The Canadian Botanical Association Bulletin

Bulletin de l'Association Botanique du Canada

Volume 58 Number 1 - March/mars 2025

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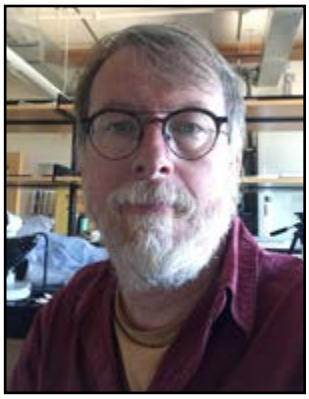

The resilience of plants and people

The end of winter and the beginning of spring is a difficult time as we dig out of the snowbanks and wait for the softness of spring. Historically it was a time of famine as winter stores run out and the bounty of summer is still far off. For the plants surrounding us, many are still nestled under their blanket of snow, waiting for the signal of the sun's warmth to begin their lifecycle again. For those plants in Canada that can grow year round, winter is still a difficult time with storms near and below zero temperatures resulting in freeze-thaw cycles.

I am however always amazed by the speed with which plants reactivate in the spring. With the first melting of the snow, green, photosynthesizing moss peeps through, taking advantage of the shoulder season. Once warm temperatures are installed, plants leaf out and begin growing at an amazing speed, making me question each year weather boreal forests are not as productive as tropical ones, if we look at active months only!

As we look forward to the spring, I also look forward to renewing connections with CBA-ABC members at our annual conference, for the first time in Newfoundland, hosted by Memorial University. The fantastic program is now available at their website, and I hope to see many of you there. CBA-ABC stand-alone conferences are some of my

The Canadian Botanical Association Bulletin

The CBA Bulletin is issued three times a year (March, September and December) and is freely available on the CBA website. Hardcopy subscriptions are available for a fee.

Information for Contributors

All members are welcome to submit texts in the form of papers, reviews, comments, essays, requests, or anything related to botany or botanists. For detailed directives on text submission please contact the Editor (see below). For general information about the CBA, go to the website: www.cba-abc.ca

Executive Editor

Dr. Erin Zimmerman

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Next issue

Texts for the next issue, 58(2), must be received by August 1, 2025.

Bulletin de l'Association Botanique du Canada

Le Bulletin de l'ABC paraît trois fois par année, normalement en mars, septembre et décembre. Il est envoyé à tous les membres de I'ABC.

Soumission de textes

Tous les membres de I'Association sont invités à envoyer des textes de toute nature concernant la botanique et les botanistes (articles, revues de publication, commentaires,requêtes, essais, etc.). Tous les supports de texte sont acceptés. Pour des renseignements détaillés sur la soumission de textes, veuillez consulter le rédacteur (voir ci-dessous). Infos générales sur l'ABC à l'url suivant: www.cba-abc.ca

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Prochain numéro

La date de tombée des textes du prochain numéro, le no 58(2), est le 1 août 2025.

best botanical memories. I expand my horizons with the varied symposium subjects, and meet old and new, dynamic colleagues and students in our more intimate settings. These contacts have been essential to my career, in practical terms, but also in terms of enjoyment!

I wish you all a resilient spring. See you in St John's!

Botanically yours,

Nicole
Université du Québec en Abitibi-Témiscamingue

Cuphea procumbens

Photo compliments of Mihai Costea

New Member Publications

Abass, M. and L. Vasseur. 2024. Testing germination of common milkweed (*Asclepias syriaca*) from different study sites in the Niagara Region. Botany. http://dx.doi.org/10.1139/cjb-2024-0080.

Errington, R., S.E. Macdonald, J. Bhatti. 2024. Rate of permafrost thaw and associated plant community dynamics in peatlands of northwestern Canada. Journal of Ecology 112: 1565-1582 doi: 10.1111/1365-2745.14339

Huang, X., W. Chen, Y. Zhao, Y. Ouyang, J. Chen, M. Li, Y. Gu, Q. Wu, S. Cai, F. Guo, P. Zhu, D. Ao, S. You, L. Vasseur and Y. Liu. 2024. Deep learning-based quantification and transcriptomic profiling reveal a MeJA-mediated glandular trichome formation pathway in *Cannabis sativa*. The Plant Journal 118: 1155–1173. Link.

Kanne, R. and G.A. Allen. 2024. Phylogeography of a western North American white oak shaped by introgression and post-Pleistocene climate change. Journal of Biogeography 51(11): 2274-2284. http://dx.doi.org/10.1111/jbi.14984

Kulbaba, M.W., and Harder, L.D. (in press) A SNP-based approach to estimating the mating and relatedness components of plant mating portfolios. Botany xxx:xxx-xxx. https://doi.org/10.1139/cjb-2024-0120

Lait, L.A., Graham, B.A., Galbraith, D.A., Burg, T.M., & McCune, J.L. (2024) Conservation genetics of *Stylophorum diphyllum* (Papaveraceae): investigating the genetic diversity and differentiation of peripheral and core populations across the range. Conservation Genetics. https://doi.org/10.1007/s10592-024-01664-0

McCune, J.L., Baldwin, S., Bennett, J.R., Husband, B.C., Joly, S., Kraus, D., Lamb, E.G., Vamosi, J., Van Natto, A., & Whitton, J. (2024). The state of plant conservation in Canada: a survey of practitioners. FACETS 9, 1-13. www.facetsjournal.com/doi/10.1139/facets-2023-0216

Moola, F., P. St. Martin, A. Mallick and L. Vasseur. 2024. Stand dynamics and composition of understory and canopy trees in a chronosequence of post-clearcut and remnant late-successional coastal Acadian forests. Plant Ecology. https://doi.org/10.1007/s11258-024-01423-8.

Noualhaguet, M. T. Work, C.A. Nock, S.E. Macdonald, I. Aubin, N.J. Fenton. 2024. Functional responses of understory plants to natural disturbance-based management in eastern and western Canada. Ecological Applications 2024;e3011 https://doi.org/10.1002/eap.3011

Peñafiel Loaiza, N., Chafe, A. H., Moraes R, M., Oleas, N. H., & Roncal, J. (2024). Genotyping-by-sequencing informs conservation of Andean palms sources of non-timber forest products. Evolutionary Applications, 17, e13765. https://doi.org/10.1111/eva.13765

News Bits

• **Julissa Roncal** received an NSERC Natural Sciences and Engineering Research Council (NSERC) Alliance Grant for the project entitled "Subduction triggered terrestrial evolution in the Caribbean." Funding is for three years, and totals $300,000. With these funds she has hired a new postdoc, Natalia Ruiz Vargas, to work on the phylogenomics and biogeography of the canopy tree genus *Sloanea* in the Caribbean.

Two new projects are being undertaken in **Liette Vasseur**'s lab:

• "Promoting an integrative landscape approach in vineyards for greater resilience in the face of climatic and environmental changes," led by Liette Vasseur and colleagues is one of many initiatives under the federal government's Organic Science Cluster 4 (OSC4) initiative. At the heart of the research is how native cover crops and other plant species that originate locally can protect and enhance biodiversity, ecosystem functions, including preventing soil erosion, supplying nutrients and supressing weeds and pests, among other functions. The project is conducted in four organic vineyards where an ecosystem approach is being used to better understand interactions among species.

• "Shared gardens for climate change adaptation" is a new International New Frontiers Research Fund, led by Diane Pruneau with Liette Vasseur as one of the co-applicants where the research groups from Canada, Benin, Morrocco and Germany work together to better understand the current biodiversity and environmental conditions of small cooperative farms in Canada, Benin and Morrocco to find nature friendly solutions to better adapt to climate change. The first summer, for Vasseur, was plant and ecosystem surveys of the farms in Quebec and New Brunswick and next summer will be the establishment of experimental systems to enhance plant production and biodiversity.

Phaseolus pauciflorus

Photo compliments of Mihai Costea.

CBA/ABC Invites Nominations for 2025

Dear CBA members,

Are you passionate about plants? Are you interested in learning about how the CBA works? Would you like the opportunity to contribute to CBA initiatives? Are you looking to develop your network, working with plant scientists from across Canada?

The CBA/ABC is seeking nominations for several important positions:

- Secretary
- Three Directors-at-large residing East of the Ontario/Manitoba Border
- One Director-at-large residing West of the Ontario/Manitoba Border
- Two student Directors: one East and one West

The **Secretary** is elected for a two-year period and may serve for two terms (a total of four years). The Secretary is responsible for the organization and maintenance of all the Association documents, including taking minutes during the Board meetings.

Directors serve a two-year term and are eligible for re-election to one additional successive term. They attend three to four board meetings annually and participate in committees of their choice.

Student Directors serve a one-year term and are eligible for re-election to one additional successive term. Their role is to attend the Board meetings and represent student interests in the Association.

The CBA/ABC recognizes the importance of diversity in representation and encourages all members to self-nominate regardless of career stage or area of botanical interest. This is your chance to make a difference in our Association and botany in Canada!

All positions will start in June 2025.

If you are interested in these essential volunteer positions for CBA/ABC, please submit a brief (1/2 page) statement describing your current position and/or motivation for the position via email to Mihai Costea, mcostea@wlu.ca **by March 28, 2025**. If you have questions, please feel free to inquire using the same email address. The Board of Directors is looking forward to receiving your nominations and will present a slate of candidates to the membership several weeks prior to the AGM.

L’ABC lance un appel de candidatures pour 2025

Vous êtes passionné par les plantes ? Vous souhaitez en savoir plus sur le fonctionnement de l’ABC ? Aimeriez-vous contribuer aux initiatives de l’ABC ? Cherchez-vous à développer votre réseau en travaillant avec des scientifiques étudiant les plantes de partout au Canada ?

L’ABC lance un appel de candidatures pour plusieurs postes importants :

- Secrétaire
- Trois directeurs résidant à l’est de la frontière Ontario/Manitoba
- Un directeur résidant à l’ouest de la frontière Ontario/Manitoba
- Deux directeurs étudiants : un pour l’Est et un pour l’Ouest

Le secrétaire est élu pour une période de deux ans et peut exercer deux mandats (4 ans au total). Le secrétaire est responsable de l’organisation et du maintien de tous les documents de l’association, y compris la rédaction des procès-verbaux des réunions du conseil d’administration.

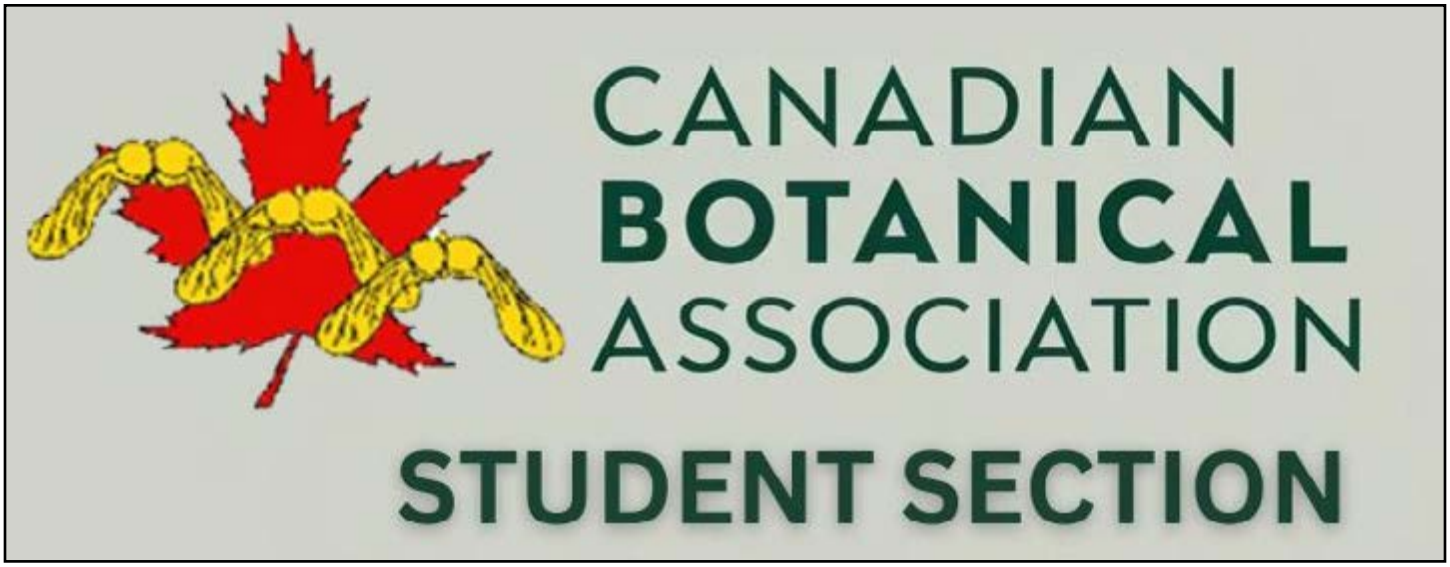
Les directeurs ont un mandat de deux ans et peuvent être réélus pour un mandat successif. Ils assistent aux trois ou quatre réunions annuelles du conseil d’administration et participent aux comités de leur choix.

Les étudiants directeurs ont un mandat d’un an et sont rééligibles pour un mandat supplémentaire. Leur rôle est d’assister aux réunions du conseil d’administration et de représenter les intérêts des étudiants au sein de l’association.

Ces trois postes débuteront en juin 2025.

L’ABC reconnaît l’importance de la diversité dans la représentation et encourage tous les membres à proposer leur candidature, quel que soit leur stade de carrière ou leur domaine d’intérêt. C’est votre chance de faire une différence dans notre Association et dans la botanique au Canada !

Si vous êtes intéressé(e) par ces postes bénévoles essentiels pour l’ABC, veuillez soumettre une brève déclaration (1/2 page) décrivant votre position actuelle et/ou votre motivation pour le poste par courriel à Mihai Costea, mcostea@wlu.ca **avant le 28 mars 2025**. Si vous avez des questions, n’hésitez pas à vous renseigner en utilisant la même adresse électronique. Le conseil d’administration de l’Association se réjouit de recevoir vos nominations et présentera une liste de candidats aux membres plusieurs semaines avant l’AGM.



CBA STUDENT SECTION- CALL FOR STUDENTS!

The CBA Student Section invites any interested students to join our discord group (https://discord.gg/weyGPWSf) to stay connected with other students in the organization. Students are also invited to connect with us to stay informed about upcoming student meetings.

If you would like to meet fellow students and are interested in joining, or have questions, please contact the CBA student directors:

- Cassandra (cbrad084@uottawa.ca)
- Jaxon (jaxon.reiter@uleth.ca)

We are also asking faculty members to please share this information with your students.

SECTION ÉTUDIANTE DE L'ABC – APPEL À ÉTUDIANTS !

La section étudiante de l'ABC invite tous les étudiants intéressés à rejoindre notre groupe Discord (https://discord.gg/weyGPWSf) pour rester en contact avec les autres étudiants de l'organisation. Les étudiants sont également invités à communiquer avec nous pour rester informés des prochaines réunions étudiantes.

Si vous souhaitez rencontrer d'autres étudiants et souhaitez vous joindre, ou si vous avez des questions, veuillez contacter les directeurs étudiants de l'ABC :

- Cassandra (cbrad084@uottawa.ca)
- Jaxon (jaxon.reiter@uleth.ca)

Nous demandons également aux membres du corps professoral de partager cette information avec vos étudiants.

Graduate student opportunities opening in agroecosystems, climate change and biodiversity conservation

Vasseur Ecology Lab is offering funded graduate student (M.Sc.) positions in the Departments of Biological Sciences, or Biotechnology for current funded projects.

A background in ecology will be required, ideally with some experience in species identification/ biodiversity, and biostatistics. In one project, the successful candidates will conduct research in either ecological assessment and evaluation of performance of native plant species in agroecosystems, including organic vineyards, or biodiversity assessment at the landscape level.

Brock University is suitably located in the Niagara region where experiments can be conducted easily in controlled and operating conditions. The department is very well equipped for field experiments, analytical facilities, and greenhouses (as well as research experimental plots on Brock research farm).

Any students interested in applying can do so immediately and positions will remain open until suitable candidates are found.

All qualified candidates are encouraged to apply; however, the positions are currently limited to Canadians and permanent residents. Brock University is actively committed to diversity and the principles of Employment Equity and invites applications from all qualified candidates. Women, Aboriginal peoples, members of visible minorities, and people with disabilities are especially encouraged to apply and to voluntarily self-identify as a member of a designated group as part of their application.

Please submit a letter of application with a summary of research accomplishments, a CV, unofficial transcript, and contact information for three academic references to: Liette Vasseur, Biology, email: lvasseur@brocku.ca.

Volunteer Position: Board Member, Board of Directors Portfolio: Conservation and Science

Organization: Escarpment Corridor Alliance (ECA)

Location: South Georgian Bay, Ontario

About Us:

The Escarpment Corridor Alliance (ECA) is dedicated to protecting and conserving the natural heritage of Ontario's South Georgian Bay escarpment region. Through innovative conservation strategies, community engagement, and partnerships, we aim to ensure the ecological integrity and beauty of this vital region is preserved for generations. The ECA became a registered federal charity in 2023.

The ECA is governed by a volunteer Board of Directors that is elected by the members of the organization. Directors hold a fiduciary responsibility and act in the best interests of the organization. Individuals wishing to be considered for a director's role will apply and upon consideration will be informed of the conditions for approval and membership which must be met.

Role of the Conservation Science Director

ECA is seeking an experienced conservation and/or ecology/environmental science, or geospatial planning professional to serve as a volunteer on our Board of Directors. This Director will co-lead the ECA's new Conservation & Corridor Planning Committee alongside the Conservation Project Manager and Executive Director. The ideal candidate will have a relatable Masters or PhD and will have a personal connection to the South Georgian Bay area.

Key Responsibilities:

- Co-lead the ECA Conservation & Corridor Planning Committee and support the recruitment of additional non-board volunteer committee members.
- Provide oversight and expert guidance to science and conservation related projects and strategy.
- Support staff in the development of Annual Work Plans relating to conservation, environmental science and geospatial planning projects.
- Assist the Executive Director in selecting and overseeing the Conservation Project Manager staff as well as relatable contractors and consultants.
- Active guidance and oversight in the ECA's development of a new land trust operation.
- Participate in other Board of Director responsibilities including attending at least 75% of monthly board meetings.
- Shared fiduciary and other corporate Director responsibilities of all board members.
- Participate in ECA's culture of philanthropy.
- Act as a positive community ambassador of the ECA.

Qualifications:

- HBSc or equivalent in a relatable field. Masters or PhD preferred.

- 5 years minimum work experience in conservation, land trusts, environmental/ecological consulting or related sectors in Ontario.
- Solid understanding of geospatial analysis (GIS) and its application in natural sciences or resource management.
- Familiarity with the South Georgian Bay area and a passion for outdoor recreation, conservation, and environmental stewardship.
- Strong organizational skills and a commitment to advancing ecological and conservation outcomes.

Why Join Us?

The ECA was established in 2021 embarking on an innovative conservation model in a unique, near-urban nature landscape. We have grown by +100% for the past three years in a row following a strategic vision to create a protected and connected ecological corridor network in a focused area of the Niagara Escarpment UNESCO Biosphere Region. We have a talented, thoughtful and energetic board that collectively have a diverse set of skills, supported by an experienced leadership team. This is an opportunity to join a very special organization that is creating a legacy for both nature and people across South Georgian Bay.

The ECA team is engaged and operates in a learning environment with a can-do mindset. We offer our volunteers a variety of social professional development opportunities as part of our stewardship strategy.

How to Apply:

To apply, please submit your resume and cover letter to Jarvis Strong, Executive Director, jarvis@myescarpment.ca by February 28, 2025. Please include "Conservation Science Director" in the subject line.

Milla biflora
Photo compliments of Mihai Costea

Job Posting: Conservation Project Manager Organization: Escarpment Corridor Alliance (ECA)

Location: South Georgian Bay (Collingwood), Ontario

Position Type: Full-Time Contract (hybrid work)

Salary: $70,000–$90,000 per year

ESCARPMENT CORRIDOR ALLIANCE

About Us:

The Escarpment Corridor Alliance (ECA) is dedicated to protecting and conserving the natural heritage of Ontario's South Georgian Bay escarpment region. Through innovative conservation strategies, community engagement, and partnerships, we aim to ensure the ecological integrity and beauty of this vital region is preserved for generations.

Position Summary:

ECA is seeking a dynamic and experienced conservation science related professional to lead our conservation efforts. The ideal candidate will have a strong background in the conservation or land trust sector in Ontario and a passion for environmental stewardship, and project management experience. You will play a key role in assessing properties, developing conservation strategies, and fostering relationships with stakeholders to advance our mission.

Key Responsibilities:

- Assess properties for ecological characteristics to determine their conservation value.
- Develop and implement a comprehensive conservation strategy that informs program development, public engagement, partnerships, and land securement.
- Utilize geospatial tools for planning and analysis to support natural science and environmental conservation initiatives.
- Create detailed property stewardship guides to promote ecological outcomes.
- Oversee fieldwork conducted by seasonal staff and volunteers, occasionally leading field efforts to meet stewardship goals.
- Investigate potential property securement opportunities to support conservation objectives.
- Deliver compelling public presentations about ECA's mission, operations, and goals.
- Build and maintain relationships with local landowners, environmental advocates, and community stakeholders.

Qualifications:

- Post secondary degree or diploma in a related field of study. Honours Bachelor or Masters preferred.
- 3 years minimum work experience in conservation, land trusts, environmental/ecological consulting or related sectors in Ontario.
- Strong understanding of geospatial analysis (GIS) and its application in natural sciences or resource management.

- Demonstrated ability to assess ecological characteristics and develop actionable conservation plans.
- Demonstrated project management experience.
- Familiarity with the South Georgian Bay area and a passion for outdoor recreation, conservation, and environmental stewardship.
- Excellent communication skills, with the ability to deliver presentations and foster stakeholder relationships.
- Experience managing fieldwork, volunteers, or seasonal staff.
- Strong organizational skills and a commitment to advancing ecological and conservation outcomes.

Why Join Us?

- Be part of a passionate and innovative team dedicated to protecting one of Ontario's most cherished natural regions.
- Lead meaningful conservation projects that make a significant impact.
- Enjoy a dynamic role that combines fieldwork, strategy development, and community engagement.

How to Apply:

To apply, please submit your resume and cover letter to Jarvis Strong, Executive Director, jarvis@myescarpment.ca by February 15, 2025. Please include "Conservation Project Manager" in the subject line.

We thank all applicants for their interest; however, only those selected for an interview will be contacted.

The Escarpment Corridor Alliance is an equal opportunity employer committed to diversity and inclusion in the workplace.

Update from *Botany*, the Official Journal of the CBA

Promote your Research with *Botany*

- Stay connected! Follow us on X/Twitter @Botany_Journal
Get the latest updates on journal initiatives, special issues, and new plant science

- As of January 1st 2025, *Botany* transitioned to a continuous publication model. Your article will now be available online immediately after its production has been completed removing delays associated with issue-based publication!

New Partnership Announcement

- We are excited to announce a partnership between *Botany* and the Canadian Center for Evidence Informed Conservation. One of six center worldwide, CCIEC provides traceable, evidence-based, and repeatable methodology to support rationale conservation actions.

Welcoming our First Early Career Researcher Board of Editors

- *Botany* is proud to introduce our inaugural Early Career Researcher (ECR) Board of Editors. During their 2-year term, ECR Board members will receive mentorship and guidance from senior editors and the entire journal team. Read about this exciting new program here!

Calls for Papers

Now accepting submissions for four special issues

UN Decade of Ocean Science (Landing Page Coming Soon!)

Submission Deadline: July 31st 2025

Guest Editors: Sandra Lindstrom, Alison Sherwood

The United Nations Decade of Ocean Science For Sustainable Development calls for transformative action to reverse the ongoing decline of marine ecosystems across the world. Botanical research is crucial for understanding the biodiversity, productivity, and resilience of ocean ecosystems in response to threats such as ongoing pollution and toxification of marine ecosystems or the long-term impacts of climate change across a range of inter-connected species.

This collection will seek to explore and highlight innovative studies on the ecological and physiological roles of marine plants in maintaining healthy oceans, mitigating climate change, and supporting coastal communities.

We invite a range of submission including research articles, reviews and perspectives to explore this critical topic.

Indigenous Knowledges and Approaches to Botanical Research

Submission deadline: March 12, 2025

Guest Editors: Hugo Asselin, Noémie Boulanger-Lapointe

Plants are fundamental to human survival. While plants provide food, shelter, and medicine, they also contribute to emotional and spiritual well-being. Indigenous communities around the world hold deep connections to and

vast knowledge about plants, especially those which are culturally salient. The journal *Botany* invites Indigenous and non-Indigenous researchers to participate in a special collection that highlights the value of Indigenous Knowledges and approaches to botanical research.

The Intrinsic Value of Botanical Gardens and Herbariums

Submission deadline: June 30th, 2025

Guest Editors: Stéphanie Pellerin, Rafael Filipe de Almeidea

The journal *Botany* invites submissions for a special collection that highlights the importance of living plant collections at botanical gardens and arboretums as well as preserved collections in herbariums. The value of such collections spans a broad array of disciplines from phylogeny and taxonomy to ecology and phytogeography. Collections have been and continue to be valuable sources of material and data that can be used to answer a variety of questions from distribution histories to impacts of climate change. Consider submitting a research article based on data obtained from collections, provide a commentary on best practices used to curate collections and/or challenges associated with maintaining collections, or even a methodology paper based on data from collections.

Plant Reproduction and Seed Development: New Advances Under a Changing Climate

Submission deadline: May 12, 2025

Guest Editors: Mark Belmonte, Sonia Gazzarrini, Liang Song

Robust plant reproduction and seed development are essential to our society and the ecosystem. The challenge of ensuring the success of these processes is continuously growing under climate change. In this *Botany* collection, we invite new insights related to these topics in all aspects of plant sciences. Reviews, perspectives, notes, methods, plant genomic resources, and research articles are welcome.

Have an idea or want to get involved?

We'd love to hear from you. Contact us!

- Dr. Liette Vasseur, Co-Editor-in-Chief: lvasseur@brocku.ca
- Dr. Shelley Hepworth, Co-Editor-in-Chief: shelley.hepworth@carleton.ca
- Matt Swift, Journal Development Specialist: matt.swift@cdnsciencepub.com
- Editorial office: botany@cdnsciencepub.com

In Memoriam: George Lawrence Barron
29 August 1928 – 12 October 2024

By Greg Thorn & Tom Hsiang

George Barron was born in Grangemouth, Scotland, and spent his formative years in various cities and towns in Scotland. By the time he graduated from high school in 1946, he had dropped out, spent two years working as an apprentice in a shipyard, and returned to complete his requirements to finish when he was 18 years old. Upon graduation, he faced mandatory post-war conscription and spent time in the RAF as well as training in wireless and radar technology. When he was demobilized in 1949, he became eligible for post-secondary financial support, and started his undergraduate degree in Science at Glasgow University. He met his future wife, Mae Thomson, there in 1951, and married in 1953. He graduated at the top of his class in 1954 with a B.Sc. Honours in Botany. Their daughter Lesley was born in Glasgow in June 1954, and then soon after, they moved to Guelph where George earned his MSc degree in Plant Pathology under the direction of Blair MacNeill. Then they moved to Ames, Iowa, where George completed his Ph.D. in mycology under the direction of Joseph Gilman, and where their son Scott was born in 1957. Then George returned to Guelph in 1958 to accept an assistant professor position in Botany in the Ontario Agricultural College, which grew to become the University of Guelph. His second son Stuart was born there in 1959, followed by his daughter Laurie in 1965.

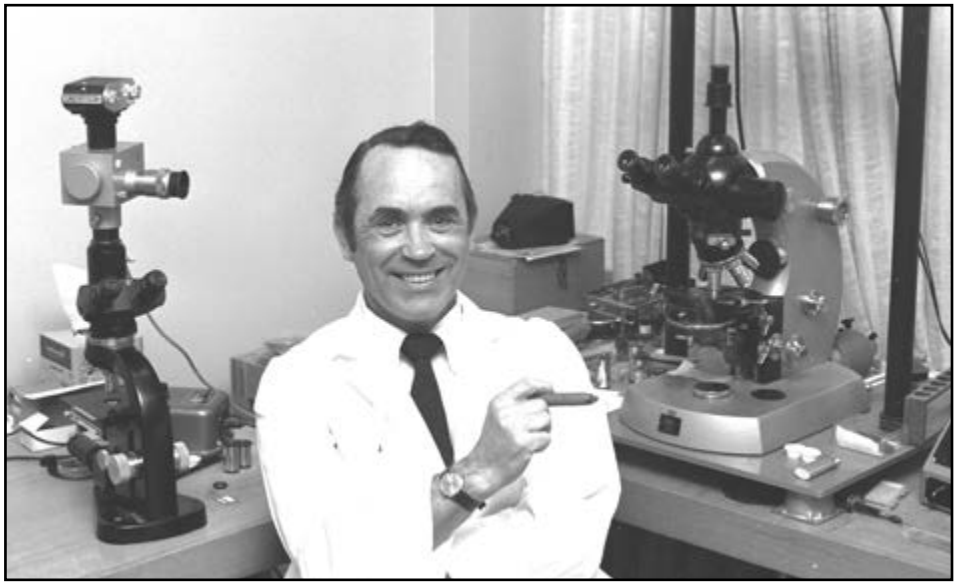


Figure 1. George Barron in the lab with his microscopes in the early 1970s.

George's research on fungi was highly respected. He published over 100 peer-reviewed journal articles but was particularly tickled in 1984 to have a publication in *Science* and be featured in the *National Enquirer* in the same week! Some of his earliest publications were on moulds associated with stored corn, together with Lois Tiffany and Robert Lichtwardt[1-3]. At Guelph, George began a series of taxonomic studies of soil Ascomycota and their asexual states (then known as Hyphomycetes)[e.g., 4-7], and in 1966 he received a Nuffield Foundation travel fellowship to study type materials at the Commonwealth Mycological Institute in Kew, England, towards the preparation of a book on soil fungi. George described this as a formative experience and must have made quite an impression there as well, since he subsequently published three papers with Kew mycologists Agnes Onions and Colin Booth[11-13]. During the early 1960s, George also ventured into a truly novel area of fungal genetics, describing the parasexual cycle in an otherwise asexual mould, *Penicillium expansum*, and later also in a non-ascomatal strain of *Aspergillus nidulans*[8-10]. George's careful studies of the ontogeny of conidium (asexual spore) production in the mould fungi allowed him to create some of the first workable keys for the identification of the Hyphomycetes, published in his first book, *The Genera of Hyphomycetes from Soil* (1968)[14]. This led to the addition of his name to what became known as the Hughes-Tubaki-Barron system of Hyphomycete classification, and to the lasting value of what was to become a classic book in the mycological literature. George Barron described ten new genera and 120 new species or combinations of fungi and was honoured by three eponyms (*Goidanichiella barronii* W. Gams, Steiman & Seigle-Mur., *Patellaria*

barronii García-Jacobo, Raymundo & R. Valenz., and *Rotiferophthora barronii* Glockling).

In the late 1960s and early 1970s, George undertook a new branch in his research, into the fungi attacking nematodes and other microscopic animals in soil. This very fruitful venture, propelled by George's skillful mastery of the rearing of nematode, rotifer, and other hosts, and the environmental conditions to ideally develop their parasites and predators in culture, led to dozens of papers describing new species and new genera of carnivorous fungi and fungus-like organisms[e.g., 15-30]. Some of his most compelling and memorable images stem from this work - a scanning electron microscope image of a nematode caught in the constricting rings of *Arthrobotrys dactyloides*, taken by Nancy Allin[24], and a transmission electron micrograph illustrating the "gun cell" of *Haptoglossa mirabilis*, taken by Jane Robb[28]. These and some of George's own photomicrographs of the nematode-destroying fungi are some of the images that still make mycology classes exciting! During some of these investigations into nematode-destroying fungi ("Fortune favours the prepared mind", was one of George's favourite quotes), an old Petri dish of a culture identified as a member of the asexually-reproducing *Nematoctonus* produced a mushroom of the genus *Hohenbuehelia*, yielding the first ever connection between these asexual and sexual states[22]. Working for George at this time, Greg Thorn was fortunate to discover that species of the oyster mushroom genus *Pleurotus* also attack and consume nematodes[29], and George went on to discover that the oyster mushroom and many other ligninolytic mushroom fungi also predate bacteria, presumably as a source of supplemental nitrogen and other nutrients that are in short supply in their woody diets[30-32]. This brought George full circle to his main passion, convincing biologists outside mycology of the paramount importance of fungi in terrestrial ecology[33-39].

His books, *The Genera of Hyphomycetes from Soil* (1968)[14], *The Nematode-destroying Fungi* (1977)[23], and *Mushrooms of Ontario and Eastern Canada* (1999)[37], made fungi accessible to mycologists, soil biologists and the general public through clear, succinct text and beautiful drawings and photographs. Over the years, he received a number of prestigious awards and honours in recognition of his work. These included the Distinguished Mycologist Award by the Mycological Society of America (1998), and a Doctor of Science degree from the University of Glasgow (1984) for his contributions to soil mycology. George was also awarded the George Lawson Medal from the Canadian Botanical Society (1993) for his contributions on the biology of soil fungi in Canada. To celebrate their centenary in 1996, the British Mycological Society awarded Fellowships to thirty distinguished mycologists around the world. George was selected as one of this elite global group. George was awarded a D.Sc. from St. Mary's University in Halifax, Nova Scotia for significant contributions to Canadian mycology (2004).

Upon mandatory retirement in 1993, he continued to come in to work daily until well into his eighties. At that time, George changed direction from microfungi to macrofungi, and wrote a book on *The Mushrooms of Ontario and North-East North America*. The book was well-received and sold over 45,000 copies in Canada and the USA. His favourite retirement project was the creation of a website on fungi that was enjoyed widely by students of fungi, both professional and amateur. In the early years, his website attracted close to a million hits annually. George released much of the content of the website on a CD with over 900 pages and a thousand images of fungi. The CD received appreciative comments for its quality of content, and value as an educational resource.

George's wit and humour will be missed by all who knew him.

Acknowledgements

We thank Scott A. Redhead, Paul Kirk, and members of George Barron's family for information useful to this memorial.

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Women in the Botanical Society of Canada – The Case of the Missing Botanists

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Introduction

History tells us at best a small part of the story. Where natural science in the Victorian Era is concerned, the stories of women remain in the dark, missing part. In this instalment, we shine our flashlight into that shadowy space!

Many authors (e.g., Shteir and Cayouette, 2019; Galbraith, 2022) call for research that illuminates the names and work of women who, because of their gender, were not recognized during their lifetimes for their roles in scientific discovery and communication. Women with scientific interests in the 1800s were discouraged or prevented from public speaking and writing, they were marginalized and limited in their scientific activities, and they went unrecorded or were referenced only by their family names. The long-cold case of the missing female botanists could challenge even the most seasoned of sleuths.

The evidence that remains of these women depends on their strength of will, their affluence, and the social influence of the men in their lives. It also relies on chance, which so frequently determines which documents will be saved and which will be thrown away. Thanks to archives and the writings of those who worked the case before us, we can here share the story of the women of the Botanical Society of Canada (BSC) as it has been pieced together so far, including the newest clues that bring the identities and accomplishments of these people a bit closer to the light.

Before the BSC: Women botanists in Canada and abroad in the first half of the 19th century

In the 1820s and 1830s, four Canadian women were instrumental in collecting specimens in Lower Canada and in Newfoundland (Shteir and Cayouette, 2019). Christian Broun Ramsay (Lady Dalhousie), Anne Mary Perceval, Harriet Sheppard and Mary Brenton, by their careful collecting and astute observing, became key contributors to William Jackson Hooker's Flora Boreali-Americana (Shteir and Cayouette, 2019). Beautifully-preserved plants bear witness to their remarkable work (Fig.1).

Of these four women, Sheppard was likely the most skilled in botany, distinguishing species within difficult genera such as *Solidago* (Shteir and Cayouette, 2019). Her husband, William Sheppard, would become one of the BSC's active Fellow Members (Guinel and Doubt, 2024b). Her name appears in Hooker's Flora, as well as in Torrey and Gray's Flora of North America (1838-1843). Sheppard, who also pursued ornithology and conchology, received an award for her first paper (1829), entitled "*On recent shells which characterize Quebec and its environs*", which was praised by many local newspapers (Glassman, 2022). Her work was published in the Transactions of the Historical Society of Quebec (Glassman, 2022), to which she and her husband belonged. Unfortunately for the BSC, she died in 1858, two years before the creation of the Society; otherwise, she would have undoubtedly been an avid member.

In the 1830s and 1840s, botany was increasingly characterized as a "serious" science unsuitable for women (Guinel and Doubt, 2024b). Among the polite middle and upper classes, it was even considered too indelicate for respectable women to use the scientific vocabulary for the reproductive organs of plants (Glassman, 2022). Women lost what status they had gained earlier in learned societies, the doors of which quickly closed to them.

The London Zoological Society, established in 1826, ostensibly welcomed women as Fellows on the same terms

Figure 1. Lady Dalhousie's bound herbarium, open to a specimen of "*Anemone pensylvanica* subs. *aconitifolia*" (= *Anemonastrum canadense*). The notes written at the bottom of the page give proof that Lady Dalhousie was careful in her identification. She used Pursh's Flora but here Michaux, who had published Flora Boreali-Americana in 1803, is also mentioned. The plants were collected in June 1823, at Sorel, QC, where her family owned a summer house. Book held at the National Herbarium of Canada at the Canadian Museum of Nature. Photograph: Nathan Stevens-Cocco.

as men. However, there is no evidence that many took this opportunity (Kennedy, 2010), suggesting the presence of barriers or disincentives. Allen (1980) proposed that women were accepted more for their elegance than for their scientific contribution. The British Association for the Advancement of Science, established in 1831, also allowed women to attend scientific presentations; however, the few women, such as Lydia Becker, who were brave enough to present their work were strongly criticized (Zimmerman, 2024). Their presence may therefore have been intended by the organizers simply to "*raise the tone and mannerliness of the social event*" (Zimmerman, 2024).

Women were also invited to become members of the Botanical Society of London (BSL; Kennedy, 2010). That Society claimed to be inclusive rather than exclusive; nevertheless, no women were allowed to sit on its Board and only their proxy (rather than in person) votes were accepted at General Meetings (Allen, 1980). In 1839, three years after the BSL launched, female members represented 6% of the membership (Allen, 1980), as they did for the rest of the organization's existence. In an interesting review of the lives of 25 of these women, Allen (1980) highlighted their commonalities. Women belonging to the BSL had time on their hands; they were most often from the upper class, generally older than the male members (on average, they joined at about age 43), and often related to a father, brother, husband, or uncle who was interested in science. Furthermore, these women often belonged to families who were involved in other scientific societies (Allen, 1980). A few papers based on their work were read at meetings and sometimes published in scientific journals, although the reading of these contributions was performed by male members of the Society. Many participated in the exchange of herbarium specimens (Allen, 1980). Because of the steep slope the women had to climb to be recognized, only a few were strong enough or free enough to attempt the "ascent."

According to Allen (1980), the low success of women in the hostile environment of the BSL was in turn used as evidence that women may not be capable of meeting the challenges of scientific study in general. Thus, with time, learned societies became even less welcoming to females. The Royal Microscopical Society (RMS) of London – otherwise vaunted for open-minded exploration of new concepts such as Darwin's ideas on evolution – admitted women as Fellow members from 1884 to 1909, but provided no role for them (Kennedy 2010) and banned them from meetings (Knapp, 2018). As for the Linnean Society of London, established in 1788, its door opened to women only in 1886, and then, only to those with special permission! In 1904, it elected 16 women to become Fellows, thanks to the persistence of Marian Farquharson, the botanist who was the first female elected RMS Fellow in 1885 (Knapp, 2018).

Women within the Botanical Society of Canada

When the BSC was created in 1860, women were invited to participate not only as subscribers, but also as Lady Members (ostensibly equivalent to Fellow members, the highest membership status, as described in Guinel and Doubt, 2024a). In our search of the BSC Annals and the Queen University Archives (QUA), we uncovered the names of 35 women, a number slightly higher than that reported in the literature (Galbraith, 2022; Shteir, 2022).

- With the help of the BSC ledger in which Fellows and Lady Members were listed, we counted 18 Lady Members. Unfortunately, this list could not be entirely reconciled with the names of women found in the Annals. According to By-Law V of the BSC Constitution, Lady Members were considered on an equal footing to Fellow members, and to receive such a status they had to fulfill the same requirements (Guinel and Doubt, 2024a). Regrettably, details are missing on who nominated these persons and what they provided to qualify for election.

- Two female Corresponding Members were put forward by the Nominating Committee composed of Professors Weir, Williamson, Mowat, and Lawson (BSC Annals, p 12). Mrs. Traill (BSC Annals, p 168), i.e., Catharine Parr-Traill, duly elected on November 15 1861, was listed as living at Westove, near Peterboro.' The other Corresponding Member, likely British, was Mrs. Col. Spottiswoode (BSC Annals, p 19), who in 1861 was based with her husband Arthur Cole Spottiswoode in Benares (now Varanasi), India. No other details on either woman appear in the Annals.

- Eight female members were likely subscribers; their names were mentioned in the minutes of the meetings at which they joined the Society.

- Six members, membership status unknown, were mentioned in the Annals by their names because they performed some activities within the Society. Some collected plants to be placed on the specimen table: Mrs. Trousdale from Newboro-on-the-Rideau had collected *Lycoperdon pyriforme* and *Sarracenia purpurea* (BSC Annals, p 21); Mrs. Noel from Kingston had collected plants in South Carolina (BSC Annals, p 109); Mrs. John Macpherson exhibited a collection of American seaweeds (BSC Annals, p 178). Others donated other botanical items: Mrs. Berry from Kingston gave "foreign" seeds (BSC Annals, p 54); Miss Mason and Mrs. Ferguson from Bellevue Terrace donated plants for the Botanic Garden (BSC Annals, p 168).

- Additionally, Mrs. Dickson, a subscriber, dissected plants, including *Physalis alkekenji, Datura, Lunaria vulgaris*, and *Papaver somniferum*, to be placed on the specimen table to illustrate a presentation made by her husband (BSC Annals, p 177).

Figure 2. Lucy Lawson and her husband on a photograph that we believe was taken during Lawson's tenure at Queen's College since it is indicated at the bottom of the picture that it was taken in the Sheldon studio, which opened around 1850 in Kingston https://kingstonspast.wordpress.com/tag/henry-k-sheldon/. Photograph obtained from QUA.

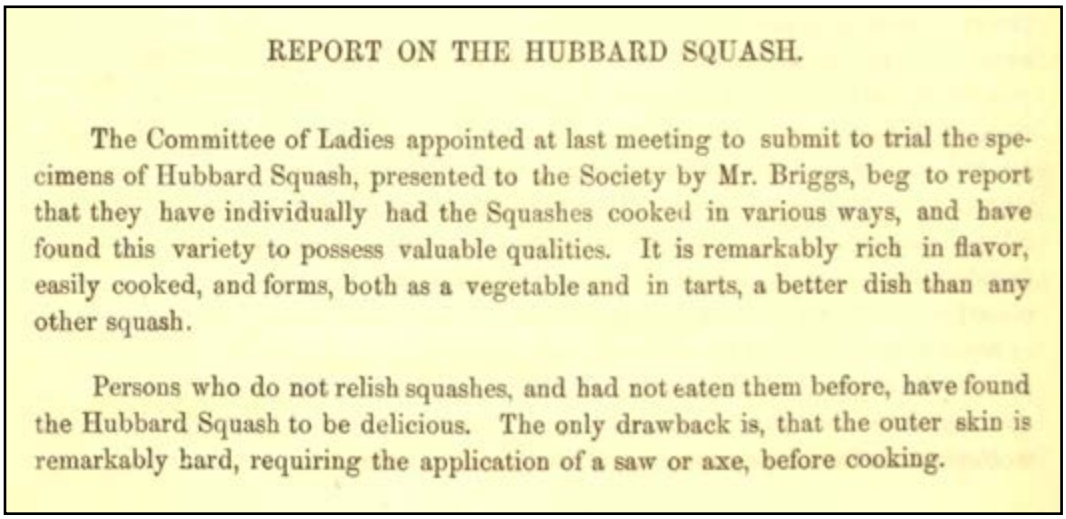
Women were mostly referred to in relation to the position of their husbands in the community. For example Lucy Lawson (Fig.2), the first wife of George Lawson, was generally labelled "Mrs.

Prof." or "Mrs. Dr." Lawson. Similarly, one can read that Mrs. Prof. Mowat, a Lady Member, and Mrs. Prof. Dickson, a subscriber, were present at the meeting of Dec.19 1881 (BSC Annals, p 171). Of help to us was the fact that women were always listed first in the attendance list, making our job at counting them a bit easier.

No female ever sat on the BSC Council. Furthermore, as women were first welcomed only at the third meeting of the Society (as noted by President Leitch, BSC Annals, p 52), none could be recognized as founding members. Still, for Kennedy (2010), their membership and public activity in a scientific society in this Victorian time were significant achievements.

Please participate! …but only on our terms

Very soon after its creation, women were asked to participate "fully" in the Society, as evidenced in an article read by Thomas Briggs Jr. at a BSC meeting on Feb. 15 1861. In it, women were invited to report on the qualities of the Hubbard squash, "two fine specimens" of which were provided by the author (BSC Annals, p 48). A Committee of Ladies was quickly formed to cook and evaluate the squash, and their findings were submitted (Fig.3). No details, unfortunately, were given as to who constituted this committee but the taste of the squash was duly reported.



REPORT ON THE HUBBARD SQUASH.

The Committee of Ladies appointed at last meeting to submit to trial the specimens of Hubbard Squash, presented to the Society by Mr. Briggs, beg to report that they have individually had the Squashes cooked in various ways, and have found this variety to possess valuable qualities. It is remarkably rich in flavor, easily cooked, and forms, both as a vegetable and in tarts, a better dish than any other squash.

Persons who do not relish squashes, and had not eaten them before, have found the Hubbard Squash to be delicious. The only drawback is, that the outer skin is remarkably hard, requiring the application of a saw or axe, before cooking.

Figure 3. The report on the vegetable presented by the Committee of Ladies was published in the BSC Annals (p 84) in the minutes of the meeting held on March 8 1861.

This report was the basis for a later communication between George Lawson and Berthold Seemann, the Editor of "Bonplandia", a European botanical journal (Fig.4). In a letter to Lawson from Dec. 9 1861, Seemann wrote "I had another article in the Bonplandia about your Society, using your reports (kindly sent to me), to show the usefulness of admitting ladies in popular societies, and at the same time giving a list of the papers you have published in the two first parts of your (I should say our) Transactions." (BSC Annals, p 176).

We were intrigued to know more about this article and duly searched. What we read left us speechless!

„Nunquam otiosus."

BONPLANDIA.

Redaction
Berthold Seemann
in London.
W. E. G. Seemann
in Hannover.

Zeitschrift für die gesammte Botanik.

Verlag
von
Carl Rümpler
in Hannover

Organ für Botaniker, Pharmaceuten, Gärtner, Forst- und Landwirthe.

IX. Jahrgang. Hannover, 15. September 1861. No. 17 u. 18.

Figure 4. Front page of the Bonplandia issue, in which appeared Seemann's paper entitled "Admission of ladies as members of learned societies of popular purpose." Retrieved from the Biodiversity Heritage Library.

The following translated excerpts of the German article give some perspective of a mid-19th century European scientist on the role of women in learned societies.

"*In order to inspire the ladies, one would have to let them participate actively. ... On all occasions where the exercise of taste, both aesthetic and physical, would be involved, the ladies would be in the right place. Why, for example, should ladies not be admitted to the judging of a flower, vegetable or fruit exhibition? Mother Eve already proved her great skill in tasting apples, why shouldn't her daughters be able to achieve great training in tasting other fruit varieties and finding out the most excellent products of our pomologists? When awarding prizes for the best bouquets of flowers, we would prefer the judgment of a lady gifted with taste to that of a man. What would our great commercial gardeners give for it, and how much greater sales would they have for their goods if they could put in their lists that this or that vegetable had been cooked, tried and highly recommended by the Ladies' Committee of the Vienna or Berlin Horticultural Society?*" (Seemann, 1861). [The latter sentence is a direct reference to the BSC Committee of Ladies who met to taste the Hubbard squash.]

Seemann (1861) continues "*In Germany, where people do not know how to prepare pumpkins and therefore probably appreciate them less than in North America, where they are served with Turkish wheat in the most varied ways and form part of the daily meal, one will be inclined to smile at the awkwardness with which the properties of the fruit were discussed in Canada. But this report may even serve as a model for many horticultural societies. All the qualities that a practical housewife looks for when introducing new vegetables or fruits into her kitchen are given briefly and with clarity. We are not convinced that a committee of men would have hit the nail so squarely on the head*."

<*Silence ensues.*>

Writings of the BSC's female members

Through the BSC Annals and the records of local newspapers, we counted five women who presented their work to the BSC membership. Mrs. Weir wrote a paper entitled "*On a new culinary vegetable, Chaerophyllum bulbosum*", which was read on Nov. 15 1861. It was published later in the Annals under a slightly different name "*Remarks on a new culinary vegetable, the parsnip chervil*" (BSC Annals, pp189-190). In this paper, Weir praised the benefits of this vegetable, at a time when the potato was subjected in Europe to the *Phytophthora* pathogen. She explained its best growing conditions and claimed it could be a great addition to diets. She concluded by mentioning that the BSC had secured seeds that would be available to its members for planting (BSC Annals, p 190). Later in the year, she wrote a quatrain poem entitled "*Lines for the Botanical Society of Canada*," which was read by her husband at the meeting of Jan. 10 1862 and published in the Annals a month later (p 182).

Catherine (Kate) McGill Crooks, the sister-in-law of Alexander Logie, a BSC Fellow Member and judge in Hamilton, authored a paper titled "*Remarks on the species of oak, their history, habits, and uses,*" which was read at the Jun. 14 1861 meeting (BSC Annals, p 111). She also co-authored (with a group of Fellow Members) a paper entitled "*Returns of the periodical phenomena of vegetation during the season 1861*"; the paper was read on Nov. 25 1861 (BSC Annals, p 170). Neither of these two papers was published in the Annals, but the sole-authored paper (Crooks, 1861) was published in its entirety in the Weekly British Whig (WBW). This article may have "counted" as the original Memoir required to become a Lady Member, as Crooks' election date was Feb 15 1861. Crooks is the Lady Member whose name appears the most (30 times) in the Annals, mainly as the collector of specimens mentioned by Logie in his article "*List of plants found growing in the neighborhood of Hamilton, during the years 1859 and 1860*" (BSC Annals, pp 90-108). Logie appeared to have much valued Crooks' work and was not shy of recognizing it. She not only collected, but also identified and pressed these specimens. In fact, Crooks received an honourable mention for her plant collection when it was shown at the International Exhibition held in London, England, from May to October 1862 (Soper, 2019).

BSC historians to date seem to have missed one Lady Member: Miss Machar. Records show that she was elected on Dec. 19 1861 and paid her dues in 1862, but she may not have renewed in 1863; this may explain why her name was crossed out in the ledger (Fig.5). She authored a paper entitled "*On the Flora of Maine*" which was read by John Bell on Oct. 9 1863 (WBW2). Unfortunately, we were unable to locate the text of her paper.

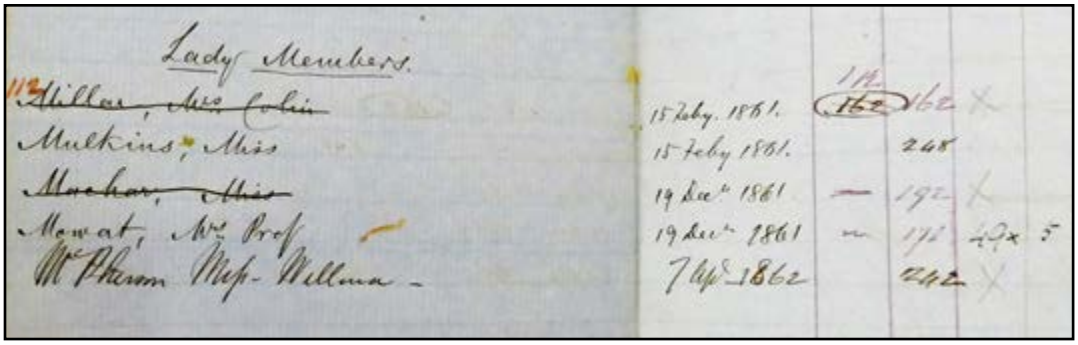


Figure 5. Names of Lady Members listed in the QUA ledger under the letter M. On the right, are columns corresponding to years, with, in order, date of election and payments made in 1861, 62, and 63.

The two other female members who presented their work are Lucy Lawson and Miss Gildersleeve; both were interested in the culture of fibre-yielding insects (see below). While the former was elected Lady Member on Jan. 11 1861, the membership status of the latter remains unknown.

[Aside: Later in this article we offer evidence for the possible identities of Miss Machar, and of Miss Gildersleeve. We debated mightily over whether or not to use their full names throughout this article. Since we are not qualified historians, and are not 100% certain that we have the *right* Misses Machar and Gildersleeve, caution won out; they remain "Miss" for now.]

According to Shteir (2022), female writings were placed at the margins of science as they were published in local newspapers rather than in the Annals. However, evidence suggests otherwise. First, Lucy Lawson's first paper and the poem written by Mrs. Weir were published in the Annals. Second, many of the works read during meetings and written by male members over the years 1861 and 1862 were never published in the Annals; some were published in scientific journals, others in local newspapers, and others yet left no traces.

Not shrinking violets?

A disagreement between two female BSC members was documented in the Annals and the local press. It was touched off by Lucy Lawson's work, read on Feb. 15 1861, entitled "*On the silk-worm and other fibre-yielding insects, and the growth of their food plants in Canada*" (BSC Annals, pp 43-48). In this paper, Lawson proposed that silkworm cultivation could become a form of employment for women and girls, while the white mulberry (*Morus alba*) leaves needed to feed the silkworms could be cultivated in an urban landscape. This work on the rearing of silkworms may have been the Memoir that she presented to the BSC Board to qualify to become a Lady Member.

Kennedy (2010) analyzed Lucy Lawson's writing in depth, to learn how a 19th-century woman could forge a space for herself in a mostly male environment. As Harriet Sheppard before her (Glassman, 2022), Lawson had to be careful not to antagonize men in the assembly. She had to be polite, and use terminology that upheld the ideal of femininity. Furthermore, she knew that placing herself at a level a bit below male members and readers may ease the acceptance of her work (Kennedy, 2010). Like others of her time, she was obliged to cleverly present scientific facts in a "fitting" discourse that could be tolerated by men.

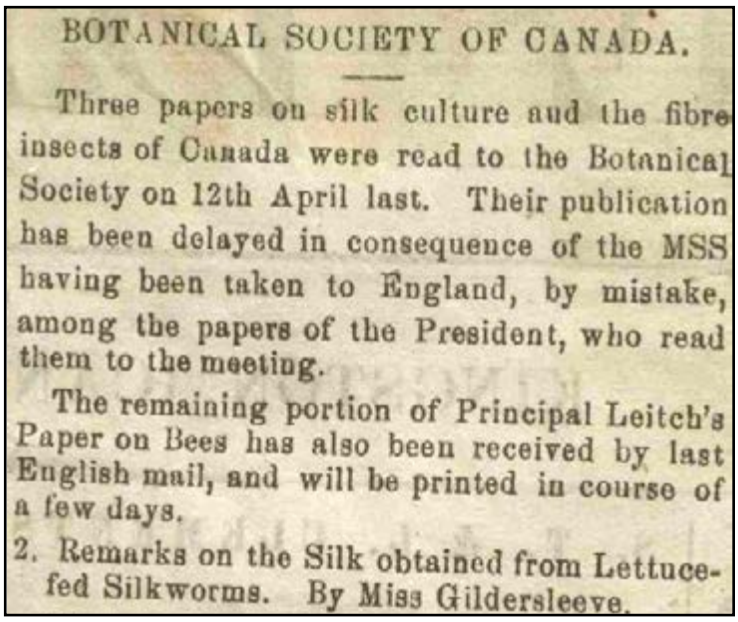
Concluding the meeting at which Lucy Lawson's paper was read, Principal Leitch highlighted its novelty as reported in the BSC Annals (p 52): "*This meeting differed from those previously held in regard to one circumstance - the presence of the Lady Members. Botanical researches of great value had been carried out by ladies in other*

countries and all departments of scientific knowledge had benefitted by their exertions. It was gratifying, therefore, that the ladies of Kingston were not behind in this respect, and he [i.e., Principal Leitch] *looked forward with interest to the contributions which they would no doubt continue to make to the Society's Meetings, in imitation of the example set by Mrs. Lawson.*"

A few weeks later, on Apr. 12 1861, Gildersleeve presented her views on the same subject in a paper entitled "*Remarks on the Silk obtained from Lettuce-fed Silk Worms*" (BSC Annals, p 110). Her results, based on two years of experience, did not match those of Lucy Lawson, who responded in an article titled "*Further observations on silk culture.*" While Gildersleeve demonstrated inner strength in publishing results contradictory to those of Lawson, the latter in her response dropped the feminine touch and exhibited argumentative skills (Kennedy, 2010). Neither of these papers was published in the BSC Annals, but we found Lawson's response in a local newspaper (WBW1). The two publications were, however, in a scrapbook uncovered at QUA, where someone unknown had pasted the two texts (Fig.6).

In her response, Lucy Lawson was much more assertive in her statements than in her first paper. She appeared to drop the figurative kid gloves and defend strongly the position she had taken previously (Kennedy, 2010), emphasizing the amount of work she performed, her use of a microscope, and her knowledge of the literature. For example:

"*The paper* (I presented earlier) *was a selection from a quantity of notes that I had been accumulating for years, partly from reliable sources and partly from my own observations and experiments. ... I, therefore, dismissed very briefly the feeding of silkworms on lettuce leaves ... I compared the lettuce and mulberry silk under the microscope, and found both to be identically the same, but I also found that all attempts to rear a silk crop on lettuce had failed, the silk being considered by some manufacturers as useless*." "*Practical men's opinions, so far as I am acquainted with them, have hitherto been unanimous on this point ... silk fit for factories never could be reared from lettuces*."



BOTANICAL SOCIETY OF CANADA.

Three papers on silk culture and the fibre insects of Canada were read to the Botanical Society on 12th April last. Their publication has been delayed in consequence of the MSS having been taken to England, by mistake, among the papers of the President, who read them to the meeting.

The remaining portion of Principal Leitch's Paper on Bees has also been received by last English mail, and will be printed in course of a few days.

2. Remarks on the Silk obtained from Lettuce-fed Silkworms. By Miss Gildersleeve.

Figure 6. Undated clipping from a local newspaper found in a scrapbook at the QUA. Here, one can read the short introduction leading to Gildersleeve's paper. The last sentence of the first paragraph infers that the reading of the texts at the meeting was not performed by the authors but by Leitch. The third paper on silk culture mentioned in that paragraph refers to a paper by John Duff, a wheat farmer living on Princess Street in Kingston who sat on the BSC council.

Further, she belittled Gildersleeve's "*small experimental way,*" dismissively stating "*the rearing of silkworms on lettuce leaves has been carried on in London for two centuries, by amateurs.*" Lawson went on to condescend to Gildersleeve as she might an overconfident student rather than addressing a respected peer: "*The second object is to put in a clearer light the importance of Miss Gildersleeve's discovery; and I congratulate her sincerely, for it is an important one.*"… "*I admire* (Gildersleeve's) *enthusiasm*", and "*The cocoons exhibited by Miss Gildersleeve at last meeting were beautiful; they were large and had more silk than any cocoons I had ever previously seen raised on lettuce*."

In the community, at that time, Lucy Lawson was a bit of a Society "gem." An Ottawa Daily Citizen article (1861) read "*An elaborate essay, "On the silk work ...in Canada", is contributed by Mrs. Doctor Lawson. We regret much that want of space precludes us extending a deservedly lengthened notice to this very valuable paper, which opens with some interesting remarks relative to the common silk worm and other silk producing insects.*" The anonymous author added "*It is a long time since we derived so much pleasure and instruction as was afforded us by a perusal of this excellent article, and we congratulate the Botanical Society upon their possessing so valuable*

a lady member as Mrs. Lawson." Thus, that someone such as Gildersleeve could bring shade upon her work may not have been appreciated by Lawson. The argument may also have been tilted by a difference in their social standing: Lawson was married to a University Professor and Gildersleeve was likely a spinster; the former was a BSC Lady Member whereas the status of the latter in the Society, if any, was unrecorded.

Restoring identities

Allen (1860) was able to paint an overall picture of the female members of the BSL because he knew their first names; with those, he was able to go deeper into their lives and write on the roles they played in the Society (see Allen's informative Appendix). In the case of the BSC, Galbraith (2022) found it difficult to individualize the women in the absence of their first names. To him, giving a full name to the female members of the Society would confer them dignity and facilitate research into their scientific and community roles.

In the ledger listing the Lady Members, only four first names are given out of 18! Galbraith (2022) focussed on two of them, Lucy Stapley Lawson and Catherine (Kate) McGill Crooks. Little is known about Lucy Lawson, except that she was the first wife of George Lawson, moved with him and their two daughters from Edinburgh to Kingston in 1858, and died in 1871 (Rousseau and Dore, 1969). Crooks, as Harriet Sheppard before her, was interested in many fields of natural history; Galbraith (2022) mentioned that she was one of four women listed as a Canadian entomologist in 1862. In a recent article, Soper (2019) painted a vivid picture of Kate Crooks (1833-1871) with a bounty of details about her short life.

In the spirit of Galbraith (2022), we searched for the first name of "Miss Gildersleeve" who, despite having had her work read at one of the BSC meetings, was mentioned only once in the Annals (p 110). Like Galbraith (2022, footnote 51), but independently of him, we concluded that she was likely Lucretia Ann Marie Gildersleeve (1826-1909), the eldest daughter of Sarah Lucretia Finkle and Henry Gildersleeve, a prominent Kingston citizen much involved in his community (McKendry, 2020). We also researched "Miss Machar" (Fig. 7), whose full name we believe was Agnes Maule Machar (1837-1927), daughter of Margaret Sim and John Machar, Minister of St. Andrew's Presbyterian Church in Kingston (Brouwer, 2005; Osborne, 2019).

Figure 7. Formal photograph of Agnes Maule Machar with her dog, likely taken during the years when she would have been an active member of the BSC. Photograph obtained from QUA.

The Machar family was much involved in the BSC. Agnes' younger brother, John Machar Jr., was one of the original Fellows of the Society (BSC Annals, p 13). He donated seeds from various flowers on March 8 1861, while his father made an "extensive donation" to the botanical garden in Nov. 1861 (BSC Annals, p 54 and 168, respectively). Agnes Machar was an interesting figure, a prominent social activist, a writer publishing under the name Fidelis (as well as under her initials A.M.M.), and an early conservationist. In 1861, she would have had a large social circle, strongly connected with Queen's College as her father had been a principal there (https://www.queensu.ca/encyclopedia/m/machar-rev-john) from 1846 to 1853. In that circle, she would have met not only Sir John A. Macdonald, but also Joseph Antisell Allen (a BSC Fellow member and defender of Darwin), and she is known to have hosted Alfred Russel Wallace (Osborne, 2019) when he visited

Kingston in 1887. According to Ramsay Cooke, general editor of the Dictionary of Canadian Biography, Agnes Machar was to become "one of the most gifted intellectual and social critics in late-nineteenth century Canada" (Osborne, 2019).

One difficulty in researching female scientists is that women have traditionally ceased to use their maiden name when they are married. As mentioned earlier, they were (in the Victorian era and for many decades thereafter) most often recorded by the first names and titles of their husbands rather than their own. Researching unmarried women, as in the case of Lucretia Gildersleeve or Agnes Machar, can help. Women who were related to prominent men can also be more easily traced, because their biographies (including the names of their wives and children) are more enduring. And sometimes, there is just a lucky break in the case: Kate Crooks became Mrs. Smart when she married William Lynn Smart in 1865, which could have thrown us off the trail of her botanical career. However, for a publication of the Canadian Farmer in which Mrs. Smart received praise for the plant collection she exhibited at the Provincial Agricultural Fair was enough to help Soper (2019) re-establish the connection.

Conclusions

In this installment, we wanted to help to "recover the historical voices" of female botanists (Zeller, 2022) and to recognize them for having carved a place for themselves in a patriarchal society. We can only imagine the frustration these women faced, and admire the strength that some demonstrated when they submitted their writing and work to societies controlled by, and mainly composed of, men. As Harriet Sheppard and Christian Ramsay paved the way for women such as Crooks or Machar, they in turn made it easier for others, such as Alice Hollingworth (Shteir, 2022) or Carrie Derick (Dickinson and Guinel, 2017), who followed. Regardless of how little credit these botanists received during their lives, they are in fact among the giants upon whose shoulders we build our research today.

Having found a few more clues to the identities of women in the BSC, we trust that historians more qualified than ourselves will turn their authoritative attention to the remaining gaps. Meanwhile, we are preparing a brief index of female BSC members, which we plan to publish in our next instalment. The index will highlight both the known and the missing parts of these women's stories, inviting and hopefully facilitating community collaboration in recovering more clues in the Case of the Missing Botanists.

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https://www.deepl.com/translator#de/en

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Sacoila lanceolata / Stenorrhynchos lanceolatum

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Tagetes remotiflora

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