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Article abstract

In 1842, on the fifth of April, Abraham Gesner opened the doors of his museum in Saint John, New Brunswick to the public. The museum displayed part of his collection of almost 4,000 specimens. His published catalogue included more than 1,200 rocks, minerals and fossils along with a smaller number of invertebrate and vertebrate animals and artefacts. It survives today as one of Canada's oldest geological collections. This national treasure documents the earliest days of the study of the geological sciences in Canada including specimens from Gesner's surveys of New Brunswick and Nova Scotia. Although Gesner's collection moved through three institutions, it has remained partly intact and is accompanied by a catalogue of the museum's contents.

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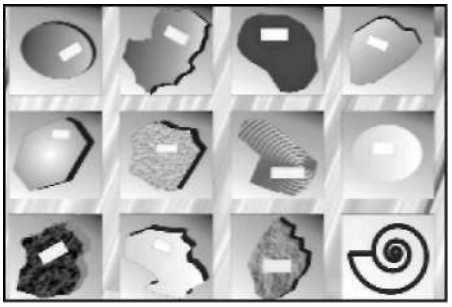

Gesner's Museum of Natural History, An Early Canadian Geological Collection

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SUMMARY
In 1842, on the fifth of April, Abraham Gesner opened the doors of his museum in Saint John, New Brunswick to the public. The museum displayed part of his collection of almost 4,000 specimens. His published catalogue included more than 1,200 rocks, minerals and fossils along with a smaller number of invertebrate and vertebrate animals and artefacts. It survives today as one of Canada's oldest geological collections. This national treasure documents the earliest days of the study of the geological sciences in Canada including specimens from Gesner's surveys of New Brunswick and Nova Scotia. Although Gesner's collection moved through three institutions, it has remained partly intact and is accompanied by a catalogue of the museum's contents.

SOMMAIRE
Le 5 avril 1842, Abraham Gesner ouvrait au public son musée à Saint-Jean, Nouveau-Brunswick. Le musée exposait alors une partie de sa collection de près de 4 000 spécimens. Le catalogue qu'il a publié alors comprenait plus de 1 200 roches, minéraux et fossiles ainsi qu'un nombre moindre de spécimens de vertébrés, d'invertébrés et d'artéfacts. Il a survécu jusqu'à nos jours et constitue l'une des plus anciennes collections géologiques au Canada. Ce trésor canadien qui témoigne des premières études scientifiques de la géologie au Canada comprend des spécimens tirés de levés effectués par Gesner au Nouveau-Brunswick et en Nouvelle-Écosse. Bien que la collection de Gesner ait été déplacée dans trois institutions, elle demeure encore partiellement intacte et comporte un catalogue de ses spécimens.

INTRODUCTION
Abraham Gesner (1797–1864) is best known for his work to develop a process for the distillation of kerosene. For that work he is often considered the founder of the modern petroleum industry (Beaton 1955; Brice 2002). He is also recognized as the first government geologist appointed in a British colony and an inspiration for Sir William Logan's later development of the Geological Survey of Canada (Zeller 1987). He published five reports pertaining to the geology of New Brunswick (Gesner 1839, 1840, 1841, 1842a, 1843) before the government terminated his services in 1842. Abraham Gesner has been the subject of numerous books and articles recognizing both his genius and his faults (Squires 1963; Cumming 1971; Russell 1976; Swinton 1976; von Bitter 1977; Barkhouse 1980; Mitcham 1995; Haigh 2000, 2002; Martin 2003). His role in founding the modern petroleum industry, the story of kerosene, and his work as a geologist are the subject of most works. He is recognized in the Canadian Encyclopedia (Cumming 1988) and by the Historic Sites and Monument Board of Canada, been honoured twice on a stamp by Canada Post, and memorialized by Imperial Oil on his headstone in Camp Hill Cemetery in Halifax (Barkhouse 1980).

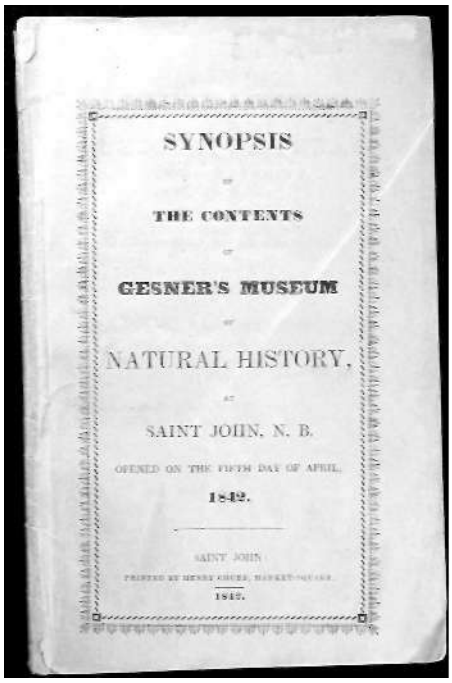
Gesner (Fig. 1) is perhaps less known for establishing, in 1842, one of the first museums in British North America open to the public. Although Gesner's Museum has been referred to as the first public museum in Canada (Squires 1948), there were earlier museums that welcomed the public in the early 1800s (Teather 2005). In 1824, Thomas Delvecchio opened his Museo Italiano (Duchesne 1987; Teather 2005) in Montreal which included a natural history collection among other artefacts and curiosities. Pierre Chas-

Figure 1. Abraham Gesner (1797—1864). Reproduced from the Natural History Society of New Brunswick Bulletin No. IV (1896), frontispiece.

seur opened his museum of natural history specimens to the public in 1826 in Quebec, even receiving financial support from the Lower Canadian House of Assembly (Duchesne 1988; Teather 2005). Also, in 1826, William Wood opened a museum in York to exhibit his collection of animals and curiosities. In 1835, Charles Fothergill's collection of natural history specimens went on display in Toronto, as he made plans to incorporate his museum into a larger, government supported "Lyceum of Natural History and Fine Arts" (Romney 1988; Teather 2005) which never materialized. Gesner, like Chasseur and Fothergill sought public funding for his museum. Unlike Chasseur however, he was unsuccessful in receiving support. So while his museum was open to the public, it was not publicly funded. Delvecchio's museum was dispersed in 1853 (Duchesne 1987) and Wood's museum closed in 1832 and was advertised for sale in the newspaper (Teather 2005). Both Chasseur's museum and Fothergill's collection were destroyed by fire (Duchesne 1988; Romney 1988). Of these museums only Gesner's has survived.

Teather (2005, p. 53) described these proprietary museums as being "developed on the edge of the proper museum world", different from institutional museums and more about spectacle than serious educational or scientific purpose. In this category, she included Gesner's Museum, as an example from the Maritimes region of Canada. We would argue that Gesner did develop a serious museum organized for scientific study and only the circumstances in New Brunswick forced him to open a privately funded museum. Saint John had no university or college institutions at the time, but Gesner's museum was more akin to the Geological Survey of Canada collection than a collector's curiosity cabinet as suggested by Teather (2005). Later, the Natural History Society of New Brunswick (1862–1932) would also develop a scientific museum separate from any institution (Miller and Buhay 1988), that would support most of the scientific papers published in New Brunswick in the 19th century (MacDonald 1990).

This paper presents an overview of Abraham Gesner's museum and its geological contents. The present New Brunswick Museum, incorporated in 1929, traces its origin to 'Gesner's Museum' and its holdings include the specimens collected and displayed by Dr. Gesner in his museum in Saint John, New Brunswick (Squires 1948). The contents of his collection was detailed in his privately published 'Synopsis of the Contents of Gesner's Museum of Natural History at Saint John, N.B. opened on the fifth day of April 1842' (Gesner 1842b; Fig 2). Although the museum opened on the fifth, the back cover of the catalogue is dated the 15th of April. 'Gesner's Museum' opened a little more than a week before Sir William Logan founded the Geological Survey of Canada on 14 April 1842, which eventually led to Canada's national museums (Vodden and Dyck 2006). Like the Survey museum, Gesner's Museum was composed mostly of geological specimens. Of the specimens listed in the catalogue, the first 1,263 specimens are rocks, minerals and fossils. Other items include zoological specimens (corals, molluscs, fishes, reptiles, birds and mammals) and archaeological artefacts.


SYNOPSIS

OF

THE CONTENTS

OF

GESNER'S MUSEUM

OF

NATURAL HISTORY,

AT

SAINT JOHN, N. B.

OPENED ON THE FIFTH DAY OF APRIL,

1842.

SAINT JOHN:

1842.

Figure 2. Synopsis of the Contents of Gesner's Museum of Natural History at Saint John, N.B. opened on the fifth day of April 1842, front cover page. From the collections of the Geology and Palaeontology Section, New Brunswick Museum.

CREATING 'GESNER'S MUSEUM'

Like many geologists of his day, Gesner was a collector of rocks, minerals and fossils as well as other natural history objects. Specimens in his museum represented not only his subject of study, but phases of his life from his early days in Nova Scotia to his work as provincial geologist in New Brunswick. By the time he opened his museum he had most likely been collecting specimens for 20 years or more. How 'Gesner's Museum' finally came

Figure 3. a) Mechanics' Institute building Carleton Street, Saint John, built in 1840. The building is to the left of the St. John Stone Church, New Brunswick Museum, Image No. 1996.44.26; b) Natural History Society of New Brunswick building, Union Street, 1906, New Brunswick Museum, Image No. 13305(2); c) New Brunswick Museum, Douglas Avenue, Saint John, opened to the public in 1932, New Brunswick Museum, Image No. 1989.83.339.

to be is a complicated story, woven from Gesner's personal interests in a museum for the public good, competing interests (including those of Gesner) in the development of the Mechanics' Institute in Saint John, petitions to the New Brunswick Legislature, and Gesner's bankruptcy. Some of these interests involved considerable sums of money and the fate of Gesner's Museum generated heated debate in the provincial legislature and amongst members of the Mechanics' Institute. The story of Gesner's museum follows a familiar theme in his life and parallels the ups and downs of his better documented activities with albertite and kerosene. Previous work (Squires 1945) suggests the museum opened in 1842 in the Mechanics' Institute's new building on Carleton Street (Fig. 3a) and that Gesner, being well acquainted with the institute, had little trouble acquiring space in this new building which opened 7 December 1840. Nothing could be further from the truth. Newspaper accounts of the day suggest there was a bitter and public squabble about 'Gesner's Museum' and the collection travelled a long journey to the Mechanic's Institute.

When Gesner opened his museum to the public as 'Gesner's Museum of Natural History' it appears this was not his first choice of how he had hoped things would unfold. Although he opened his museum to the public in 1842, it seems he had his collection assembled and organized at least several years earlier. He moved to Saint John in 1838 to take up his new duties as Provincial Geologist. On 23 December 1840, he wrote a letter to the Lt. Governor of New Brunswick, Major General Sir John Harvey, with a description of the contents of his museum. The letter was received 3 February 1841 (Anonymous *JHA* 1841, p. 66) and published in the Journal of the House of Assembly of the Province of New Brunswick (Anonymous *JHA* 1841, p. clii Appendix). Sir John Harvey had requested the description of the collection from Gesner. It was Lt. Governor Harvey that Gesner had approached for a position as Provincial Geologist (Barkhouse 1980; Martin 2003). In the letter, Gesner asked that the government consider making the museum public by "placing it in a situation where it can be rendered useful in the study of the Natural Sciences". Gesner stated "this collection has become too extensive to be contained in almost any private house". The letter also adds some details concerning the collection. Gesner also notes that his collection was "the labour of twenty years" roughly corresponding to the year he began searching for minerals. He had been working as provincial geologist in New Brunswick since 1838, but his interest in geology had begun much earlier. According to Mitcham (1995), Gesner began searching for mines and minerals in 1821 when he was 24 years old. At 28, he went to study medicine in London where he attended lectures on geology. He returned home in 1827, at age 30, to live in Parrsboro (Barkhouse 1980; Mitcham 1995). Many of the specimens in his museum were collected near Parrsboro and may originate from these years. The abstract of the catalogue of the museum accompanying the letter listed 2,040 rocks and minerals and 2,006 fossils, zoological specimens and other items. The total of rocks and minerals included duplicates for exchange. There were great expectations for the museum as Gesner stated in the letter the "collection is intended to contain all the objects of Natural History in Nova Scotia and New Brunswick, embracing Geology, Mineralogy, Botany, Zoology, Ornithology and Conchology". More than 160 years later that goal is still a long way off!

Although Gesner did not indicate it in his letter, the accompanying note concerning the letter (Anonymous *JHA* 1841, p. 66) states he thought the government should enable the Mechanics' Institute in Saint John to acquire the collection. Gesner was no stranger to the Mechanics' Institute. He delivered the Introductory Lecture and became a popular lecturer thereafter and also, he held an executive position as vice-president in the institute. The institute had been in Saint John since 1838, established by an Act

of the Provincial Assembly (Anonymous 1866), although its origins go further back (Acheson 1985; Hewitt 1988). According to Acheson (1985, p. 169) the building on Carleton Street took its final form in 1841 with eight classrooms and a hall capable of seating 800 people.

Popular scientific culture in Saint John has been described by Hewitt (1988) and an excellent discussion of the Mechanics' Institute and sciences in Saint John can be found in Hewitt (1990). Squires (1945), suggests that Gesner opened his museum in the Mechanics' Institute. However, Matthew (1897) in his account of Gesner's scientific work included a note about the museum based largely on the recollection of Henry Perley, a corresponding member of the Natural History Society of New Brunswick (Miller and Buhay 1988). Perley recalled how Gesner's Museum outgrew the house near the corner of Coburg and Hazen streets and was moved to the upper story of a building on Prince William Street. Mr. Perley also remembered attending lectures in 1841 by Gesner in a building just south of the corner of Germain and King streets. Acheson (1985, p. 169) stated that Gesner rented an apartment in 1842 and opened one of the first museums in British North America. A review of newspapers supports this and indicates that 'Gesner's Museum' did not open at the Mechanics' Institute at all, but was installed in Robertson's Brick Building on Prince William Street (*New Brunswick Courier*, 16 April 1842). In fact, the membership of the Mechanics' Institute rejected the proposal to acquire the collection and the government similarly rejected the notion of enabling the Mechanics' Institute to purchase the museum collection. The reason for rejecting the acquisition of Gesner's collection was likely complex and only partly to do with Gesner, himself.

A period of turmoil erupted in the institute around 1840, pitting the directors against regular members, over the operation and direction of institute activities (Acheson 1985; Hewitt 1988, 1990). Gesner replaced G.D. Robinson as vice-president of the Mechanics' Institute in 1841, whereupon he must have been entrenched with the elite, if he was not already. Hewitt (1988, 1990) claimed that Gesner used his new position to attempt to sell his collection of natural history specimens to the institute for £1,000. In July of 1841 accusations were made about the purchase of Gesner's collection when a disgusted member wrote that, "a clique of 'Legal Learned Gentlemen,' using every trick, quirk and device, to foist upon that body a parcel of trash, collected by Dr. Gesner in his peregrinations, (and for which the Province has already paid him a guinea an ounce) for the modest sum of £1,000" (*Weekly Chronicle*, 16 July 1841; Hewitt 1988, 1990). In the same newspaper story the member went on to say "one of the Learned Men stated (but who believed it) that the Doctor could get £1,200 from the United Service Club for his museum, and that it was out of pure respect to the Province that he now offered to part with it for such a trifle. Now what a patriotic mind the Doctor must possess: - the trifling sum of £1,000 for nearly a cart load of 'silver bells and cockle shells.'" Not finished yet, he suggested that should the institute wish to buy a museum "why then let them buy a Museum– a legitimate Museum – a classified Museum – a Museum in short of genuine articles, and 'not a thing of shreds and patches, thinly scattered to make up a show.'" It was not true that the province had already paid Gesner for the collection. While some of the specimens had probably been collected while he worked as the provincial geologist, most (as described below) had been acquired during his years in Nova Scotia or by trade and donation from acquaintances and colleagues.

Gesner seemed to generate kindness or hostility towards himself with newspaper stories either defaming or defending his character. As an example, *The Halifax Morning Post* carried this story from 'Peter Quill' who wrote about 'Doings in the Rival City' dated, St. John, 13 January 1841 "I omitted in my last, to say something of Dr. Gesner, and the vile attacks which have of late been made upon him. Every effort has been used to vilify him and injure his fair fame by 'that small and disappointed party,' (as our excellent Governor has styled them,) who seek to degrade every thing that is good among us … Amid the storm of doubly distilled venom with which they have assailed Gesner, his character and reputation stand unimpeached, and the only effect of their malignity has been to raise him, if possible, yet higher in the estimation of the people of New Brunswick."

For years there had been turmoil between the executive of the Mechanics' Institute and the general membership. Part of the crisis concerned a disagreement about whether the institute should provide scientific or technical instruction for its members (Acheson 1985). Geology, led by Gesner, had become a staple of scientific instruction and presumably a target for those members whose interests were elsewhere. Not everyone agreed with the previous assessment of Dr. Gesner's collection. Only a few months earlier another newspaper story (*Morning News*, 26 April 1841) reported "Dr. Gesner's Museum – We have recently had an opportunity of seeing this extensive collection of objects of Natural History and curiosities, through the politeness of its proprietor, who has been engaged in the work upwards of twenty years. So far as we can remember, it consists of all the different varieties of rocks found in the Provinces, and other parts of the world. There are upwards of 2,000 specimens of minerals, from every quarter of the globe; many of these are very rare and beautiful. There is a single rock crystal weighing forty eight

pounds, [most likely Gesner No. 137 = NBMM 2279 smoky quartz, weighing 38 pounds] and a beautiful specimen of amethyst, containing the remains of insects in the solid crystals [Gesner No. 209 = NBMM 2319] … Perhaps this department of the Museum will rank with any in the world." One would hardly believe they were describing the same collection. The date of this report, 26 April 1841, indicates Gesner had his museum assembled, and available for private viewing, at least a year before it was open to the public.

Following Gesner's letter to Sir John Harvey about the collection, the government dealt with the matter of 'Gesner's Museum'. In the Journal of the House of Assembly for Monday, 1 March 1841 (Anonymous *JHA* 1841, p. 155) Gesner's communication was dealt with in the first of nine resolutions,

"1st. - Resolved, As the opinion of this Committee, That the Communication from Abraham Gesner, Esquire, Provincial Geologist, on the subject of the objects of Natural History, contained in his Museum at Saint John, which was laid before the House by command of His Excellency the Lieutenant Governor on the 3d February last, should be referred by the House to the Committee of Supply."

While the matter had been sent to a committee for consideration Gesner pushed ahead with his museum. He placed an advertisement in the newspaper (*New Brunswick Courier*, 30 October 1841) to solicit donations (Fig. 4a). It read "Museum of Natural History. The subscriber being about to open a Museum of Natural History at Saint John, begs leave to inform his friends in New Brunswick and neighbouring Provinces, that he will be happy to receive donations of specimens ..." While Gesner was awaiting a decision from the government he was making plans to open his museum. Almost a year after his petition to the government Gesner received the news. On Monday 7 February 1842 (Anonymous *JHA*, 1842, p. 77) the House finally dealt with Gesner's request when it voted down the petition.

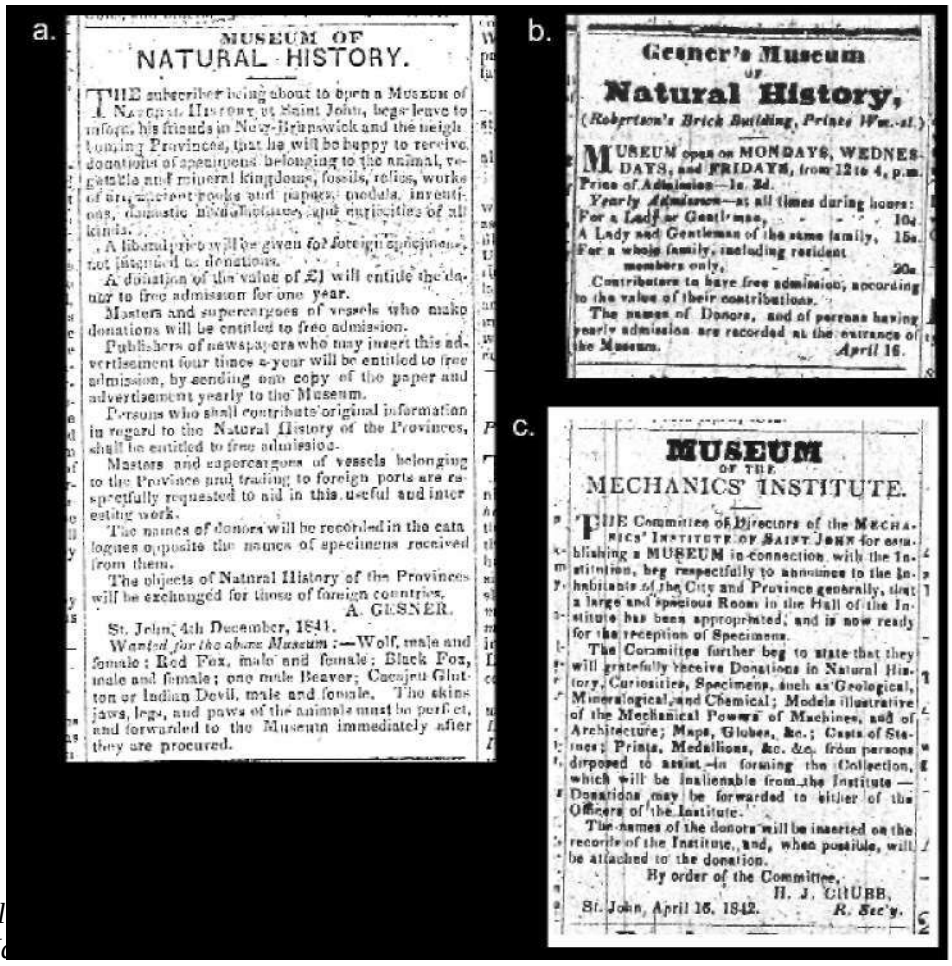


Figure 4. Newspaper advertisement a) Museum of Natural History in *New Brunswick Courier*, Oct. 30, 1841; b) Gesner's Museum of Natural History in *New Brunswick Courier*, April 16, 1842, c) Museum of the Mechanics' Institute in *New Brunswick Courier*, April 16, 1842.

"Mr. Woodward, also by leave, presented another Petition from Abraham Gesner, praying that a grant may pass to aid him in establishing a Museum in the City of Saint John; which he read.
Ordered, That the said Petition be received, and lie on the Table; when
It was moved by Mr. Woodward,
Resolved, That the said Petition be referred to a Select Committee to report thereon.
Upon the question for adopting the Resolution, the House divided -
YEAS, 9 NAYS, 13.
And so it was decided in the negative."

Rejected by the institute membership and the government, Gesner pushed ahead and two months later on 5 April 1842, Gesner produced his 'Synopsis of the Contents of Gesner's Museum of Natural History at Saint John, N.B. opened on the fifth day of April 1842'. A newspaper advertisement was published (*New Brunswick Courier*, 16 April 1842) stating the museum's hours and entrance fees (Fig. 4b). 'Gesner's Museum' was open to the public. He resigned his position as Mechanics' Institute vice-president on April 11th. Curiously, in the same paper, on the same day, in fact in the same column on page 3, the Mechanics' Institute announced its intention to establish its own museum (Fig. 4c) and in an advertisement reminiscent of Gesner's from six months previous, they solicited donations of all kinds, including geological specimens. Clearly

the institute members wanted a museum, just not the one belonging to Dr. Gesner. From their advertisement it appears the institute was beginning with nothing, while Dr. Gesner's collection had more than 4,000 specimens. The same April 16th issue of the newspaper also reviewed 'Gesner's Museum' (*New Brunswick Courier*, 16 April 1842) "We have examined (cursorily, we must acknowledge.) with much satisfaction, the extensive collection of Nature and other curiosities recently arrayed and opened by Dr. Gesner in a spacious room in the new Brick Building of Duncan Robertson, Esquire, Prince William Street. The collection comprises about 4,000 specimens …" The report stated it was "highly creditable to the taste and talents of the Proprietor, who has spent several years in bringing it to its present state of perfection." It went on to say "… few, we think, of any persons of respectability and intelligence will visit Saint John in future without inspecting this collection of rare specimens of Nature and Art."

It proved to be a tough year for Abraham Gesner. Rejected by the government and the institute membership he opened his museum, while at the same time preparing to continue his geological survey of New Brunswick. Then on Friday 18 March 1842 (Anonymous *JHA*, 1842, p. 179), the Legislative Assembly delivered another blow and voted against approving a sum of money "for the purpose of providing for the expenses of Doctor A. Gesner in 1842, in continuing the Geological Survey of the Province." Undaunted, Gesner borrowed money from two of the founders of the Mechanics' Institute, Chief Justice Ward Chipman and Mr. Justice Robert Parker, in order to continue his work (Squires 1945). When he was unable to raise the money necessary to fund the survey and repay the loan, his creditors agreed to take the museum collection as payment. In 1843, the collection was taken by his creditors. It is unclear what they did with the museum, presumably it was still in the Robertson Brick Building, but in 1846 Chipman and Parker presented each of their shares in 'Gesner's Museum' to the Mechanics' Institute (*New Brunswick Courier*, 8 August 1846). The newspaper reported the shares in 'Gesner's Museum' were valued at £100 each. Many years later the Mechanics' Institute annual report published in 1852 (*Courier*, 15 May 1852) described an agreement between the Institute Directors and the stockholders of the Gesner Museum dated 28 July 1843, in which the Institute would take over possession and management of the Museum for five years on the condition of appropriating the Museum Room at the Institute for its exhibition. Presumably the collection was moved to the Mechanics' Institute in 1843. Further, the Institute had the right to purchase the Gesner Museum for £600 at any time during the five year period. They noted that the Institute was so popular that nearly all the stockholders donated their shares, and without payment the valuable property fell into the possession of the Mechanics' Institute. In the end 'Gesner's Museum' found its way to the Mechanics' Institute. By 1846, Gesner had left Saint John (Barkhouse 1980).

The 'Gesner's Museum' collection was subsequently acquired by the Natural History Society of New Brunswick in 1890 as part of its acquisition of the Mechanics' Institute museum. The Natural History Society bought their collections for $200 including the Gesner Museum (Squires 1945). The 'Gesner's Museum' specimens became part of the larger collection of the Society which had been established in 1862 (Matthew 1913; Miller and Buhay 1988). The Natural History Society held its founding meeting at the Mechanics' Institute on 29 January 1862 and used the institute building from about 1874 until 1881 when the Saint John City Council allowed the Society to move into the new Market Building on King Square (Squires 1945). In 1906, the Society purchased a building for its use and moved its collections again (Fig. 3b). Matthew (1897, p. 48), a long time curator of the Natural History Society of New Brunswick, stated, "The most valuable parts of the Gesner and Institute Museum are the ethnological collections now in the lecture hall of the Natural History Society, and the collection of minerals from the Jurassic Trap of Nova Scotia, made by Dr. Gesner. The collection of birds and mammals has been superseded in importance by that of the Natural History Society. The minerals are kept in a room called the 'Gesner Museum'". Matthew also served as a director of the Mechanics' Institute. It is interesting that Matthew referred to the 'Gesner and Institute Museum' as though they were separate entities. Records of the Mechanics' Institute show they were still acquiring geological specimens for their museum as late as 1881 when the Annual Report listed donations of albertite, shale containing fish, antimony, gypsum and coal (Mechanics' Institute, 1880-81 Annual Report, p. 14). In 1929, the Natural History Society of New Brunswick turned its collections over to the province to establish a provincial museum (Fig. 3c). By this time Dr. Gesner's museum collection had moved from his home in Saint John, to Robertson's Brick Building, to the Mechanics' Institute building on Carleton Street, to the Natural History Society's Market Building quarters, to the Society's 1906 building on Union Street, and finally to the New Brunswick Museum building on Douglas Avenue in Saint John.

During this period the Mechanics' Institute and the Natural History Society of New Brunswick were closely tied. In fact for a time (1874-1881) Gesner's Museum, the Mechanics' Institute Museum and the Natural History Society Museum were all housed in the same building, with separate identities. Minute Books of

the General Meetings of the Natural History Society record a plan proposed by the Society "to leave their collection with the Institute for ten years" with committees set up to work for the benefit of the united museums (4 April 1874, NBM Archives F40, S127). The arrangement only lasted until 1881 when the Society moved to new quarters.

CONTENTS OF 'GESNER'S MUSEUM'

The 'Gesner's Museum' collection likely remained relatively intact during its years at the Mechanics' Institute. When the collection was acquired by the Natural History Society in 1890 the situation probably changed as hinted by Matthew (1897). The Society had a strong geological component under the leadership of George Frederic Matthew and collections that were already considerable in size and diversity (Matthew 1913). During its time at the Natural History Society of New Brunswick, Gesner's specimens appear to have been re-labelled and moved into other existing collections. Matthew (1913) developed an "Iron Mineral" collection which incorporated some of Gesner's specimens. Some Devonian fossil corals from northern New Brunswick in the society collection likely originated with 'Gesner's Museum'. While many managed to retain their original 'Gesner's Museum' numbered label, others did not (Fig. 5a). Until the 1980s, the New Brunswick Museum did not have a curator of geology to care for the geological holdings of the museum. The 'Gesner's Museum' collection was largely inaccessible and unstudied. Some specimens underwent another period of re-labelling in the 1970s causing further deterioration of the collection. Since 1986, the geological collections at the New Brunswick Museum have been completely reorganized and the 'Gesner's Museum' specimens reunited as a 'special' collection. Specimens have been assigned NBM catalogue numbers assigned to palaeontology (NBMG), mineralogy (NBMM), petrology (NBMR). All records are included on the New Brunswick Museum, Natural Science Department electronic database, also accessible online. Gesner listed 1,263 rocks, minerals and fossils in his museum in 1842. Of those, 694 specimens in the New Brunswick Museum geology collections have been identified as originating from Gesner's Museum. The collection presently includes 392 of the 876 minerals; 160 of the 177 rocks; and 142 of the 210 fossils. An additional 55 specimens are identified as probably from Gesner's Museum. Of the remaining 514 geological specimens, many are likely to be found in the geology collection, re-labelled and not currently identified as originating with Gesner. In addition to the original catalogue, Squires (1945) reported that Dr. Gesner produced an Appendix to the Catalogue of Gesner's Museum with an additional 315 specimens numbered from 2174 to 2489. A handwritten document (NBM Archives) titled "Appendix to the Catalogue of Gesner's Museum 1842–1843" matches specimens in the New Brunswick Museum collection. The collection also includes a wooden specimen box developed by Dr. Gesner as an identification reference (Fig. 5b) and a set of specimens given by Dr. Gesner to George Stillman Hill, Member of the House of Assembly, in about 1840.

Abraham Gesner took great care to arrange and organize his collection as demonstrated by his catalogue (Gesner 1842b) and the numbering of specimens. The geological portion of the catalogue is presented under major headings to include 'Minerals', 'Minerals of New Brunswick', 'Rocks-Foreign and Provincial', 'Miscellaneous', 'Fossils, Marine Animals and Plants', 'Fossil Fish' and 'Fossil Plants'. Sections under these headings are further subdivided. Some oddities appear throughout the catalogue. For example, the tetrapod track *Ornithichnites* is included under the heading 'Fossil Fish' and a collection of 'Shells from marl of Bathurst' is found under the heading 'Fossil Plants'. When considering how carefully the catalogue is arranged, the errors might suggest some haste in putting together the published version. The back cover of the catalogue solicits specimens and artefacts from donors, offering admission to the museum corresponding to the value of the items, or that a "liberal price will be given for Foreign Specimens not intended as donations." Gesner also offered free admission to Masters and super-cargoes of ships who made donations and to persons who contributed original information concerning the natural history of the provinces. He offered that the names of donors would be recorded in the catalogue opposite the names of specimens received. Objects pertaining to the natural histories of New Brunswick and Nova Scotia would be exchanged for foreign specimens. Gesner also offered for sale, sets of sixty specimens of Minerals of Nova Scotia at a cost of £6 per set.

In the catalogue the minerals are arranged using the classification scheme of Professor Parker Cleaveland of Bowdoin College. Parker Cleaveland had written the first comprehensive work on mineralogy in America 'An Elementary Treatise on Mineralogy and Geology' in 1816, and is known as the father of American mineralogy (Greene and Burke 1978). The mineral Cleavelandite, a variety of albite, was named after him. Clearly, Gesner was well aware of the best, current scheme for organizing his minerals. Most specimens in the catalogue include the identification and general location information. Data about the collector or donor is presumably only included when that person was someone other than Gesner himself. Whether this means Gesner himself collected most of the specimens is unclear. From his letter in the Journal (Anonymous *JHA* 1841, p. clii Appendix) it seems as though Gesner had been developing the collection for 20 years from his time in Parrsboro.

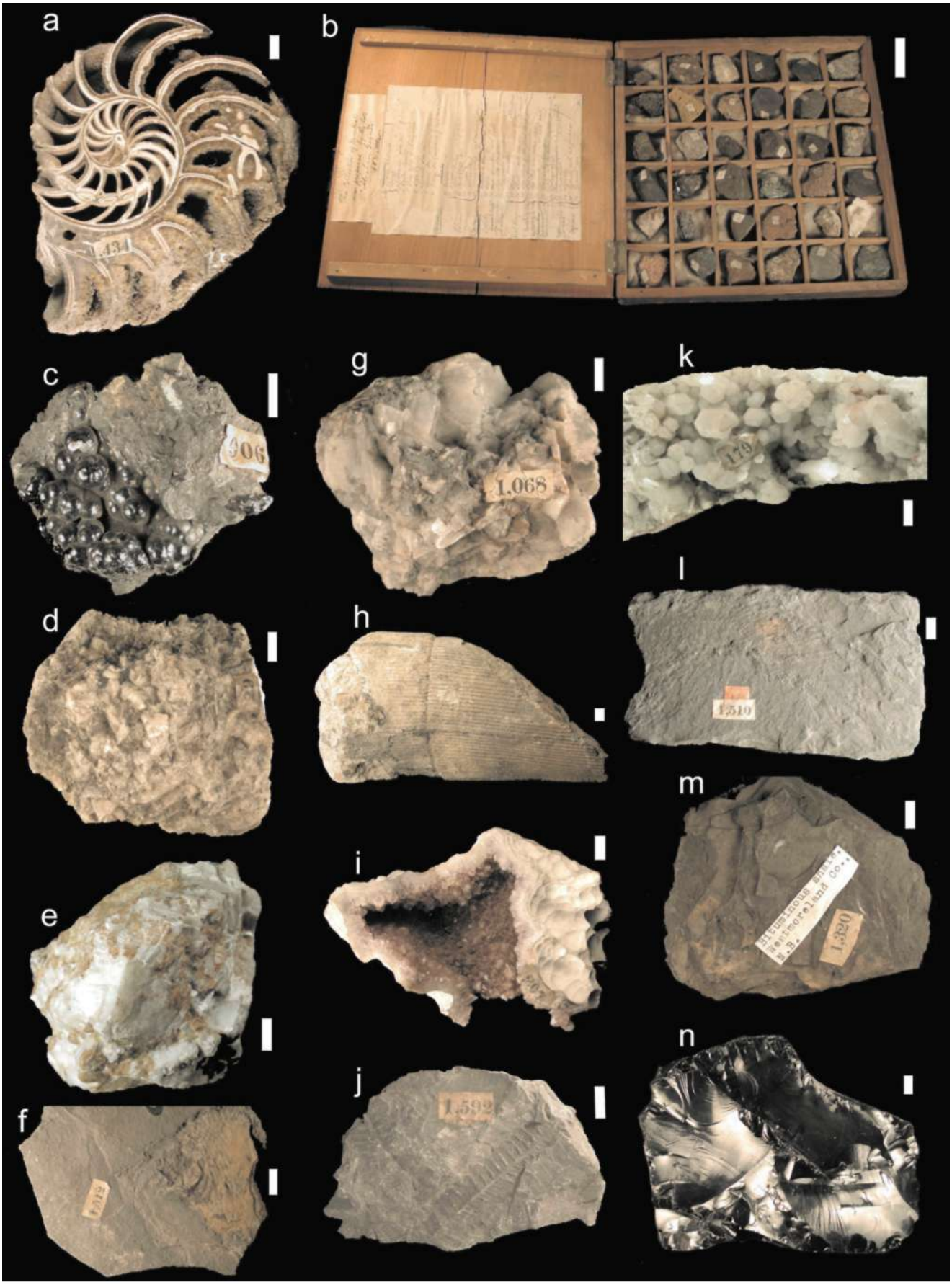


Figure 5. Caption on opposite page.

Figure 5. (opposite page) a) Label on Gesner's Museum specimen, No. 1434, Nautilus, England (NBMG 1043); b) Abraham Gesner's specimen sample box (NBMG 1472); c) Gesner's Museum specimen, No. 906, "Botroidal [goethite]. From the Collection of Mohs" (NBMM 1329); d) Gesner's Museum specimen, No. 29. "Barystrontianite [strontianite]. Schoharie, USA Professor Emmons" (NBMM 2221); e) Gesner's Museum specimen, No. 128. "Serpentine in crystals, USA, Prof. Shepard" (NBMM 2275); f) Gesner's Museum specimen, No. 1,512. "Fossil Fish. Valley of Connecticut. W. Wagner" (NBMG 1084); g) Gesner's Museum specimen, No. 1,068. "Calcareous Spar [calcite]. Lancaster" [New Brunswick] (NBMM 2522); h) Gesner's Museum specimen, No. 1,550. "Calamite. Bathurst, New Brunswick" (NBMG 1103); i) Gesner's Museum specimen, No. 207. "Amethyst in Geodes. Blowmedon, N.S." [Blomidon, Nova Scotia] (NBMM 2105); j) Gesner's Museum specimen, No. 1,592. "Fossil leaves in the Shale underlieing the Coal, Sydney, C.B." (NBMG 1118); k) Gesner's Museum specimen, No. 179. "Quartz Crystallized. Giant's Causeway, Ireland" (NBMM 2305); l) Gesner's Museum specimen, No. 1,510. "Palaeoniscus. Freizlebense, (Blainville,) from Eisleben, on Copper Slate. Professor Shepard." (NBMG 1082); m) Gesner's Museum specimen, No. 1,320. "Bituminous shale, Westmorland, New Brunswick" (NBMR 1260); n) NBME 1133, albertite. Scale bar = 1cm for all specimens except 5b where scale bar = 5cm.

Certainly, it appears as though he acquired specimens from others and the table included with the same letter indicated Gesner had duplicate, even triplicate specimens for exchange. However, reading the catalogue list suggests donor information may have been omitted. Occasionally, a specimen from a foreign location by a particular donor is followed by one or more additional specimens from the same locality with no donor indicated. In many of these instances, it is unlikely Gesner himself visited the site.

Almost all the specimens of rocks are from New Brunswick and Nova Scotia and most have no donor listed. Likewise, specimens in the 'Minerals of New Brunswick' list are also mostly without donor information. In both these cases, it is likely that he collected the specimens as part of his efforts to map the geology of both provinces. Almost all the fossil plants were probably collected by Gesner and most of the fossil plant specimens are from Nova Scotia and New Brunswick. Many originate from the Pennsylvanian sections near Joggins, Nova Scotia. The general mineral collection is where most donated specimens are listed. Donors to Gesner's Museum included several notable geologists and collectors. Among them was the famous German geologist and mineralogist Carl Mohs (1773–1839), developer of 'Mohs' Scale of Hardness' taught to every student of geology. Two specimens (Gesner Nos. 906 and 1205) are listed as being "From the Collection of Mohs" (Fig. 5c). Ebenezer Emmons (1799–1863), a physician, chemist, agriculturalist, stratigrapher and paleontologist with the Geological Survey of New York, contributed the most specimens (46), including strontianite (Emmons 1835), from the well-known localities in the Schoharie area of New York State (Fig. 5d). Charles Shepard (1804–1886) a chemist, naturalist and mineralogist at Yale University donated the second largest number of specimens (42) from the United States as well as Europe (Fig. 5e). William Wagner, an American collector and philanthropist who founded 'The Wagner Free Institute of Science of Philadelphia', donated 27 specimens mostly from the eastern United States (Fig. 5f). Professor Forman donated 21 specimens, mainly from Baltimore. Benjamin Silliman (1779–1864) professor of science at Yale University sent one specimen from the United States. Although not attributed to Silliman in the catalogue, Gesner No. 1343 is part of a famous meteorite that fell near Weston, Connecticut in 1807. It was collected and studied by Benjamin Silliman and James Kingsley. Silliman, like Gesner, was also a pioneer in the study of the distillation of petroleum. One specimen may have originated with Sir Roderick Murchison (1792–1871), although the catalogue entry (Gesner No. 1419) for a fossil from Devon makes it unclear if the donor was actually Murchison. Another interesting entry is a mineral specimen of aragonite from England attributed to Viscount Valentia, which probably refers to George Annesley, 2nd Earl of Mountnorris, 9th Viscount Valentia (1770–1844). Gesner (1836) dedicated his book on the geology of Nova Scotia to Lord Viscount Valentia. A number of specimens are listed as coming from Yale University while two specimens of "Shells of the London Clay" were donated by GSL, presumably the Geological Society of London.

The remaining donors provided Gesner with one or two specimens and were most likely people he knew from New Brunswick and Nova Scotia. Captain Cudlip brought in a specimen of volcanic glass from Jamaica, Captain Ruel and Colonel Wyer donated ammonites from Lyme Regis, England. Captain Ruel also donated graphite from Ceylon (Sri Lanka). Mr. Morrow donated two specimens of native silver from Africa.

OVERVIEW OF GESNER'S GEOLOGICAL COLLECTION

At least 785 (62% of the collection) of the 1,263 rocks, minerals and fossils in Gesner's museum originated from New Brunswick and Nova Scotia. A complete list is available in the Gesner's Museum catalogue (Gesner 1842b) with an overview provided here. The New Brunswick specimens number 290 and the localities are spread across the province. As provincial geologist, Gesner travelled the entire province (Gesner, 1839, 1840, 1841, 1842a, 1843), a fact reflected in his collection. One section of the cata-

logue titled "Minerals of New-Brunswick" includes 71 specimens, although other mineral specimens from New Brunswick are found under other headings. Among the specimens are rocks from Grand Manan, Saint John, Meductic, Nerepis, St. Martins, Campobello, Tobique, and Bathurst. The minerals represent localities including Grand Manan, Saint John (Fig. 5g), Washademoak, Miramichi, St. Stephen, Fredericton, Beaver Harbour, Richibucto, Woodstock, Shediac, Bathurst, and Campobello. Plant fossils were collected from North Joggins, Grindstone Is., Bathurst (Fig. 5h), Salmon River, Grand Lake, Saint John, Miramichi, and Quaco, while invertebrate fossils came from Digdeguash, Otnabog Lake, Restigouche, Dalhousie, St. Andrews, and Grand Lake.

Specimens from Nova Scotia represent the largest number with 495. The Nova Scotia localities are perhaps less representative of the province and more a reflection of his home near Parrsboro. Although Gesner produced works on the geology of Nova Scotia (Gesner 1836, 1846) he was not employed as a geologist and not paid for his travels as he was in New Brunswick. Most rocks in the collection are from Halifax, Parrsboro, Cape Chignecto, Ile Haute, and the Cobequid Mountains while many minerals were collected from Parrsboro, Blomidon (Fig. 5i), Pictou, Cape d'Or, Ile Haute, Swan Creek and Digby Neck. Plant fossils were collected from Joggins, Pictou, Sydney (Fig. 5j), Tatamagouche and Parrsboro. Invertebrate fossils are from South Mountain, Pictou, Nictau, Moose River, Cape Breton, Rawdon, Chester, Wallace, Joggins, and Parrsboro.

Although most of the 'Gesner's Museum' collection comes from Canada and the USA there are more than twenty countries represented, some from Africa, Asia, Europe, North America and South America. Most of the non-North American specimens are from Great Britain, but specimens, mostly minerals, were acquired from Austria, Cuba, Ceylon (now Sri Lanka), Hungary, Russia, Sierra Leone and Syria among others. Significant and well-known localities include Mt. Etna, Sicily; Giant's Causeway, Ireland (Fig. 5k); Lyme Regis, England; and the Eisleben Copper Slate, Germany (Fig. 5l).

The contents of the various mineral groups represent a wide variety of sources. For example, in the 92 carbonate minerals, mostly calcite specimens, 39 originate from Nova Scotia (42%); 6 from New Brunswick (7%); 17 from the USA (18%) and 30 from Europe or other (33%). Making up the 135 quartz specimens there are 104 from Nova Scotia (77%), 4 from New Brunswick (3%), 10 from the USA (7%) and 17 from Europe and elsewhere (13%).

In his reports, Gesner (1839, 1840) noted oil shale and the mineral that would be called albertite from Turtle Creek and Frederick Brook (Martin 2003). He had two specimens of oil shale from the Albert Formation, Gesner Nos. 678 and 1320 (Fig. 5m). Albertite, the solid hydrocarbon (originally thought to be a mineral) most associated with Abraham Gesner, has not been identified in the collection, although Gesner No. 722, on page 20 of Gesner's catalogue is listed as "bitumea" from Westmorland, New Brunswick. The specimen has not been located so it is uncertain if "bitumea" is albertite. Most albertite is known from the Albert Mines locality in Albert County, near Frederick Brook; however, until 1845, Westmorland County included the area now known as Albert County. Albertite (Fig. 5n), the source material for the manufacture of kerosene, was the centre of a court case pitting Gesner against the Albert Mining Company (Beaton 1955; Wright and Miller 1990; Brice 2002).

The collection also includes fossils. Of the 76 specimens of plant fossils 48 (63%) were collected in Nova Scotia, 20 (26%) in New Brunswick, 1 (>1%) in the USA and 7 (9%) in Europe; almost all the plants represent the Pennsylvanian Period. Although Gesner studied the geology of the north shore of New Brunswick from Dalhousie to Campbellton, there are no Devonian age plants in his museum. The area is now known as a significant locality for early land plants and was visited by William Dawson not long after Gesner's survey work (Gensel 1982). Most of the work on the north shore of New Brunswick was completed for his last report. Some plant specimens from Dalhousie are listed in the 1842–1843 appendix. The invertebrate fossils represent a variety of localities mostly from Canada, the USA and Great Britain. The small vertebrate collection is represented by several palaeoniscid fish fossils donated by Charles Shepard and William Wagner; however, the well-known palaeoniscid fishes of the Albert Mines area were not recorded by him. They were first described in 1851 by Gesner's long time rival Charles Jackson (Jackson 1851). However, Gesner is credited with the discovery of fish fossils at Miguasha, now a UNESCO World heritage site known for its Late Devonian fish. Fossils from this site are also not found in his museum. He reported the discovery of the fossils the year after he opened his museum (Gesner 1843, p. 64) having found specimens there in the summer of 1842 (Lemieux 1996).

SIGNIFICANCE OF THE 'GESNER'S MUSEUM COLLECTION

'Gesner's Museum' represents one of the oldest geological collections in Canada. It has survived as an identifiable collection attributed to an individual, and probably traces its origin to about 1820. Although the Geological Survey of Canada was founded in 1842, its museum opened in 1852 (Vodden and Dyck 2006). Undoubtedly, Survey geologists were acquiring specimens from the earliest days of their work. Even earlier collections like

those of Dr. James Wilson of Perth, Ontario, were used by Sir William Logan before beginning his geological survey (Zeller 1987, p. 17). Dr. Wilson was a surgeon and an amateur geologist who had moved to Perth in 1821. Zeller (1987), in her work on early Victorian science in Canada, devoted a chapter to geology and described the efforts of the Royal Engineers, among others, in making geological surveys in the early 1800s, particularly along the Rideau Canal route. Fothergill's museum reportedly included 3,000 geological specimens from Sir Richard Henry Bonnycastle of the Royal Engineers (Teather 2005).

While many of the specimens in 'Gesner's Museum' may not be scientifically significant today, the strength of the collection is that it documents pioneering geological investigation in Canada. Gesner was more than an amateur geologist having established the first geological survey in British North America. He guided Sir Charles Lyell on his first trip to the famous Joggins locality (Lyell 1845; Calder 2006) and wrote some of the first reports detailing the geology of Nova Scotia and New Brunswick. He is considered a founder of the modern petroleum industry and an early promoter of public awareness of geology through his writing and lectures. He was also elected a Fellow of the Geological Society of London in 1840 (W. Cawthorne, Geological Society of London Library; pers. comm. 2006). The 'Gesner's Museum' collection provides a tangible link to this interesting individual. The specimens record his interests, his priorities and his contact with the geological community. The specimens Gesner collected from New Brunswick and Nova Scotia also document the survey work he published (Gesner 1836, 1839, 1840, 1841, 1842a, 1843, 1846). Matthew (1897) provided the first review of Gesner's scientific work and the museum collection clearly reflects Gesner's geological work in both provinces. Further study of his collection may provide insights into the earliest studies of geology in Canada.

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