hutton Balfour, Director of the Royal Botanic Garden, Edinburgh, and Botany professor at the University of Edinburgh, who would be his career-long mentor. He integrated quickly and actively into the botanical community, becoming assistant secretary and herbarium curator of the Botanical Society of Edinburgh (Zeller, 1990), and serving first as a lab demonstrator, then as an assistant-professor in Botany at the University (Rousseau et Doré, 1966).

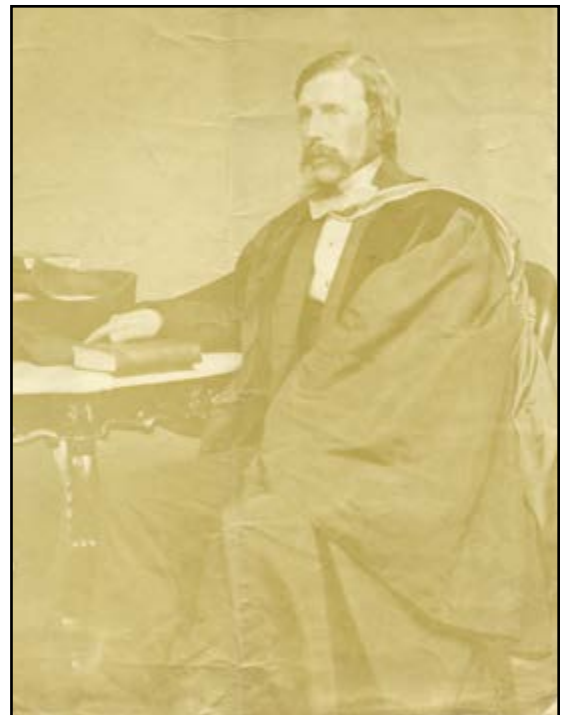


Figure 1. A young Lawson in his academic regalia. Unfortunately, no precise date is given for this photograph but we like to think that it was taken not long after him getting his Ph.D. in 1857.

Dalhousie Libraries Digital Exhibits (PC1, Box 16, Folder 112, Item 2) accessed 2022, November 28.
<https://digitalexhibits.library.dal.ca/items/show/335>

At some point, Lawson left Scotland to attend the University of Geissen, Germany, where he graduated in 1857 as a Doctor of Philosophy (Rousseau and Doré, 1966). His Ph.D. training was likely influenced by the views of Justus von Liebig, a chemist who had worked for close to 30 years in Giessen before departing in 1852 (Rousseau and Doré, 1966). Liebig is known for having developed organic chemistry and for applying it to the study of biology and agriculture, three areas of study that remained close to Lawson's heart throughout his academic career.

During these formative years, Lawson developed excellent organizational skills as assistant librarian for the Royal Society of Edinburgh, compiling a model library catalogue (Zeller, 1990). He became a skilled communicator and, according to MacKay (1896), had already written 44 scientific papers and a book by the time he left Europe for Canada. By then, he had also developed and begun to apply a rigorous scientific approach to his field and lab work (Zeller, 1990). To Lawson, observation, exploration, description, and identification of plants were paramount, as were studies that established relationships between plant morphology, distribution and habitat (Rousseau and Doré, 1966; Zeller, 1990).

Ambition, connections, and work in Kingston

Edinburgh offered limited opportunity for Lawson to fulfill his considerable ambition. Convinced by his potential, an international network of scientists, professors and colleagues supported his search for expanded horizons (as seen in testimonies found in the [Archives of Dalhousie University](#)). They depicted Lawson as a diligent man of high moral character, respected by his peers, and loved by his students. Strongly recommended by Balfour in particular, Lawson obtained the position of Chair of Natural History and Chemistry at Queen's College (now Queen's University) in Kingston, Upper Canada. He moved in 1858, bringing with him his library, equipment, and botanical specimens from Edinburgh (McDowall, 2016). With a solid reputation as an accomplished scientist, Lawson's starting salary [425 £ per year (Rousseau and Doré, 1966), i.e., an estimated CDN\$ 112,000 in today's currency] was higher than those of his established colleagues (Zeller, 1990).

Although his was the first non-clerical professorial appointment in the college (Rousseau and Doré, 1966), his status as a Church of Scotland Elder strongly influenced the decision to hire him (Connor, 1986). In 1858, the College was not yet 20 years old. It was controlled by the Presbyterians of Upper Canada, who had fought for such an institution in the growing colony, not only for the education of their ministers but also for the instruction of youth in Science and Literature. The role of College Principal – the most powerful official in the institution – was reserved for clergy. When Lawson arrived, the Principal was Reverend John Cook, who was replaced in 1859 by Reverend William Leitch. The dissemination of scientific knowledge was probably not prioritized as highly in Upper Canada as it was in Europe at the time, creating an environment that may have presented challenges to Lawson's in his new role at the church-led institution (Connor, 1986).

Lawson was nonetheless very active and productive in Kingston. As he had done in Edinburgh under Balfour's supervision, he implemented microscopes in Botany classes and led field trips to reinforce theory with practice (Zeller, 1990). He designed a teaching laboratory where students would perform numerous hands-on experiments, including their own chemical analyses (Connor, 1986). He also established a college herbarium and planted Canada's first botanical garden to serve as his students' living laboratory (McDowall, 2016). Soon after he arrived in Kingston, Lawson met John Macoun (1831-1920), school teacher in Belleville and future Dominion Botanist. The two corresponded thereafter (Waiser, 1998), probably enjoying the chance to discuss their common interests in fieldwork and wild flora.

In 1860, Lawson, with the support of Principal Leitch, created the short-lived but significant Botanical Society of Canada (BSC; Connor, 1986). At the time, there were only a handful of Canadian scientific organizations, e.g., the Royal Canadian Institute, the Natural History Society of Montreal, and the Geological Survey of Canada, none of which focussed solely on the advancement of Botany (Lawson, 1860). Lawson wanted the BSC to be much more

than a local amateur Victorian club where high-society people could be seen (Connor, 1986). In his first address to Society members, Lawson proposed “to employ the Botanical Society as an instrument for the collection of facts and the working out of details which are of immediate interest to the botanist alone, but of the greatest importance in leading to correct results in general science. Scientific Societies on a broader basis have too often degenerated into popular institutions, calculated rather for the amusement of the many than for the encouragement and aid of the few who are engaged in the prosecution of original discovery” (Lawson, 1860).

According to Zeller (1990), Lawson based the foundation of the Society on a single tenet: for settlers to exploit natural resources fully, the botanical riches of the territory needed to be documented in detail. With the creation of the BSC, Lawson wanted to offer realistic solutions to problems facing the colonists. Farmers would receive advice on seeds and pests, for example, and manufacturers would be given advice on natural dyes. Above all, Lawson wanted the BSC to advance the investigation of the nature and geographical distribution of native plants in Canada. The last *Flora boreali-Americana* had been published in London in 1840; Hooker had based the book on samples collected principally by Sir John Richardson and his assistant Thomas Drummond on Captain Sir John Franklin’s expedition of 1825-1827. In his address to the BSC in 1860, Lawson mentioned “that we have still, therefore, the singular anomaly of a country distinguished by its liberal patronage to science, dependent for its information respecting its native plants on the descriptions of specimens culled by early travelers” (Lawson, 1860).

The lens through which this jarring observation was made affirms the broken / siloed communication that characterized the time. The circles in which Lawson was active relied on “early travellers” for knowledge of native flora in the absence of positive relationships with Indigenous knowledge-holders or even with colonial contemporaries in Québec, where native plants were being collected and identified by local botanists¹. Of note, “*La flore canadienne*” of Provencher would be published in 1862.

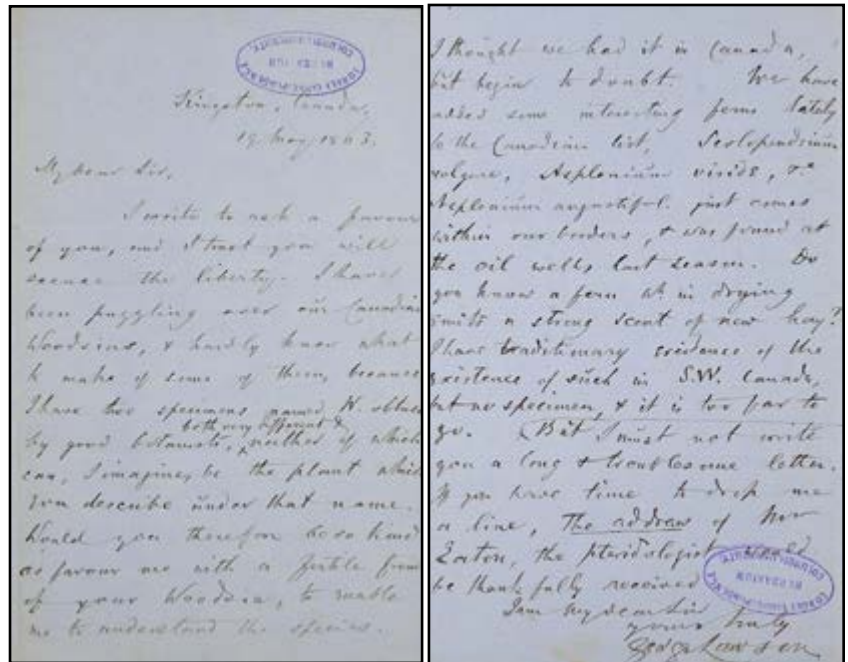


Figure 2. Letter from George Lawson to John Torrey (1796-1873), 19 May 1863. At the time, Torrey was retired from the New-York Botanical Garden.

(Biodiversity Heritage Library, accessed in January 2023). <https://www.biodiversitylibrary.org/item/246413#page/1/mode/1up>

In part, it reads: “*I have been puzzling over our Canadian Woodsias, and hardly know what to make of some of them, because I have two specimens named *W. obtusa* by good botanists, both very different and neither of which can, I imagine, be the plant which you describe under that name. Would you therefore be so kind as favour me with a fertile frond of your Woodsia, to enable me to understand the species?*”

Challenges and demise of the Botanical Society of Canada

The new BSC needed funding and, in his attempts to garner support, Lawson may have felt pressured to expand the scope of the organization to please many potential stakeholders, against his own strong inclination for a focused vision. Lawson seems to have experienced another tension which may be familiar to some of our readers: how to attract citizen scientists while still applying rigorous methods and maintaining accuracy. “We should seek rather to bring our members and the public into scientific modes of thought and expression”, he asserted, “than to

¹ For those interested in learning about these individuals, we suggest reading the different volumes of “*Curieuses histoires de plantes du Canada*” by Asselin, Cayouette et Mathieu. 2014-2019, Editions du Septentrion.

allow our Society to yield up its scientific character to suit the popular taste” (Lawson, 1860). To reach its goals, the BSC had some delicate balances to strike.

Lawson rallied the BSC to fill what he saw as a huge knowledge gap, by gathering geo-referenced herbarium samples from across the vast land. Recognizing the magnitude of the challenge, he proposed to motivate Society members and amateur botanists alike to participate (Zeller, 1990). In his 1860 address, Lawson drew attention to the observers already available “throughout the length and breadth of Canada, as well as in the other North American Provinces, from the Red River in the far west, to the Island of Prince Edward” (Lawson, 1860). In explicitly dismissing broad enjoyment as a society goal, however, he surely limited recruitment. He asked a lot from his audience and their contacts, who would (he expected) report the sighting of plants, prepare herbarium sheets, harvest seeds, and precisely locate where the collections occurred...all of which might understandably have come across as too much hard work.

As demonstrated by the number of people who responded to the call for Corresponding Members, Lawson’s proposal enthused botanists all over the world (Connor, 1986). However, Lawson’s goal for *hands-on* members seems not to have been met. We are not aware of any record of the number of people who participated or the number of hours they contributed. What is certain is that a huge load was borne by Lawson over the next three years. It was he who compiled the data, organized the world-wide trade of specimens and seeds, and edited the *Society Annals*, all while seeking funding (Connor, 1986).

Given the government’s focus on confederation at the time, support for the exploration of the colony flora was not a political priority. In the end, Lawson was never able to secure funding for his flora project. When Hooker eventually extended help, it was too late: Lawson had already resigned from Queen’s College (Zeller, 1990), precipitating the BSC’s utter collapse in 1863. No one adequately took over the work Lawson had performed; furthermore, keeping it a truly professional society turned out to be an impossible task (Connor, 1986).

Historians have not been able to pinpoint a single reason for Lawson’s sudden resignation. The strain of managing the BSC, combined with a lack of financial and political support for his ambitious work plan, could not have helped. Reportedly, relations among faculty members at Queen’s were tense. There was personal enmity, but also - and likely more important - was a distrust between the College faculty and its clerical leadership regarding the autonomy of the professors (Connor, 1986). Lawson was among several to resign by the end of 1863.

Fresh start and successes in Halifax

Lawson moved to Halifax where, upon the reorganization of Dalhousie College, he accepted a position of Professor of Chemistry and Mineralogy (MacKay, 1896). At Dalhousie, Lawson taught chemistry and a class in botany. Concurrently and for many years, he taught also medical chemistry and botany to the Halifax Medical College (MacKay, 1896). As a teacher, Lawson continued to promote hands-on experiments in his teaching lab and to lead field excursions for his students (Zeller, 1990). Additionally, he became much involved in Agriculture; he not only ran a stock farm in Sackville, but also was active in the service of the Nova-Scotia government. He was named Secretary of the Board of Agriculture in 1864, and then Secretary for Agriculture in 1885 (McKay, 1896; Zeller, 1990).

Lawson was generous in sharing his time and knowledge. For example, in addition to his academic duties at Dalhousie, he gave night classes to



Figure 3. A much older Lawson, the photograph of which was likely taken when he was living in Halifax.

Dalhousie Libraries Digital Exhibits
(Peter B. Waite fonds, MS-2-718,
PB Box 13, Folder 97, Item 1),
accessed 2022, November 28. [https://
digitalexhibits.library.dal.ca/items/
show/337](https://digitalexhibits.library.dal.ca/items/show/337).

workers in the chemistry industries, first under the banner of the Technological Institute of Halifax, an institute he helped to organize (Zeller, 1990), and later independently, when the institute folded for lack of funds (MacKay, 1896). He had a tremendous working capacity and he used his great organizational skills to fulfill concurrent academic, agricultural, and administrative duties. The extent to which Lawson's remarkable feats may have been enabled by his wives (Lucy Stapley, whom he married in Scotland and who died in 1871, and Caroline Matilda Knox, *née* Jordan, whom he married in 1876), or by others, is left largely to speculation. It seems likely that such productivity would necessitate a team effort.

With an entrepreneurial mind and a healthy streak of resilience, Lawson participated in the creation of several societies, in addition to the short-lived BSC, over the course of his life. He was a founding member of the Royal Society of Canada (RSC) and its President in 1887-1888. Shortly afterwards, in 1891, under the auspices of the Royal Society, he founded the Botanical Club of Canada (BCC). In an address he made to the members of the RSC in 1891 (Lawson, 1892), his views on this newly-created Club clearly evoked and built upon the BSC. This society "of the simplest possible kind" would be composed of the botanical members of the RSC, and these members would be considered "a band of gleaners", "an army of explorers pervading the whole extent of our Dominion" to explore, collect and identify plants. He envisioned that in each locality, there would be a leader who would gather the local observations, and would encourage and guide the amateur collectors; furthermore, all leaders would meet annually to report their observations and exchange ideas. Lawson remained BCC President until his death by a stroke at home on November 11, 1895.

Inspiration for a prestigious Canadian botanical award

Lawson was curious, energetic and multi-faceted, not limiting his work to one group of plants. He wrote about diverse vascular plant groups (e.g., horsetails, ferns, Ericaceae, Nymphaeaceae), as well as mosses and diatoms (Rousseau and Doré, 1966). He was interested in many aspects of plant biology, describing, for example, the movement of protoplasm in plant cells in 1854 and the presence of diatoms, spores, and hairs in atmospheric dust in 1857 (Rousseau and Doré, 1966). Throughout his life, he also demonstrated a deep interest in geological explorations, especially in the North of Canada (Zeller, 1990). In his attempts to link or connect distribution, adaptation, and survival of plants under changing climatic and geological conditions, Lawson advanced some topical research for his time; he was trained soon after Humboldt's famous expeditions (Humboldt's Russian expedition took place in 1829) and he moved to Canada just as Darwin and Wallace's Origin of species appeared in print (1859).

Lawson was a prolific and eclectic writer. In Lawson's obituary, MacKay (1896) mentioned 107 communications, including 93 in Botany, 4 in Zoology, and 5 in Chemistry (this despite the fact that Lawson was hired in Canada as a Professor in Chemistry). Furthermore, Lawson would have written at least 40 reports and Presidential addresses (MacKay, 1896), and he would have directed the Nova Scotia Journal of Agriculture for 12 years while writing its articles for the most part (Rousseau and Doré, 1966). True to his values, Lawson chose the Transactions of the Nova Scotia Institute of Science to publish 15 of his papers, even when he had more prestigious avenues available to him (MacKay, 1896). Of note, in 1866, he described part of the native flowers of Nova-Scotia that Maria Morris Miller (1810-1875), an Atlantic-Canadian artist and teacher, had drawn as lithographs. Furthermore, Lawson is the author of the first Fern Flora of Canada (1889),

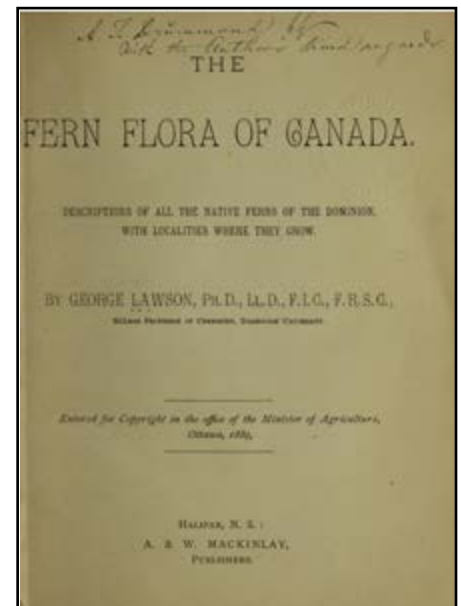


Figure 4. Title page of the "*Fern Flora of Canada*" written by Lawson and published in 1889. Lawson autographed it for A.T. Drummond, one of his oldest students from Queen's College in Kingston. Drummond became a lawyer in 1864 and moved to London, Canada West. He and Lawson remained in contact throughout the latter's life.

(Biodiversity Heritage Library, accessed in January 2023.) <https://www.biodiversitylibrary.org/item/129724#page/5/mode/1up>

in which all the known native ferns of the Dominion, and their distributions, were described.

According to Rousseau and Doré (1966), Lawson came to Canada with idea of publishing a *Flora canadensis*. He must have begun to work on it in Kingston as, when he arrived in Halifax, he had with him an elaborate draft of 143 pages, consisting of an extensive list of plants and their distribution. Lawson presented a synopsis of this work to the newly-created Nova Scotia Institute of Science in 1864. Despite working his entire Canadian life on this catalogue of plants, Lawson was never able to complete it (Rousseau and Doré, 1966). Lack of funds, massive study area, small botanical community, bad political timing, and a large or poorly distributed workload may all have contributed to his failure. He did what he could by publishing completed portions as monographs, each focussing on one botanical family and its distribution, several of which appeared in the 1870s and 1880s (Rousseau and Doré, 1966).

Lawson was highly respected by his colleagues as evidenced by the references provided for him along his career path. Balfour, his mentor, wrote in 1863 that he was a zealous and indefatigable botanist; in an anonymous obituary (Anonymous, 1895), one wrote that his “genial spirit and kind demeanour won for him many staunch friends and admirers.” Nonetheless, Zeller (1990) had harsh words for his method of research, which to her was more indicative of a hard-working secretary than of a creative scientist. In her view, Lawson never really broke off the mould of his Scottish education. She recognizes, however, that his passion and his pedagogical approach had a tremendous impact on the foundations of the discipline of botany in Canada.



Figure 5. Lawson’s 1862 specimen of *Equisetum arvense*, collected “In the bed of the River Trent,” now housed at the Canadian Museum of Nature.

CAN 10091016. Photograph © Canadian Museum of Nature, by Samantha Clifford

To us, there is no doubt that Lawson was a creative person with original ideas about teaching and gathering data in a collaborative manner. Although Lawson seems to have stayed largely within the bounds of his education and “station” as dictated by the pervasive mindset of his culture, his objective of comprehensive biodiversity information remains urgent (even if some of the motivations have changed) and is still elusive today. We note that many respected botanists (including several Lawson medal winners) have worked and continue to work toward some of the goals Lawson envisioned, including a widely-accessible common catalogue in which all botanical taxa identified in Canada are listed and their distributions are described. That Lawson devoted his life to wrestling a problem that remained unresolved, to convincing those around him of its merit, and to making as many differences along the way as he could, gives him much in common with other exceptionally-inspiring members of the current scientific community.

It is interesting to read his views on the progress of botany in Canada, which he presented to RSC members in 1891 (Lawson, 1892), as he neared the end of a long and busy career. Again, some of his comments reflect familiar present-day concerns, suggesting that he may have lived ahead of his time. First, he feared that plant systematics as a field would disappear at the expense of trendier disciplines. Second, he had very high respect for the amateur botanists that collected for the love of science, and he worked hard to instil wider public appreciation of detail and adherence to rigorous scientific methods. Finally, he placed a high priority on collaboration and communication, including engagement with laypeople and the public.

More than seventy years after this capstone address, when they presented at the 1964 RSC symposium on the Pioneers of Canadian science, Rousseau and Doré expressed surprise that no species were named for Lawson; he had, after all, named several varieties of plants in honour of his contemporaries. Furthermore, they advocated

for the *in extenso* publication, by the then newly-formed (1964) Canadian Botanical Association, of Lawson's annotated manuscript of *Flora Canadensis*. To them, such work would have filled an important void in the Canadian scientific publication record (Rousseau and Doré, 1966). One can only wonder whether the informative biography by Rousseau and Doré, two highly-respected Canadian botanists, was a spark that contributed to the naming of the CBA's most prestigious award after George Lawson... or to the fitting conferral of the first Lawson medal to Rousseau himself.

While researching Lawson's life, we came to admire, respect, and like this man who appears to have faced problems similar to our own. He is one among many scientists whose youthful visions of "brilliant discoveries" (as expressed in Lawson's early letter to Hooker) were tempered by experience with repetitive and/or unacknowledged effort and time-consuming administration. Even so, he carried his love for botany over and past many hurdles. He believed in high standards, in collaboration, and in generously sharing his botanical knowledge. We find it endearing that he kept in touch with his old students! We are confident that, if he were around today, he would be in his element in the CBA and a big fan of our annual conferences.

Sources

Anonymous. 1895. Obituary notice. *The Ottawa Naturalist*, Vol. 9, n° 9, p 180.

Connor, J.T.H. 1986. To promote the cause of science - George Lawson and the Botanical Society of Canada. *ScientiaCanadensis: Canadian Journal of the History of Science, Technology and Medicine / ScientiaCanadensis*, Vol. 10, n° 1, (30), pp. 3-33.

Lawson, G. 1860. Address at the first meeting of the Kingston Botanical Society. *Canadian Naturalist and Geologist*5, pp. 462-468. Accessed Jan. 5, 2023.

<https://babel.hathitrust.org/cgi/pt?id=hvd.32044103225611&view=1up&seq=482>.

Lawson, G. 1892. Lawson's Address to the Royal Society of Canada in 1891. *Proceedings and transactions of the Royal Society of Canada*. Ser. 1, Vol. 9, pp.17-20.

<https://www.biodiversitylibrary.org/item/40768#page/658/mode/1up>

McDowall, D. 2016. From sole scholarship to collective enterprise: 175 years of research at Queen's. *Queen's University Archives* accessed Nov. 29, 2022.

<https://www.queensu.ca/research/features/sole-scholarship-collective-enterprise-175-years-research-queen-s>

MacKay, A.H. 1896. Obituary notice of the late Prof. George Lawson, Ph.D., LL.D., F.I.C., F.R.S.C. *Proceedings of the Nova Scotian Institute of Science*, Vol. IX, Session 1895-1896.

Rousseau, J. and Doré, W.G. 1966. L'oublié de l'histoire de la science canadienne — George Lawson, 1827-1895. In *Pioneers of Canadian Science*. G.F.G. Stanley, ed. pp.54-80.

Waiser, W.A. 1998. John Macoun. *Dictionary of Canadian Biography*, Vol. XIV, University of Toronto/Université Laval, 2003–, accessed Jan. 12, 2023. http://www.biographi.ca/en/bio/macoun_john_14E.html.

Zeller, S. 1990. George Lawson. *Dictionary of Canadian Biography*, Vol. XII, University of Toronto/Université Laval, 2003–, accessed Jan. 12, 2023. http://www.biographi.ca/en/bio/lawson_george_12E.html.