

Dr Abraham Gesner: the father of the petroleum industry

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Although he may have made the greatest contribution of the group of 18th and 19th century physician-geologists, a recent review of those contributors did not mention Dr Abraham Gesner¹. This is not the first time he was forgotten.

Dr Abraham Gesner, a descendent of Konrad Gesner (1516–1565), the Swiss naturalist, was born at Cornwallis, Nova Scotia on 3 May 1797. His father, Colonel Henry Gesner, was a native of New York but fought on the Royalist side during the American Revolutionary War and later settled in Canada².

To a great extent self-taught, Abraham Gesner developed an early interest in nature, geology, mineralogy and chemistry, and visited the West Indies and South America to pursue these scientific interests. When Gesner built up debts from his attempts at experimental scientific farming, his father-in-law, the naturalist, Dr Isaac Webster, offered to help him out of his financial difficulty if he would take up medicine³.

He became a student for 6 months at Guy's Hospital and then at St Bartholomew's Hospital, London. While a medical student he was asked, 'What is your

diagnosis, Gesner? What do you believe to be the cause?' He naively responded with the common expression of his father, 'It must be because God made it so!' and this became known long after as 'Gesner's Reason'⁴.

He began his medical practice in Cornwallis, Nova Scotia and later practised in the village of Parrsboro. During this time, he continued his energetic study and writings about the geology of the Maritime Provinces of Canada. He became a Fellow of the Geological Society and many other learned societies in Europe and America. He was appointed the provincial geologist for New Brunswick, the first appointment of a government geologist in the British Colony.

In 1836, he published 'Remarks on the Geology and Mineralogy of Nova Scotia' which stimulated the famous geologist, Sir Charles Lyell, to visit the province of 1842 with Gesner as his guide.

Gesner published many reports on the geology of New Brunswick, Prince Edward Island and Nova Scotia. In 1843, he brought before the Geological Society of London a 'geological map of Nova Scotia, with an accompanying memoir'⁵.

His interests were diverse. He published notes for emigrants to New Brunswick⁶; outlined the industrial resources of Nova Scotia; and invented an electrical dynamo and an apparatus for winding insulation around electrical wire. He constructed an electrical motor driven by voltaic battery and experimented on numerous other scientific ideas⁷. Despite a lack of financial support from the Provincial Government, he developed the basis of a museum, first in his house, then in rented rooms, and eventually in the new 'Mechanics Institute' in Saint John, New Brunswick which continues today as the Provincial Museum. His establishment of this museum, with a personal donation of 2173 objects for display, was Canada's first public museum^{8,9}.

His greatest contribution, however, was the discovery of kerosene in 1846 when he extracted oil from the 'albertite' of New Brunswick. In 1850, he had an opportunity to continue his research with asphalt when he was asked by Lord Dundonald, the original discoverer of illuminating gas, to assist him with his task of producing fertilizer for the coffee and sugar plantations from the asphalt deposits in Trinidad. During his experiments, Dr Gesner produced a clear, oily liquid which proved to have better illuminating properties than the gases already in use. He first called it keroselain from two Greek words meaning wax and oil and later contracted it to kerosene¹⁰.

A ton of this 'Asphalte Rock' from New Brunswick would make, according to Dr Gesner's analysis, '15 gallons of kerosene or burning fluid, 15 gallons of



DR. ABRAHAM GESNER, 1797-1864.

Figure 1. Dr Abraham Gesner (reproduced with permission of the Public Archives of Nova Scotia)

mineral naphtha, 5 gallons of railway grease, 880 pounds of hydraulic concrete (paving asphalt), 200 pounds of mineral pitch' (semi-solid asphalt suitable for paints and caulking) and undetermined amounts of paraffin, coke, gas (used for lighting) and ashes which, because of their ammonia content, were suitable for use as fertilizer.

He first formed a company in Halifax, Nova Scotia to produce kerosene. In 1853, he moved to New York, and he set up two large factories for the commercial manufacture of illuminating oil or kerosene. He took out patent rights and sold them to the New York Kerosene Company.

The New York Kerosene Oil Works, begun by Gesner, went into operation in 1854 and was the pioneer coal-oil works. This company would be later overshadowed by the discovery of large oil fields in the back-country of Pennsylvania when EL Drake discovered oil in a shallow well at Titusville, Pennsylvania.

His patent rights were challenged in the courts and he lost in very biased judgements against him that ruled that albertite was coal and his challengers had the licenses to 'mine coal and its minerals'. He returned to Halifax to take the Chair of Natural History at Dalhousie University. He died before he could take up the Chair, having received none of the financial rewards of his invention¹¹.

He was recognized as an outstanding geologist and scientist and was a Fellow of the Royal Geological Society of London. His textbook, *A Practical Treatise on Coal, Petroleum and Other Distilled Oils* was later revised by his son and was extremely influential in the future development of petroleum products.

His grave, however, remained unmarked in Camp Hill Cemetery in Halifax for 69 years; the site known only to the caretaker. In 1933, the Imperial Oil Company erected an appropriate marker to 'Abraham Gesner, MD, the Inventor of Kerosene Oil'¹⁰. Unfortunately, they referred to him as the 'American' Father of the petroleum industry, which quietly irritates Nova Scotians. Delancy Gesner, great grandson of Abraham Gesner, unveiled a monument

at Chipman Corner, just outside Kentville, Nova Scotia to commemorate that it was at the Gesner homestead at Chipman Corner where kerosene was first manufactured¹².

Dr Gesner was first deprived of any of the financial rewards that his important invention owed him. He then suffered the indignity of being unrecognized and forgotten in an unmarked grave for 69 years. Let us not forget him again.

References

- 1 Sakula A. Gentlemen of the hammer: British medical geologists in the 19th century. *J R Soc Med* 1990; **83**:788-97
- 2 *Dictionary of Canadian Biography*, vol 9 (1861-1870). Toronto: University of Toronto Press, 1976
- 3 Cumming LM. Abraham Gesner (1797-1864) - author, inventor, and pioneer Canadian geologist. *Geological Association of Canada, Proceedings*. 1971;**23**:5-10.5
- 4 Barkhouse J. Gexner's Reason. In: *Abraham Gesner*. Don Mills, ON: Fitzhenry and Whiteside Ltd. 1980: 27-43
- 5 Kelly H. *A cyclopedia of American medical biography (1610-1910)*, vol 1. Philadelphia: W B Saunders Company, 1912
- 6 Gesner GW. *Dr Abraham Gesner - A Biographical Sketch*. Bolton of the Natural History Society of New Brunswick. Saint John: Barns and Company, 1806
- 7 Mackenzie KA. Abraham Gesner, MD, Surgeon-Geologist (1797-1864). *Can Med Assoc J* 1948;**59**:384-7
- 8 Squires A. *The history and development of the New Brunswick Museum. Gesner's Museum 1842-1846*. Gesner Museum, 1945:7-10
- 9 Matthew GF. Abraham Gesner: a review of his scientific work. *Bull Natural History Soc New Brunswick* 1897:3-48
- 10 Beaton K. Dr Gesner's kerosene: the start of American oil refining. *Business History Review* 1955;**29**:28-53
- 11 Marble A. *Nova Scotias at home and abroad*. Windsor: Lancelot Press, 1977
- 12 Quinpool J. America's first oil monument. In: *First Things in Acadia*. Halifax. First Things Publishers Ltd, 1936:229-30

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