

## Why do we call ourselves entomologists? Persistence and adaptation in Canadian entomological societies over 150 years



*Modified from the Heritage Lecture presented at the Joint Annual Meeting of the Entomological Societies of Canada and Ontario, Guelph, 20 October 2013*

### Introduction

Members of the present day Entomological Society of Canada (ESC) come from a variety of professional backgrounds and areas of study; it is somewhere at the intersection of these differences that we find the current idea of what entomology is. This idea of entomology has grown and changed in numerous ways since the Society was founded in 1863, developing from a pastime for Victorian professionals into a distinct discipline with its own identity

and culture. Throughout these changes, the ESC has been an integral part of shaping the character of the discipline and the people who practise it. In this paper I will explore how the culture and identity of entomologists has developed since 1863, and propose some reasons for the longevity and cohesiveness of entomological societies in Canada.

The founding story of the ESC has been written about elsewhere (Bethune 1913; Baker 1939; Glen 1956; Spencer 1964; Holland 1966; Connor 1982), and I will therefore not go into great detail about the events. Briefly, Henry Croft, a chemistry professor with an interest in collecting insects, suggested that two young men of his acquaintance with a similar passion might want to get in touch with each other. Those two men were Charles Bethune, a divinity student, and William Saunders, a pharmacist. Bethune and Saunders became regular correspondents, and in the fall of 1862 the three men sent a letter of invitation to other entomophiles of their acquaintance to attend a meeting to discuss the formation of an entomological society. Several months later, on 16 April 1863, the ESC was formally created.

A number of historical accounts of the Society have been written in the century and a half since that day, several by Society members. In these previous accounts, many authors have looked back on the history of the society and described characteristics of different periods. Robert Glen (1956) identified the hiring of C.G. Hewitt as Dominion Entomologist in 1909 and the publication of the Destructive Insects Act in 1910 as turning points in the identity of the group. George Spencer (1964) also discussed the change that occurred around this period, but referred to it more dramatically as “The Decline of the Amateur”. Glen, in his look back in preparation for the centennial celebrations, declared that the period that followed 1910 could be referred to

---

*Laura Timms ([laura.timms@utoronto.ca](mailto:laura.timms@utoronto.ca)) is an entomologist whose research interests include parasitoid diversity, host-parasitoid interactions, and the impacts of anthropogenic disturbance on community interactions. She is currently working with the long-term biodiversity monitoring program at Credit Valley Conservation in Mississauga, Ontario.*

as The Determinative Period (Glen 1956). And Philip Corbet drew a line after the end of World War II, defining the period from 1946 until 1972 as an era of Post War Expansion, which he then suggested was followed by a period of Consolidation and Stabilization (Corbet 1973).

Glen, Spencer, and Corbet defined these eras in the Society’s past based on personal experience and historical narratives. A more objective definition can be achieved by looking at how annual membership numbers have changed over time (Figure 1). Using both qualitative and quantitative data, I therefore propose five eras in the history of the ESC – with names that reflect a more historiographical perspective than the personal ones described above, and with slightly modified dates. The periods I suggest include: Professionalization (1863-1909); Institutionalization (1910-1945); Expansion (1946-1970); Existentialism (1971-1995); and, Autonomy (1996-2013). What I see as the defining people, events, and characteristics of each period are described below, but first I would like to take a brief divergence into the social sciences.

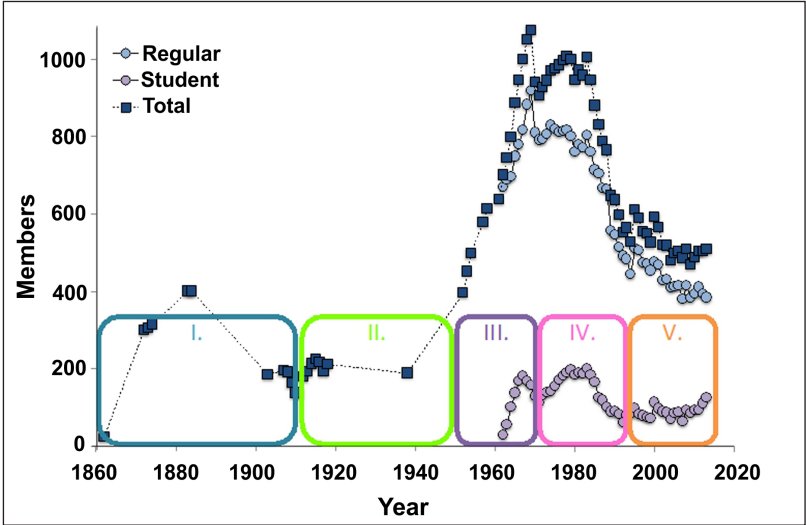


Figure 1. Membership of Entomological Society of Canada over time, showing five eras in the history of the Society as defined by historical turning points and trends in membership. Membership numbers were obtained from a variety of sources, including Danks (1994).

### How does a field of study like entomology acquire status as a discipline?

Historians and sociologists suggest that a field has become a discipline when it has developed separate journals, departments, societies, and meetings, focusing on well-established bodies of knowledge with specialist terminology and techniques (Thackeray and Merton 1972; Burian 1992). An important step in discipline founding is professionalization, a process often conceived of as involving four stages (Daniels 1967). First, pre-emption describes the development of specific knowledge, for which training is required to understand – even for those with general knowledge of the field. Next, institutionalization involves the formation of specialized organizations, departments, and establishments. This stage is followed by legitimation, where the discipline attempts to justify its existence by proving its usefulness to society at large. Finally,

professional autonomy occurs when a discipline has reached maturity – Daniels (1967) suggests that it is at this point that practitioners of the discipline feel free to pursue “pure” research in the area, without needing to demonstrate how it may be applied.

With these definitions in mind, it can be said that entomology did not exist as a discipline in North America in 1863 when the Entomological Society of Canada (ESC) was created. The founding of the Society was itself an important step in the development of the discipline, as were the activities of the Society in its first few years of existence. In addition, the different stages of professionalization can also be seen to have occurred over the 150 years of the Society’s history, and can provide a useful lens for describing and analyzing the course of that history.

### 1863-1909: Professionalization

*“If we look, however, at Entomology and its objects alone, we cannot fail to see at once that it is practically without limit – that there is work enough for thousands of investigators for almost innumerable generations to come”* – Bethune 1874, pp. 181-182

The members to whom President Bethune spoke those words on 23 September 1874 – at the eleventh annual general meeting of the Society, although it had recently changed its name from the ESC to the Entomological Society of Ontario for reasons described in Timms (2009) – were a very different set of people than you might expect to find at a modern day ESC meeting. They included, among others, druggists, accountants, bookbinders, railway engineers, tailors, and several members of the clergy – including Reverend Bethune himself. These were professional gentlemen who found time for their entomological pursuits when not absorbed “in the cares of business or in the labors necessary for obtaining a livelihood” (Bethune 1876).

Papers in the early volumes of *The Canadian Entomologist*, first published in 1868, demonstrate the curiosity and enthusiasm with which these “brethren of the net” (Reed 1913) explored the insect life around them. These papers were full of natural history observations, descriptions of specimens, and personal accounts of collecting adventures in the field (Figure 2). Annual meetings regularly included field trips and picnics, and attendees would bring specimens from home to show to each other and compare identifications (Baker 1939). For the most part, Society members during this period were occupied with describing and listing the insects of Canada; this is reflected in 80% of all published papers in *The Canadian Entomologist* between 1868 and 1907 that fell into the category of systematics and morphology (Hodson 1985).

However, there was some indication of a division in the membership as early as 1873. In his opening editorial to

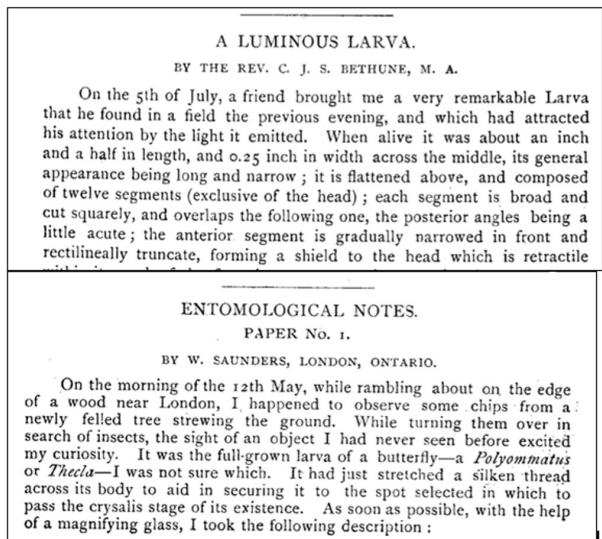


Figure 2. The opening sentences of the first two papers ever published in *The Canadian Entomologist*, Volume 1, 1868.

Volume 5 of the journal, Bethune acknowledges receiving some complaints that the papers were “becoming too technical” and therefore inaccessible to all but “deep students of the science” (Bethune 1873). At the same time, economic entomology was emerging as a new area of interest, arising out of the “great and incessant efforts of a few naturalists to make their work useful” (Fletcher 1888). The rise of economic entomology paralleled the increasing importance of agriculture and natural resource exploitation in Canada (Palladino 1996); entomologists who were willing to apply their skills to problems facing farmers found themselves in great demand. In 1886, Saunders was appointed as the first director of the Dominion Experimental Farms system, marking the first official transition of a Canadian entomologist from amateur to professional. Bethune followed a similar path in 1906, becoming Professor of Entomology and Zoology at the Ontario Agriculture College in Guelph.

It was the end of an era, and not everyone was happy about it. In a letter to Bethune dated a month before the 47<sup>th</sup> Annual Meeting, Henry Lyman complained that the Society’s meetings were “less enjoyable” than they used to be, primarily because members didn’t spend as much time sharing collecting trip stories and comparing specimens as they had previously done (Lyman 1910). It was also around this time that the Society moved its headquarters from London to Guelph, and lost the membership of many amateur entomologists in the process (Connor 1982). The decreased representation of amateurs in the Society can be seen in the decline in membership numbers that took place around this time (Figure 1). However, the clearest sign that the professionalization of entomology had occurred took place in 1909, when the university-trained C. Gordon Hewitt was selected over the self-taught naturalist Arthur Gibson to replace the late James Fletcher as Dominion Entomologist (Castonguay 2004).

### **1910-1945: Institutionalization**

Although he intended to return to England shortly after his appointment, Hewitt quickly developed a big vision for entomology in Canada, and began to effect changes soon into his tenure as Dominion Entomologist (Hewitt 1921). He helped write and pass the Destructive Insect and Pest Act in 1910, which resulted in the provision of federal funds for the building and staffing of entomology labs across the country. He separated the entomology division from the Experimental Farms system in 1914 and created the Entomological Research Branch, with an initial staff of 28 and with sections specializing in agriculture, forestry, quarantine, and systematics (Anonymous 1914a). In addition, he formalized the creation of the Canadian National Collection of Insects in Ottawa, including selecting standardized United States National Museum of Natural History drawers and cabinets for storage and ensuring the collection was placed in a fire-proof building (Anonymous 1914b).

These actions set the stage for a well-funded network of federal entomological research institutions in Canada, administered centrally by the Entomological Research Branch. It was also a time of expansion in formal entomological education across the country. Hewitt believed that it was necessary to use experimental approaches to help solve the problems of insect outbreaks, and emphasized the need to hire university-trained staff to carry out this work (Castonguay 2004). Graduates from the only two Canadian institutions providing degrees in entomology at the time, Macdonald College and the Ontario Agricultural College, were in high demand in both Canada and the United States. Courses and programs in entomology were soon developed at other institutions, including the University of Manitoba (1920), the University of Alberta (1922) and the University of Montreal (1931) (Glen 1956).

The momentum of this institution-building was slowed down by three major events: World War I, the Great Depression, and World War II. Nevertheless, entomology in Canada made “slow but steady progress”, including opening new research labs and the creation of the federal Science

Service – which absorbed the Entomological Research Branch and renamed it as the Entomology Division (Glen 1956). By the end of World War II, there were 140 full-time entomologists working for the federal government, in addition to a number of recently hired professors and lecturers at universities across the country (Glen 1956). The fact that membership numbers remained relatively steady during this period despite all the global disturbance is a testament to the large amount of work that went into building these foundational entomological institutions (Figure 1).

### **1946-1970: Expansion**

*“In 10 years the status of the investigator has been vastly bettered in terms of relative salary, prestige, opportunity for travel, and working conditions; large modern laboratories have been built at some 15 centres; headerhouses, greenhouses, insectaries, etc., have been added at a dozen other locations; all essential facilities and conveniences have been provided, including comprehensive reference libraries, a variety of transport, and land for experimental purposes; co-operation with other research institutions has been broadened through the establishment of federal research grants for work on Science Service projects; and, by arrangement with the National Research Council, a number of post-doctorate fellowships are now tenable at Science Service laboratories.” – Glen 1956, p. 299*

As the period of institutionalization can be defined by the hiring of C.G. Hewitt, the period of expansion begins with the appointment of Kenneth Neatby as the Director of Science Service in 1946. Neatby’s philosophy was that “to be pursued really effectively and adequately, research should be free of any other compelling calls” and “not necessarily closely related to the solution of immediate practical problems” (Ogg 1950, quoted in Spencer 1964). To that end, Neatby more than tripled the annual budget of the Science Service, created postdoc positions at federal labs, hired more staff, built facilities, and encouraged interdisciplinary work.

The combination of secure funding, creative freedom, interdisciplinary interactions, and good management is recognized as a successful method for encouraging innovation in institutions (e.g., Bell Labs, Google, see Gertner 2012); one need only look at the output of Canadian entomologists during this period to see that Neatby’s approach worked. For example, within the context of research in biological control, there were classic works produced on functional responses (Holling 1959), cold hardiness (Salt 1953), and associative learning (Arthur 1966), among others. Concurrent with this period of creativity and productivity, the membership of ESC increased dramatically – from less than 400 members in the early 1940s to over 1000 in the late 1960s (Figure 1). It was partly the increasing membership numbers that inspired the re-founding of the Entomological Society of Canada in 1950, as it was felt that a national society was needed to manage such a large and widespread community of entomologists.

The historical accounts produced by Society members around the time of the centennial celebrations in 1963 are full of strong, confident statements about the position of entomology in Canada and in general portray a positive outlook about the future of the field (e.g., Glen 1956, Spencer 1964, Holland 1966). In his presidential address for the year 1962, Anthony Brown commended the culture of collaboration between university and government entomologists and praised the diversity and quality of entomological research being conducted across the county (Brown 1962). However, Brown (1962) also noted that the lion’s share of entomologists in Canada at the time were employed by the federal government, and suggested that this may prove to be a problem in times of austerity. This would prove to be a very prescient statement.

### **1971-1995: Existentialism**

*“Time is running out for our profession. We must communicate this fact now to our fellow entomologists. We must jolt them out of their indifference and convince them that unless each individual entomologist has his own public education campaign our profession will lose the opportunity to contribute directly to mankind’s nurture and survival, will lose its identity. Our profession will cease to exist.” – MacGillivray 1977, p. 94*

The golden era of federal research funding ended in the early 1970s with the closure of a number of programs and laboratories, as well as the cessation of government subsidies to both the ESO and ESC (Baldwin 1971; Corbet 1973). In response to these cuts and others, the ESC wrote letters expressing their concern to the ministers involved as well as the Prime Minister. However, it seems that their concerns fell on deaf ears, and no replies were ever received. A potential solution identified by the Society was an increased participation in science and education policy; in 1970 the ESC joined SCITEC, a national science policy organization. It also began to produce policy papers and statements on such topics as pesticides (ESC 1970) and university research funding (Mackauer et al. 1978).

At the same time, there was some anxiety within the Society that entomology would disappear into the ever-expanding subdisciplines of the “new biology”, and that basic entomological education would be replaced with the newer, non-organismal based fields of study (e.g., Kevan 1973). Again, the solution proposed was promotion and education to convince the public that entomology was an important profession and to encourage students to pursue entomological studies (e.g., MacGillivray 1977). One problem with this approach, however, was highlighted when an entomological manpower study found that “we shall soon be producing twice as many PhDs as there are jobs available for them in government, industry, and universities” (MacEwen et al. 1976). Despite this, the Society formed an employment committee, and for a few years produced booklets of *Resumés of Entomological Society of Canada members seeking employment*.

Membership started declining in the early 1980s – decreasing an average of 6% per year between 1983 and 1995 (Figure 1). This was accompanied by deficits and instability in the Society’s finances, a common theme in the Presidents’ messages in the *Bulletin* throughout this period (e.g., Riegert 1993). In 1995, the board decided to conduct a strategic review of the future of the ESC, including assessing its relevance to members as well as to the public. The review concluded that the ESC needed to stop behaving like a society with over 1000 members and come to terms the fact that it was “appreciably smaller than it once was” (Safranyik 1995). The changes that were implemented as a result of the review led to a reorganization of the Society that defined the next era in its history.

### **1996-2013: Autonomy**

The post-strategic review ESC achieved the goal of financial stability relatively quickly, and at the same time saw membership numbers stabilize (Figure 1). The Presidents’ messages in the *Bulletin* no longer featured pleas for engagement in policy and public education, but emphasized the good financial condition of the Society and reported on miscellaneous business (e.g., Gibson 2001). In comparison with earlier eras, the published commentary from the ESC during this period is calmer and less opinionated; one gets the sense of a society going about its business quietly, with minimal self-reflection (but see Buddle et al. 2011 for an exception).

One recurring issue of business over this period was the development of an online presence, from the development of a website in 2001 to the creation of a twitter account in 2012. All back issues of *The Canadian Entomologist*, the full *Memoirs of the ESC*, and the *Bulletin* from 2003

on are now available online, as are a number of monographs and books (see: <http://www.esc-sec.ca/pubover.php>). The ESC is also associated with the online-only *Canadian Journal of Arthropod Identification*, which produces picture-based keys for Canadian arthropods. Together, these resources combine to make the ESC and entomology in Canada perhaps the most accessible it has ever been – to members and non-members alike.

## **Why do we call ourselves entomologists?**

Entomology and entomologists in Canada have changed a great deal in the last 150 years. Based on the brief review I have just presented, I can attempt to provide a broad sketch of how the majority of entomologists in earlier periods would have described themselves: as natural historians (1863-1909); economic entomologists (1910-1945); pure scientists (1946-1970); and, as an endangered species (1971-1995). However, it is more difficult to say how present day entomologists think of themselves, or how many of those who study insects would even use the term entomologist to self-identify.

To address these questions, I conducted an online survey titled “Why do we call ourselves entomologists?” asking people to answer questions on their use of the label entomologist versus alternate descriptors. The survey included nine questions (Appendix Table 1), and was sent out via email and social media and was advertised in the *Bulletin*. Over 150 people answered the survey, 62 from Canada. For the purposes of this paper, I will report only the results from Canadian respondents.

Both frequency of use of and attachment to the label entomologist were positively associated with length of time the respondent had been interested in insects, but the age of the respondent was not significantly related to either response variable (Appendix Table 2). The two response variables were also positively related to each other; in other words, more frequent use of the label entomologist was associated with higher levels of attachment to the label. However, there was no relationship between the frequency of use of the label entomologist and attachment to an alternate label or between the attachment to the label entomologist and an alternate label. Mean attachment to the label was high across all fields, ranging from 3.10 for biocontrol workers (n=10) to 4.29 for taxonomists/systematists (n=17).

Most interesting were the free form comments about why respondents did or did not use the label entomologist to describe themselves. I used key words to classify comments into categories describing both positive and negative associations with the label entomologist (Appendix Table 3). Comments often fell into more than one category; for example, as the respondent described multiple reasons why they used the label entomologist.

There were a greater number of positive comments than negative. Positive comments indicated a wide variety of reasons why the respondents were happy to use the label entomologist, in particular due to a sense of history and community in entomology (n=9) as well how describing oneself as an entomologist provides opportunities to talk to and teach people about insects (n=11). The negative comments included less variation, with the dominant categories relating to a feeling of not knowing enough about insects to be called an entomologist (n=6) and with feeling like the label entomologist was too limiting (n=11). Perhaps most alarming were the two people who felt like they weren't accepted by entomologists, despite their desire to occasionally use the term.

## **Is there a carrying capacity for entomologists in Canada?**

If we return to the membership data in Figure 1 and examine it as a population biologist might, it appears as if there are two stable population levels for the ESC – one around 1000 members and one around 550 members. This leads to the question: is there a carrying capacity for entomologists in Canada? Danks (1994) identified federal government funding and research

scientist jobs as the resources that drove membership trends between 1960 and 1994. The brief history of the Society that I have presented in this paper would support Danks' argument; certainly, the increases in spending and hiring after WWII contributed to a rise in entomology jobs across the country. However, there are other, smaller drivers to note – for instance, the decrease in membership after amateur entomologists began to leave the Society.

Given that it is rarely within the capabilities of the ESC to affect funding levels (although the importance of public education and participation in national science issues should still be stressed), we should consider what it is that we can do as a society to improve the environment for entomologists in Canada. I would suggest that we look to the results of the survey, particularly the comments in the positive categories, to remind ourselves of why someone might want to be called an entomologist. Specifically, as a society we should strive to be welcoming and inclusive, emphasize the mentoring of students, take opportunities to share our passion for entomology with children, and in general share the sense of wonder that many of us feel about insects. In addition, we should continue to review our history to see what can be learned from the past. For instance, these words from Charles Bethune express some of the same ideas as above but in a much more entertaining way:

*“To all our friends and correspondents – to all who read these pages, we bid a kindly greeting. Once more we are entering upon a new volume; for the third time we solicit the attention and assistance of all lovers of nature throughout the continent – of all especially who delight in the study of the wonderfully varied forms, structures and habits of Insects. In addition, we now also desire to draw into our friendly circle of readers and observers in the same great field of nature, that numerous class of haters of insects, who hate them with a deadly hate, who give them no quarter in any case, and who devote them all alike to execration and unsparing destruction. Friends, we invite you all to come and join us in our work, which is one of deepest pleasure, even though often filled with toil; come with us and search into the mysteries of the insect world; help us to trace out the wondrous beauties of structure, form and coloring of the marvels of the Creator's power; help us to investigate thoroughly the lives, metamorphoses, habits, occupations, food, and all other matters connected with these tiny creatures; join us in working out their scientific arrangement and nomenclature; aid us in rightly discriminating between friend and foe, between noxious, beneficial and neutral insects, and let us all unite in the endeavour to discover the best means of counteracting the ravages of the one, and of encouraging and protecting the other.”*  
– Bethune 1871, p. 1

## Acknowledgments

I am grateful to D. Lisi, K. Floate, A. McClay, P. Fields, C. Buddle, and various organizers of previous joint annual meetings for helping to dig up data on membership and meeting attendance numbers. I also appreciate the thoughtful comments from everyone who took the survey and numerous society members that were willing to discuss these ideas with me. Thanks to the organizers of the 150<sup>th</sup> annual meeting – Gary Umphrey, Rebecca Hallett, Joel Gibson, and Cynthia Scott-Dupree – for inviting me to speak at the meeting and taking care of my arrangements. Finally, thanks to Steve Walker and Cedric Gillott for reviewing earlier versions.

## Literature Cited

- Anonymous. 1914a. The Canadian entomological service. *The Canadian Entomologist*, **46**: 214-216.  
Anonymous. 1914b. A Canadian national collection of insects. *The Canadian Entomologist*, **46**: 251.  
Arthur, A.P. 1966. Associative learning in *Itopectis conquisitor* (Say) (Hymenoptera: Ichneumonidae). *The Canadian Entomologist*, **98**: 213-223.  
Baker, A.W. 1939. A short history of the Entomological Society of Ontario. *The Canadian Entomologist*, **71**: 14-20.  
Bethune, C.J.S. 1871. Our third volume. *The Canadian Entomologist*, **3**: 1-2.  
Bethune, C.J.S. 1873. 1873. *The Canadian Entomologist*, **5**: 1-2.



- Bethune, C.J.S. 1874. Annual address of the President of the Entomological Society of Ontario, 1874. *The Canadian Entomologist*, **6**: 181-186.
- Bethune, C.J.S. 1876. Annual address. *The Canadian Entomologist*, **8**: 1-4.
- Bethune, C.J.S. 1913. Address of the President. *The Canadian Entomologist*, **45**: 353-356.
- Brown, A.W.A. 1962. Entomological Society of Canada, Presidential Address, 1962. *Proceedings of the Entomological Society of Manitoba*, **18**: 13-21.
- Buddle, C.M., Ernst, C., Hervieux, M., Loboda, S., MacLeod, A., Maloney, T., Levya Mancilla, C., Royauté, R., and Solecki, A.M. 2011. Status of entomology in Canada: crisis or opportunity? *Bulletin of the Entomological Society of Canada*, **43**: 141-147.
- Burian, R.M. 1992. How the choice of experimental organism matters: Biological practices and discipline boundaries. *Synthese*, **92**: 151-166.
- Castonguay, S. 2004. Naturalizing federalism: Insect outbreaks and the centralization of entomological research in Canada, 1884-1914. *The Canadian Historical Review*, **85**: 1-34.
- Connor, J.T.H. 1982. Of butterfly nets and beetle bottles: The Entomological Society of Canada, 1863-1960. *History of Science and Technology in Canada Bulletin*, **6**: 151-171.
- Corbet, P.S. 1973. The roles and responsibilities of the Entomological Society of Canada. *Bulletin of the Entomological Society of America*, **19**: 10-11.
- Daniels, G.H. 1967. The process of professionalization in American science: The emergent period, 1820-1860. *Isis*, **58**: 150-166.
- Danks, H.V. 1994. Membership trends in the Entomological Society of Canada. *Bulletin of the Entomological Society of Canada*, **26**: 101-113.
- Entomological Society of Canada. 1970. *Pesticides and the environment*. Entomological Society of Canada, Ottawa.
- Fletcher, J. 1888. The President's annual address. *Annual Report of the Entomological Society of Ontario*, **19**: 3-12.
- Gertner, J. 2012. *The idea factory: Bell Labs and the great age of American innovation*. New York, Penguin Group.
- Gibson, G. 2001. President's address, annual general meeting, October 9, 2001. *Bulletin of the Entomological Society of Canada*, **33**: 135-136.
- Glen, R. 1956. Historical review. *The Canadian Entomologist*, **88**: 292-299.
- Hewitt, E. Preface. In: Hewitt, C.G. 1921. *The conservation of the wild life of Canada*. New York, Charles Scribner's Sons.
- Hodson, A.C. 1985. A historical perspective of articles published in *The Canadian Entomologist*, 1868-1984. *Bulletin of the Entomological Society of Canada*, **17**: 72-73.
- Holland, G.P. 1966. Entomology in Canada, pp. 7-13 *In Centennial of Entomology in Canada 1863-1963*. G.B. Wiggins (ed.), Toronto.
- Holling, C.S. 1959. Some characteristics of simple types of predation and parasitism. *The Canadian Entomologist*, **91**: 385-398.
- Lyman, H. 1910. Letter to C.J.S. Bethune, dated 7 October 1910. Entomological Society of Ontario Collection, University of Guelph Archival and Special Collections, Box 10.
- Kevan, K.McE. 1973. President's remarks. *Bulletin of the Entomological Society of Canada*, **5**: 128-130.
- MacGillivray, M.E. 1977. Presidential address. *Bulletin of the Entomological Society of Canada*, **9**: 85-94.
- Mackauer, J.P.M., Brust, R., McNeil, J.N., and Philogène, B.J.R. 1978. *The funding of university research in entomology*. Entomological Society of Canada, Ottawa.
- Palladino, P. 1996. Entomology, ecology and agriculture: The making of scientific careers in North America, 1885-1985. Amsterdam: Harwood Academic.
- Reed, E.B. 1913. Letter to C.J.S. Bethune, dated 18 August 1913. Entomological Society of Ontario Collection, University of Guelph Archival and Special Collections, Box 10.
- Riegert, P.W. 1993. President's address, presented at annual general meeting, Sault Ste. Marie, Ontario. *Bulletin of the Entomological Society of Canada*, **25**: 135-136.
- Safranyik, L. 1995. President's address. *Bulletin of the Entomological Society of Canada*, **27**: 154-156.
- Salt, R.W. 1953. The influence of food on cold hardiness of insects. *The Canadian Entomologist*, **85**: 261-269.
- Spencer, G.J. 1964. A century of entomology in Canada. *The Canadian Entomologist*, **96**: 33-59.
- Thackeray, A. and Merton, R.K. 1972. On discipline building: The paradoxes of George Sarton. *Isis*, **63**: 472-495.
- Timms, L.L. 2009. Growing pains: How the birth of the Entomological Society of Canada affected the identity of the Entomological Society of Ontario. *Journal of the Entomological Society of Ontario*, **140**: 49-56.

## Appendix

**Table 1.** Survey questions used in the online survey “Why do we call ourselves entomologists?”

Question	Answer selections	
1. Which of the following best describes your current occupation?	Research scientist Working with an NGO Undergraduate student Research technician Graduate student Postdoc	Consultant University or college professor Retired Unemployed Other (please specify)
2. Which category below includes your age?	17 or younger 18-20 21-29 30-39	40-49 50-59 60 or older
3. Which of the following best describes your field of study/work? You can choose more than one, or add a new field if yours is missing.	Taxonomy/systematics Behaviour Integrated pest management Biological control Ecology	Physiology Biodiversity Evolutionary biology Forestry Agriculture Other (please specify)
4. How long have you been interested in insects?	Less than a year 1-5 years 5-10 years 10-25 years More than 25 years	
5. Do you call yourself an entomologist?	Yes, all the time Yes, most of the time Sometimes Almost never Never	
6. How strongly attached are you to the label entomologist when describing yourself?	1 – not at all attached 2 3 4 5 – very strongly attached	
7. (a) If you call yourself something other than an entomologist, what label do you use? (b) Using the same scale as Q6, how strongly attached to that label are you?	(a) Free form	(b) 1 – not at all attached 2 3 4 5 – very strongly attached
8. Please explain why you think the label entomologist is (or is not) important to you?	Free form	
9. Any final comments?	Free form	

**Table 2.** Kendall’s tau correlations between pairs of variables from respondents to the survey “Why do we call ourselves entomologists?”; bold text indicates p-values significant at a level of  $\alpha = 0.05$ .

<b>Variable pair</b>	<b>Correlation</b>	<b>Z</b>	<b>p</b>
Length of interest in insects Frequency of use of label entomologist	0.30	2.81	<b>0.005</b>
Age of respondent Frequency of use of label entomologist	0.19	1.77	0.078
Length of interest in insects Attachment to label entomologist	0.21	2.02	<b>0.044</b>
Age of respondent Attachment to label entomologist	0.12	1.16	0.246
Frequency of use of label entomologist Attachment to label entomologist	0.76	7.24	<b>&lt;0.001</b>
Frequency of use of label entomologist Attachment to alternate label	-0.13	-1.26	0.209

**Table 3.** Synthesis of free form comments in response to survey questions 8 and 9 into categories with positive and negative associations to the label entomologist, with frequency of comments that fell into each category as well as key words used to identify the comments as belonging to that category

Association	Category	Frequency	Key words	
Positive	Identity	4	<ul style="list-style-type: none"> <li>▪ interest</li> <li>▪ personality</li> <li>▪ vocation</li> <li>▪ identity</li> </ul>	
	Childhood interest	6	<ul style="list-style-type: none"> <li>▪ roots</li> <li>▪ blood</li> <li>▪ mentor</li> <li>▪ family</li> </ul>	
	Unique / special	6	<ul style="list-style-type: none"> <li>▪ pride</li> <li>▪ fun</li> <li>▪ important</li> <li>▪ select</li> </ul>	<ul style="list-style-type: none"> <li>▪ distinguished</li> <li>▪ unique</li> <li>▪ interesting</li> <li>▪ quirky</li> </ul>
	History & community	9	<ul style="list-style-type: none"> <li>▪ community</li> <li>▪ helpful</li> <li>▪ cooperative</li> <li>▪ enthusiastic</li> <li>▪ generous</li> <li>▪ nice</li> </ul>	<ul style="list-style-type: none"> <li>▪ history</li> <li>▪ generations</li> <li>▪ timeless</li> <li>▪ tradition</li> <li>▪ transcends disciplines</li> </ul>
	Public education	11	<ul style="list-style-type: none"> <li>▪ inspiring</li> <li>▪ means something</li> <li>▪ attract attention</li> <li>▪ discussion</li> </ul>	<ul style="list-style-type: none"> <li>▪ reactions</li> <li>▪ questions</li> <li>▪ promotion</li> </ul>
Negative	Not accepted	2	<ul style="list-style-type: none"> <li>▪ not accepted</li> <li>▪ told not an entomologist</li> </ul>	
	Depends on context	2	<ul style="list-style-type: none"> <li>▪ adapt</li> <li>▪ audience</li> <li>▪ context</li> </ul>	
	Use insects as models	4	<ul style="list-style-type: none"> <li>▪ model organisms</li> <li>▪ use insects to ...</li> </ul>	
	Not qualified	6	<ul style="list-style-type: none"> <li>▪ not qualified</li> <li>▪ don't know enough</li> <li>▪ haven't earned it</li> </ul>	
	Too narrow	11	<ul style="list-style-type: none"> <li>▪ narrow</li> <li>▪ constraint</li> <li>▪ confining</li> <li>▪ not informative</li> </ul>	<ul style="list-style-type: none"> <li>▪ not natural</li> <li>▪ unimportant</li> <li>▪ limiting</li> <li>▪ taxonomist</li> </ul>