By Neil Holliday

Norman Criddle: Pioneer entomologist of the Prairies

2004 Heritage lecture

The Department of Entomology at the University of Manitoba has a small meeting room in which, from time to time, important decisions are made. As if to remind those meeting that they may be answerable to their predecessors, the walls are adorned with portraits of historical figures of Manitoban entomology. From my point of view, an important meeting held in this room was the February 1977 interview for my current job. It was at that time that I first became aware of Norman Criddle, the subject of the earliest of the portraits on the wall.

My knowledge of Norman Criddle was sketchy for many years. I soon encountered his extension publications on pest insects in Manitoba, and his scientific publications documenting studies of grasshopper biology. Many of these remain authoritative works on bionomics of pest insects. About 10 years ago, I became acquainted with the environment in which Norman Criddle lived, both because I began using the location in teaching laboratories, and because of discussions with the Provincial Parks Department about the future of the location. More recently I became aware of Norman's family history and circumstances. Today, I shall reverse the order of my discoveries, and first address his family circumstances, then his own life and environment, and finally his scientific career and impact on entomology.

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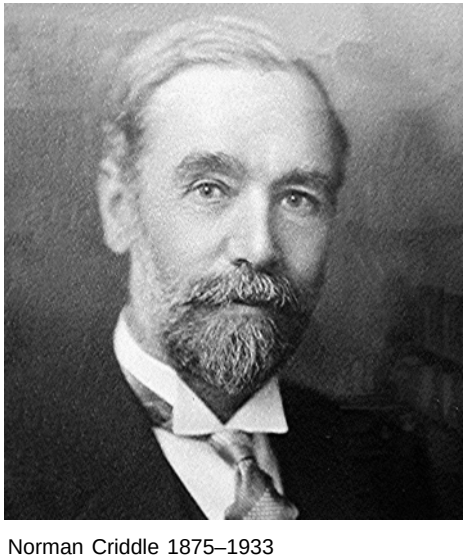
A.E. Holliday

Percy Criddle was Norman's father. Percy was born to well-off parents, and grew up in Putney, in west London. At the age of 16, Percy moved to Heidelberg to further his education. There he met Elise Harrer. Elise became Percy's mistress and when Percy moved back to London in 1867, Elise was established in a flat over Percy's business offices. This arrangement continued until 1882. Between, 1867 and 1875, Elise bore six children, one of whom died in infancy. Elise became known as Mrs Vane, and her children took the name Vane.

Alice Nicol was Norman's mother. She was one of the first women to study at Cambridge. She became fluent in several languages and knowl-



Norman Criddle 1875–1933

edgeable in literature and natural history. Alice was courted by Percy from about 1870, and they married in September 1874. They set up house in Addlestone, Surrey, now not far from what is now London's Heathrow Airport. At the time of his marriage, Percy was described as a wine merchant.

On setting up home in Addlestone, it appears that Percy announced to Alice that he had a mistress with four children and another expected. Percy divided his time between his family in London, and his growing family in Surrey. Four children were born to Alice during the Addlestone period. The oldest of these was Norman. In March 1876, for no apparent reason, Percy began a diary, which he continued until his death. This is the source of much of our knowledge of the early years of the Criddles, and in fact begins with the note that Norman had cut his first tooth at the age of 10 months.

Percy was not a very successful business man. In 1882, he sold his business and other assets, and set out for a new life in Canada. Elise and her five children travelled steerage class, and Percy and Alice and her four children travelled intermediate class to New York, where they landed on 27 July 1882. They then travelled by train and steamer to Brandon, Manitoba, arriving on 16 August. Once in Brandon, Percy prospected for suitable land and decided on a location just north of the Assiniboine River, close to the Treesbank Ferry, which linked his chosen homestead location with the nearest community of Treesbank. On 24 August 1882, the Criddle/Vane family, consisting of Percy, his two women, and nine children ranging from 2–14 years set out for the homestead site.

The trip from Brandon to the chosen section illustrates several important elements of the circumstances in which Norman grew up. Percy had bought an ox cart and pair of oxen and arranged to rent a horse-drawn dray and driver, and to make an early start. When the dray arrived, its capacity was too small, and there was delay while a substitute was found, and that was barely adequate. Percy drove the ox cart with great difficulty, and at the Assiniboine River Crossing at Currie's Landing, the ox cart nearly tipped into the river. Percy had to admit that it was overloaded.

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The second St. Albans in 2004. The single storey portion on the right is the east wing, built to house entomological visitors and workers. In the foreground is the flag pole, which Percy considered an important element of the homestead.

So the stove and some other items were left at Currie's landing to be picked up later. At this point, Percy went ahead with the horse-drawn dray, leaving the women and children to cope with the ox cart. The oxen lay down frequently, and by sheer force of personality, Alice finally got the party to the homestead site late in the evening. This episode epitomizes several of Percy's characteristics: a tendency to make plans that misfire, a lack of practical ability that would be very useful on a farm, impatience, and a willingness to leave the hard labour to the women and children of the family and take little interest in their difficulties. The day-long trip also illustrates a further shaping characteristic of Norman's environment, the degree of isolation represented by the 20 mile distance from Brandon to the homestead site. Percy, sometimes accompanied by one of the children, occasionally made the two day trip to Brandon and back. However, the womenfolk seldom left the homestead area, which became known as Aweme.

Initially the family shared a single large tent. Percy and the older boys set to work to cut logs for a house; they were hampered by the severity of mosquitoes that prevented them working in the woods after about 3PM. Winter threatened, and so Percy and the women constructed a sort of cellar 9 x 6 feet, as an improvement on the tent.

However, cooking was still done outside. Two neighbours took on the task of building a log house, consisting of two ground floor rooms and two first floor rooms. The last members of the family finally moved into the house on 27 December 1882. Percy christened the house "St. Albans". This house was far from warm, and very crowded. The lime chinking between the logs fell out, and over the years, moss, earth and other materials were used in attempts to block the wind and cold. In 1889, Elise Vane and her children moved into a separate house, as part of establishing homestead rights to additional land. In 1905–6 the log house was replaced by a second St. Albans, which was built professionally. This house still stands.

In the early days, there was little to eat and no money. The women and children established a garden. Percy planned out the farm, but from the first, much of the work was done by others. Alice bore four more children between 1884 and 1893, despite suffering scurvy. Alice and Elise were responsible for the cooking and clothing of the family. Alice was also responsible for educating the children and this was the only education the children had. Percy did not have the patience to teach the children, and when a local school became available, did not wish his children to attend. Percy indulged his interests in music and science, and delegated the running of the farm to his children. The girls kept chickens and operated a dairy. The boys did the ploughing and harrowing. Norman first took a turn at ploughing with oxen when he was 10. At that time the oldest boy, Edwy, was 13 and was expected to plough fields unaided, and all harrowing was done by the boys. By the age of 13, the boys were also considered old enough to be sent as hired hands to the neighbours, so augmenting the family income somewhat. At 15, the girls were sent to town to become servants. A consequence of these encounters of the children with the outside world and the opposite sex, was development of romances and marriages, many of which Percy did not approve. Percy's enormous ego made it difficult for him to let go when his children showed signs of independence.

Despite the unending labour requirements of the homestead, Percy and the children were enthusiastic and competitive in sports. A golf course and tennis courts were constructed. Arising from Percy's scientific interests was establishment of a weather station in 1884. Percy soon lost interest in the routine keeping of records, and this fell to others. Norman took over, and kept meticulous records. Interest in natural history was strong in the family, and feeding of birds, adoption of skunks, and insect and plant collecting were common activities. Although Percy made detailed descriptions of many of the items he collected, he seldom took steps to find out what they were. In contrast, several of the children became experts.

J.D. Shorthouse

Norman Criddle's headstone in the Criddle/Vane family cemetery at Aweme.

Since Percy did not believe in God, he established a family cemetery near St. Albans, in which most of the Criddles are buried. Elise Vane died in 1903 and was first to be buried there. Percy and Alice died within weeks of each other in early 1918. Theirs were the first of the characteristic heart-shaped head stones that adorn all the Criddle graves in the cemetery. Most of the Criddle headstones bear a word indicating their noted characteristic. Four headstones bear the word

"naturalist". Among them, Talbot Criddle "Sportsman Naturalist" 1890–1975, was an avid and talented player of tennis and golf. He was also a farmer and horticulturalist of some talent. Stuart Criddle (1877–1971) was a cultivator of lilies, taxidermist and mammalogist. He published 20 scientific articles in total, most of them dealing with mammals. Evelyn Criddle (1876–1972) was a very quiet individual and an excellent collector of insects, particularly tiger beetles. Professionally, he worked as a Provincial Government Weed Inspector. The fourth headstone marked "naturalist" was that of Norman Criddle.

To some extent we can let Norman tell his own story, as he prepared —and no doubt typed himself— an autobiography and similar items, which covered all but the last few years of his life. His laconic description of his early days is telling.

Came to Canada (Manitoba) in 1882.

Worked and starved on a farm for the next eight years. Continued to work on a farm until 1905.

Schooling, such as it was, provided at home; usually in the evenings during winter time. There was not time in summer. No opportunity for higher education was provided.

His first career entry, "Farmer 1882 to 1905", does not do justice to Norman's activities in this period. In 1898, Harry Vane (Norman's half brother) was leading the local fight against grasshoppers, among them *Melanoplus spretus* and *M. sanguinipes*. He had farmers plough the field margins to bury the young hoppers, and used a hopper dozer, filled with kerosene to collect and kill the hoppers. Harry Vane (probably with the help of Norman) developed a hopper-burner, which was a tray on skids filled with burning embers. However, the major breakthrough came later. In spring 1901, Norman's diary reports "I, in company with Harry Vane, discovered a simple remedy for killing locusts." Paris green (Copper acetoarsenite), salt and horse manure (or bran or sawdust) became known as Criddle mixture, and was widely used as a bait for control of grasshoppers for over 30 years. The outbreak of 1898–1903 represented the last outbreak of the Rocky Mountain locust, *M. spretus*, which became extinct. In fact, as far is known, the last living collection of the species was made by Norman in 1902.

Norman began drawing flowers and insects in about 1893, and exhibited several hundred illustrations of flowering plants at the Brandon Fair in 1898. Norman apparently did not pick the flowers he painted, and so his depictions of elaborate flower arrangements would have been painted in the field as individual plants. Norman's painting was carried out under extreme difficulty due to lack of money for paper and paints. He painted on any available scrap or paper, and in 1900 was almost completely out of paints, about which he wrote that "The sum of one dollar would help me enormously. In fact the sum of two dollars would overcome all difficulties. Yet this small sum seems as far off as the moon." Norman, unlike his father, was interested in correct identification of his specimens, and sent his flower drawings to Ottawa for identification. The drawings were well received in Ottawa, and note was made of them in The Ottawa Naturalist. The drawings and Norman's work on grasshoppers drew the attention of the Dominion Entomologist and Botanist, James Fletcher.

In 1900, Fletcher toured the grasshopper-afflicted areas of Manitoba, and visited Aweme to see Norman. They became firm friends until Fletcher's sudden death in 1908. From the meeting with Fletcher followed official recognition of Criddle mixture and temporary work for Norman demonstrating its use. Also, Norman began to receive commissions from the Dominion Department of Agriculture to make coloured drawings of weeds and weed seeds. In the winter of 1904–5, Norman traveled to Ottawa to complete drawings for a publication on farm weeds, for which Fletcher wrote the text. This was his best employment to date, as he received both a salary and travel expenses. This publication contained 56 plates, all by Norman Criddle, and has recently been reprinted by Lee Valley Tools Ltd.

For the next eight years, Norman divided his time between farming, botanical illustration and work for the Department of Agriculture with weeds and weed seeds. He involved his younger siblings in the collection of weeds and weed seeds. It was during this period, that he also began publishing in scientific journals. His first publica-

tion, on bluebirds, appeared in 1904, when Norman was 29 years old. The breadth of his interests is illustrated by the first six publications, which include three papers on birds, one on the effect of fungi on cattle, one on seed dispersal, and in 1907, his first entomological publication. Altogether he published at least 128 items, and the diversity of the first six was maintained until the end of his career.

The final entries of Criddle's autobiographical sketch see him turning towards full time entomology, but his first entomology appointment was not as routine as it might appear. In February 1912, while Norman was working as a seed analyst in Calgary, he received a letter from C. Gordon Hewitt, Dominion Entomologist, offering him a six-month per annum position with the Division of Entomology. Criddle was to work from Aweme and investigate the white grubs, Hessian fly and wheat stem sawfly that were at that time major problems in Manitoba. Criddle agreed, as long as he could begin later than 1 May, but was then told by Hewitt that the Division of Entomology had no money, and so the appointment would have to be delayed for a year. Terms of appointment were agreed in January 1913, in that Criddle would receive $1500 per year if a field station were established at Aweme. This appears to be $100 per month for salary and $300 for use of the homestead facilities. Finally, in May 1913, he received a telegram from Hewitt appointing him as temporary field officer and requiring him to begin work immediately. From this time forward Norman was to be a professional entomologist, all the specimens he collected would belong to the Crown, and he would endure much red tape. However, the initial appointment was only for the summer. The next winter, he was back in Calgary as a seed analyst. The permanent position began in 1914.

Criddle's first challenge was to construct a laboratory at Aweme. In March 1914, he submitted an estimate for a 12 x 16 foot structure costing $151 plus $14 for a concrete foundation. Ottawa viewed this as exorbitant and delayed construction. In 1915 the laboratory was built. Materials cost $108 and Norman was obliged to provide at least some of the labour, although much of the work was done by Evelyn and Talbot Criddle. In its final form, the first laboratory had an insectary attached to its west side. In 1923, a second laboratory, more suited to housing the insect collections was built. "Bug house tours" of the laboratories became a weekend entertainment for those in the Aweme area and these were often conducted by Norman, or in his absence, by his sister Maida. Shortly after Norman's appointment, his father arranged for construction of the "east wing" of St. Albans. This was to accommodate the many visitors to Aweme who came to see Norman, or

Norman Criddle in front of the first laboratory, ca. 1918.

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The first laboratory at the beginning of renovations in 2004. The portion on the right is the remains of the insectary.

who worked for him. Maida became the chatelaine of St. Albans on the death of her mother, and provided for those who worked there or visited Norman. She also kept the weather records until she left the property in 1960.

Today, the homestead has been declared a Manitoba Provincial Heritage Park, and the Criddle/Vane Homestead Heritage Committee, among it several Criddle descendents, is working to preserve St. Albans and some of the other buildings. The first laboratory is in poor condition, but is being renovated by the Heritage Committee. The second laboratory has already been renovated, and is used as the headquarters for those working on the renovations of the buildings.

Among those who visited Norman Criddle at Aweme during his time as a professional entomologist were J. B. Wallis and R. D. Bird. Wallis was an amateur entomologist as he was superintendent of schools for Winnipeg. His greatest interest was in tiger beetles, about which he wrote an important monograph. The sandy soils of Aweme are prime tiger beetle habitat. R. D. Bird was on faculty at the University of Oklahoma, and spent his summers doing research on insect ecology in Oklahoma and in Western Canada. He was a frequent visitor to Aweme from the mid 1920s.

In 1926, Norman became foster parent to four nestling crows. Norman wrote an account of the crows and published it in the *Canadian Field Naturalist.* The crows were named Satan, Imp, Demon and Hoppy, the latter because of a broken leg. Norman was interested in the crows because he believed that they were on balance beneficial, despite their bad reputation with farmers. To prove his point, he tried to assess their daily capacity for predation of pests. He never did succeed. In one trial, after 5 h, the crows had consumed 552 cutworms and were still eating, but there were no more cutworms to be had. A trial with two crows eating white grubs was similarly abandoned after 5 h when the birds had eaten 121 –the entire supply of the laboratory. Something of Norman's work habits can be learned from his casual reference to the fact that the crows were waiting to be fed when he went down to the laboratory at 5 in the morning. Norman was interested in the crow's habit of caching food. In particular, he records the behaviour of Demon. Demon would fly on to Norman's arm, and pull out Norman's breast pocket handkerchief, disgorge a throatful of berries into the pocket and stuff the handkerchief back into the pocket. Norman also writes, I think with some glee, of the day Demon had been tearing apart a mouse and decided to save some of it for later. So he flew to J. B. Wallis's shoulder and stuffed the remains inside the collar of J.B.'s shirt.

Cam Jay, Professor Emeritus of Entomology at the University of Manitoba, relates some stories about the interactions of Norman, J.B. Wallis and Ralph Bird. Ralph was passionate about hunting, and so spent a lot of time at Aweme shooting geese, or virtually anything else that moved and could be eaten. Cam witnessed, at Ralph Bird's house, a film these three made. It was a silent black and white movie and involved a "sight gag". J.B. Wallis is the only human in the picture. He is in the middle of the frame with a shotgun pointed straight up. He takes one shot. Shortly afterwards, a goose drops at his feet. A few seconds after this, a couple of ducks come down, then another goose, then a couple more, then several more ducks. Eventually, the hunter is knee-deep in birds, all from a single shot. This was staged with Bird as camera man and Norman Criddle, just out of view on a ladder, dropping recently shot birds down onto the magnificent hunter, JB.

R. H. Handford and R. M. White were hired by Criddle as research assistants. White arrived in 1922 and stayed until 1931 when he moved to

Lethbridge. Handford started as a summer student in 1928 and continued working with Norman until the latter's death. Handford spoke of Norman Criddle as a very mild-tempered man, but not a weak character; he certainly controlled the laboratory. Handford remembered that Norman never milked the system for free lunches when he was in the field, and maintained absolute honesty in administering government funds.

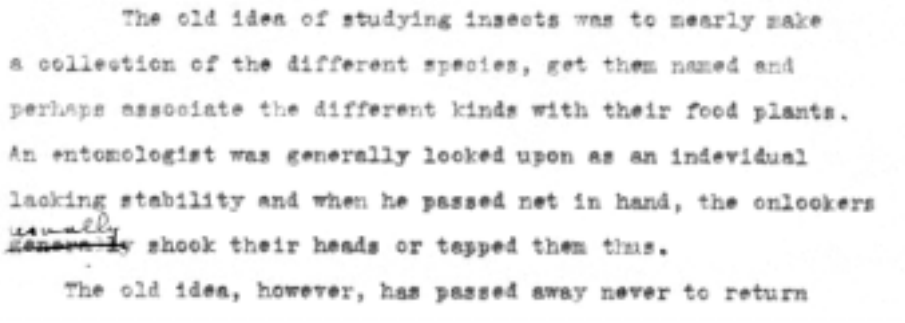
From the time of his first encounter with James Fletcher in 1900, Norman made regular reports of the pests of the season. From 1910 on, these often appeared as separate publications. From 1929 on, they were written with A.V. Mitchener, the first professor of Entomology at the University of Manitoba. Mitchener was a very fussy individual with absolutely no sense of humour, and it is a tribute to Norman that he was able to work with him. These accounts of the insects of Manitoba are a gold mine of information, but much of it has been lost or ignored. Bob Lamb (Agriculture and Agri-Food Canada, Winnipeg) furnished me with just one example of this. Through Fletcher, Norman reported the first occurrence of the orange wheat blossom midge, *Sitodiplosis mosellana*, in the Prairie Provinces, in the report of 1901. The next report of the wheat midge in Manitoba was in 1954, when Mitchener recorded it just north of Winnipeg at Selkirk. Mitchener did not claim that it was the first Manitoba record, but did not acknowledge the report of 1901. The next appearance of the wheat midge was the 1980s, and at that time, it was Mitchener's earlier finding that was regarded as the first record. It was only when Bob Lamb did some extensive digging that he came upon the information that, as for other "new pest insects", Criddle had first reported it.

Criddle was commissioned to work on hessian fly and wheat stem sawfly and in 1915 published an extension publication describing the life stages and habits of both of them. In the 1920s, wheat stem sawfly infestations extended across the prairie provinces, and losses in some wheat fields exceeded 50%. R. M. White was hired to work on the biology of the sawfly. In 1923, Criddle published a study of the life history of the sawfly in *The Canadian Entomologist*, and continued to publish extension literature on the topic as needed. Criddle and E. H. Strickland, University of Alberta, were particularly interested in the interaction of the insect and its host plants and the possibility of different host races of the insect. They proposed a prairie-wide collaborative study including themselves and Seamans at Lethbridge. This did not go far, as the focus of Lethbridge was on the stopping of economic losses, and the work Strickland and Criddle proposed was too "ivory tower". An understanding of pest population genetics was not seen as important for control.

Criddle worked on grasshoppers throughout his life, and published many times on them, ranging from extension items on control to detailed studies of their development and ecology. Many of these are still cited. Among his publications were descriptions of the egg pods of 72 species, the life history of some 70 species, and an account of the ecological setting and diet of about 80 species. In 1931, together with the Lethbridge and Saskatoon Entomological laboratories, Criddle initiated a prairie-wide egg survey of grasshopper eggs as a tool for predicting the severity of problems in summer 1932. The Manitoba portion of the survey was carried out from 1–15 October 1931 by Criddle, Handford and White. As shown in the original map of the results, the surveys provided considerably more detail about species composition than do current surveys done for the same purpose. This work was done only about 18 months before Norman's death, at a time when his health was already poor.

Ill health dogged Norman. He was chronically bronchitic from before the time of his immigration. In 1917, he was hospitalized for gall stones. The stresses of having to respond to insect emergencies anywhere in the prairies, the routine work of insect surveying and research plus the administration and the lack of funds took its toll during the summer. In the winter, Norman spent much of his time in Ottawa. By the early 1930s, Norman was in poor health.

In 1933, Norman was awarded an Honourary Diploma in Agriculture at the March Convocation of the Manitoba Agricultural College. This was described as "the highest honour the institution could bestow". It is not clear to me why



The old idea of studying insects was to nearly make
a collection of the different species, get them named and
perhaps associate the different kinds with their food plants.
An entomologist was generally looked upon as an individual
lacking stability and when he passed net in hand, the onlookers
~~Generally~~ usually shook their heads or tapped them thus.
The old idea, however, has passed away never to return

Introduction to "The problems of an entomologist", written by Norman Criddle.

Norman could not receive an honourary doctorate as, since 1924, the college was part of the University of Manitoba. I conjecture that the reason may have had to do with Norman's lack of any formal educational qualifications, but observe that some of our recent honourary degree recipients have had considerably less stature in their fields than did Norman in his. Notwithstanding, the recognition of Norman was greatly celebrated by colleagues, friends and family. A little over 2 months later, Norman was dead.

The then Dominion Entomologist, Arthur Gibson, and H. G. Crawford (1933) published an obituary and list of publications in *The Canadian Entomologist*. Among the many tributes to Norman that they quoted are these two. "There is no doubt in my mind that Criddle was the best informed field naturalist in the whole of Canada". "Mr Criddle had…so prominent and authoritative part in all prairie entomological activities that…[we have]…lost an irreplaceable colleague, friend and leader in the science" (p197).

Rob Roughley, University of Manitoba, who has done comparative studies of the Aweme fauna now and in the Criddle's time, has compiled a list of patronyms honouring Norman Criddle. One genus and 29 species of insect were named after Norman Criddle. This is in addition to at least eight more named after Aweme. In most cases, the species name recognizes that Norman collected the first specimens of the new species. It is perhaps indicative of his collecting ability that often these specimens were of species that are wide- spread but which had not previously been collected in other, more heavily sampled, parts of their ranges. Frequently Norman's collections represented repeat samples over times or locations, so that they provided information about range or period of activity. From among the dedications associated with these patronyms, I have selected three examples that show the esteem with which Norman was held. Kearfott (1907) named two species of tortricids after Norman, and commented, with respect to one species for which Norman had provided all 16 then-known specimens, collected over a three week period, "I take great pleasure in giving Mr Criddle's name to this species as a slight appreciation of his thorough and systematic work in these minute specimens" (p59). Aldrich (1918, p336) described " a few of the most abundant [new chloropid] species...[in material]…the writer received for study ...[from]... Mr Norman Criddle.… These…represent the oscinid fauna of the region quite fully, and…contain several undescribed species in some numbers… which Mr Criddle furnished with infinite industry, persistence and patience." For the four species described in the paper, Norman had collected 165 of the 179 specimens, and all 58 of *Oscinis criddlei* that bears his name. *Dyschirius criddlei* (Carabidae) was named by Fall (1925) on the basis of a single male, collected by Norman Criddle. Fall's dedication expresses "… a keen appreciation of [Mr Criddle's] success in bringing to light

rare species of the Canadian fauna, and of many kind donations to my own cabinet"(p309).

Something of the flavour of the man, and his quiet sense of humour, can be gained from some of his own unpublished writings. "The problems of an entomologist" might have been written to be given as a speech. Following the introduction, Norman goes on to talk about the necessary integration of disciplines. Starting with the obvious interactions of insects and plants, insects and birds and the effect of agricultural practice, Norman exhibits a comprehensive understanding of the role of predators, the significance of habitat loss and habitat change, and the role of conservation. The breadth of understanding of ecological interactions here is quite before its time. I would argue that in addition to the idea of Norman Criddle, the deviser of pesticides, the collector of insects and the documenter of basic insect biology, we could add Norman Criddle, systems ecologist. Two of Norman's notable attributes are also evident in this document. Norman had a life long hatred of the unnecessary loss of trees. Also, Norman was a champion of birds such as crows and cowbirds, which he regarded as beneficial, but which most people of his time thought of as pests.

From one of his last publications, on the biology of North American Acrididae, we see another example of Norman's holistic view of ecology. In this publication, he set out the typical habitats of 31 species of grasshoppers, but he also showed that the habitats could be grouped into 13 Ecological Associations. For each association, he characterizes in detail the dominant plants, the characteristic animals, and the typical grasshopper species. Criddle was doing this at about the time that a major split was occuring between animal ecologists and plant ecologists, because they thought they had little of common interest. Gleason and Tansley were arguing against the notion of ecosystms and associations and advocating focusing on the individual organisms.

Perhaps some further insights can be gained from the hand-written item among Norman's papers, in which he describes "The Fieldman". I infer from this item that Norman liked the freedom to make his own decisions and develop his own methods, that he enjoyed the many new challenges that came his way, and that he viewed himself as a pioneer to be followed by others. I am not sure whether implicit in his likening himself to a frontiersman is the idea that the field man is a simple individual using rough and ready means. If this is so, Norman was selling himself short. As we have seen, he had a sophisticated understanding of insects and enormous appreciation for the interconnectedness of the components of the prairie ecosystem.

Norman Criddle is one of the two individuals after whom the Entomological Society of Canada has named prestigious awards. The Criddle Award honours an amateur entomologist, a term now taken to mean someone who is not paid for their entomological work. I do not know whether this was viewed as appropriate because Criddle was an entomologist from an early age, but was not employed as such until he was 38. I think that the original meaning of amateur, "someone who loves what they do" is of far greater significance in summing up the life of Norman Criddle.

Acknowledgments

I was lucky enough to have access to six volumes of personal documents of Norman Criddle that are in the Archives of the Entomological Society of Manitoba, and I acknowledge the Society Archivist, Rob Roughley both for making these available and for providing a considerable amount of information and encouragement during the development of the talk. Other entomologists in Manitoba also provided insights, particularly Cam Jay, Terry Galloway and Bob Lamb.

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Patronyms dedicated to Norman Criddle. Information compiled by RE Roughley, Department of Entomology, University of Manitoba.

Order	Family	Genus	Species	Author	Year
Diptera	Heleomyzidae	*Criddleria*		Curran	1929
Coleoptera	Buprestidae	*Agrilus*	*criddlei*	Frost	1920
Coleoptera	Byrrhidae	*Byrrhus*	*criddlei*	Casey	1912
Coleoptera	Carabidae	*Cicindela*	*criddlei*	Casey	1913
Coleoptera	Carabidae	*Dyschirius*	*criddlei*	Fall	1925
Coleoptera	Ciidae	*Cis*	*criddlei*	Dury	1919
Coleoptera	Elateridae	*Agriotes*	*criddlei*	VanDyke	1932
Coleoptera	Melyridae	*Malachius*	*criddlei*	Brown	1928
Coleoptera	Scarabaeidae	*Aegialia*	*criddlei*	Brown	1931
Coleoptera	Scarabaeidae	*Aphodius*	*criddlei*	Brown	1928
Coleoptera	Scarabaeidae	*Dialytes*	*criddlei*	Brown	1929
Coleoptera	Scolytidae	*Leperisinus*	*criddlei*	Swaine	1916
Coleoptera	Scolytidae	*Pseudocryphalus*	*criddlei*	Swaine	1917
Coleoptera	Staphylinidae	*Gyrophaena*	*criddlei*	Casey	1911
Coleoptera	Staphylinidae	*Microsaurus*	*criddlei*	Casey	1915
Diptera	Anthomyiidae	*Cordilura*	*criddlei*	Curran	1929
Diptera	Chloropidae	*Oscinis*	*criddlei*	Aldrich	1918
Diptera	Dolichopodidae	*Hydrophorus*	*criddlei*	VanDuzee	1925
Diptera	Psychodidae	*Psychoda*	*criddlei*	Curran	1924
Diptera	Tabanidae	*Tabanus*	*criddlei*	Brooks	1946
Diptera	Tipulidae	*Tipula*	*criddlei*	Dietz	1914
Ephemeroptera	Heptageniidae	*Heptagenia*	*criddlei*	McDunnough	1927
Hymenoptera	Argidae	*Arge*	*criddlei*	Garlick	1927
Hymenoptera	Braconidae	*Euphoriella*	*criddlei*	Loan & New	1972
Hymenotpera	Pamphilidae	*Cephalcia*	*criddlei*	MacGillivray	1912
Lepidoptera	Noctuiidae	*Euxoa*	*criddle*	Sm.	1908
Lepidoptera	Pyralidae	*Pyla*	*criddle*	Dyar	1907
Lepidoptera	Pyralidae	*Titanio*	*criddlealis*	Munroe	1951
Lepidoptera	Tortricidae	*Epinotia*	*normanana*	Kearfott	1907
Lepidoptera	Tortricidae	*Proteopteryx*	*criddleana*	Kearfott	1907

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