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Volume 18, numéro 2, june 1991

URI : https://id.erudit.org/iderudit/geocan18_2br01

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Éditeur(s)

The Geological Association of Canada

ISSN

0315-0941 (imprimé)

1911-4850 (numérique)

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Citer ce compte rendu

Sarjeant, W. A. S. (1991). Compte rendu de [Scientist of Empire. Sir Roderick Murchison, scientific exploration and Victorian Imperialism.] *Geoscience Canada*, 18(2), 89–91.

Book Review

Scientist of Empire. Sir Roderick Murchison, scientific exploration and Victorian Imperialism.

By Robert A. Stafford
*Cambridge University Press,
Cambridge and New York*
xii + 292 pp., 1989; (Price not indicated)

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By most geologists, Sir Roderick Impey Murchison (1792-1871) is remembered for his contributions to the formulation of the geologic column; in particular, for his naming of three systems, in descending order Permian, Devonian (jointly with Adam Sedgwick) and Silurian. Also remembered is his vigorous defense of that last system, seeking to extend it downward until poor Sedgwick's Cambrian was entirely eroded away — a campaign carried on by the Geological Survey in Great Britain after Murchison's death and only abandoned long after Charles Lapworth's "compromise" Ordovician system had been accepted by most other geologists. That campaign, and Murchison's skirmishings over the Devonian, have been excellently dealt with in two recent studies (Secord, 1987; Rudwick, 1985); they demonstrate how formidable and unprincipled an opponent Murchison could be.

Yet, even so, neither the power that Murchison waged in Victorian science nor the prestige he enjoyed are clearly understood by most of us today. This is in part because he has been studied hitherto very largely by geologists: Geikie's two-volume biography of Murchison (1875), for example, says remarkably little about his geographical endeavours or political influence.

To gain an understanding of these, a reading of Stafford's recent study is now the readiest means; for Stafford is concerned, not with Murchison's geological achievements, but with his significance in imperial history —

and that was great indeed. As Stafford comments (p.1),

"The interlocking relationships between his high office in several scientific societies, his official position as Director-General of the Geological Survey, and his vast social and political influence made him a crucial connection between the decentralized structure of British science and the imperial government. From this pivotal position, previously occupied by Sir Joseph Banks and less authoritatively by his successor Sir John Barrow, second Secretary of the Admiralty, Murchison manoeuvred to institutionalise natural science as an integral component of both imperial administration and foreign policy."

Roderick Murchison was a man of his age, with attainments inconceivable earlier and impossible subsequently. Born almost at the beginning of the Industrial Revolution and serving under Wellington in the Peninsular War, he might have settled forever into a soldier's life, had his later military service brought him any distinctions; but it did not and he soon resigned his commission. Like many another young man of his time, Murchison plunged too heavily into the London social scene and quickly overspent his income. Marriage to a wealthy and cultured wife, Charlotte Hugonin, proved — at least, from a Victorian viewpoint — the saving of him. There were joint Continental tours of scenic localities and galleries of art, during which Roderick, an energetic walker even in demanding terrain, first began to notice the rocks about him. However, for five years, foxhunting engaged his attention; and he might well have become a conventional 19th-century country gentleman, had not unwise investments in Peruvian mines dealt a second blow to the Murchisons' fortunes. Their estate in County Durham had to be sold and they retired in London, living at first with Charlotte's parents and then in rented quarters.

During that time, without other outlets for his abounding energy, Murchison began attending scientific lectures. He became convinced (p.6) that

"... geology, then the most dynamic and fashionable of the science, offered a gentleman avenue for achieving intellectual distinction."

Moreover, field excursions with William Buckland, Adam Sedgwick and young Charles Lyell demonstrated that his physical energy — almost too much for poor Lyell! — and his military eye for terrain well suited him to exploratory studies in geologically unknown country. Soon he had "reforged the sword of the old Peninsular soldier into the hammer of a geologist", as W.D. Conybeare so neatly phrased it. As Stafford notes (p.8)

"For fifteen years, Murchison laboured in the field of Palaeozoic stratigraphy, building his scientific reputation with an impressive record of research and a relentless campaign of self-promotion."

Responsibilities and distinctions were soon coming his way. By 1826, Murchison was on the Council of the Geological Society of London; by 1828, he was its Foreign Secretary and by 1831 its President, a capacity in which he served again in 1842. He was also for many years on the council of the Royal Society, becoming its Vice-President in 1849. He was a founding member of the soon-to-be influential Athenaeum Club and a Trustee both of the Hunterian Museum of the Royal College of Surgeons and of the British Museum. He was a founder of the British Association for the Advancement of Science, its General Secretary from 1836 to 1845, its President in 1846. Most significantly of all, he helped to found the London (later Royal) Geographical Society (RGS), serving as its President in 1843-1845, 1851-1853, 1856-1859, and for nine consecutive years from 1862 to 1871. Though he was to gain the director-Generalship of Her Majesty's Geological Survey, it was his Presidency of the RGS that was to prove the readiest means for furtherance of Murchison's vast ambitions.

As for the distinctions, they were first gained during two epic journeys in Russia. The scientific and commercial results of these so pleased the Czar that Murchison was elected to the Imperial Academy of Sciences, awarded the Grand Cross of St. Stanislaus and appointed 'Inspector of Imperial Geological Explorations' (p.16). Those journeys gained for him also the Royal Society's Copley Medal, while Murchison's political intrigues brought, in 1846, a knighthood. The latter honour did not make Murchison very

content, for he had been trying for a baronetcy! (pp. 16-18). As Stafford comments (p. 15), Murchison's ego was expanding with his successes; indeed, his quest for honours was so blatant as to provoke widespread ridicule. Moreover, with those successes he was becoming ever more authoritarian and intolerant. When his contemporaries termed him the "King of Siluria" he was delighted; that the designation had an undertone of malice, he was never to perceive. As for that baronetcy, yes, he did eventually gain it; but not until 1866, after his eager expectations had been repeatedly frustrated.

As power came to him and his influence grew, the complexity of the interplay between Murchison's personal and imperial ambitions increased. As Stafford notes (p. 143),

"...his curiosity represented an amalgam of personal, professional and patriotic motives."

His personal situation had at last become sound; his wife's inheritance had allowed them (p. 15) to purchase a

"... grand mansion in which he established himself in London's Belgrave Square; [this] was transformed into a leading intellectual salon. The fashionable soirées which he and Charlotte organized served to increase his own influence as well as the social standing of scientists in general."

His financial investments remained sometimes imprudent (p. 209), but there were no further losses severe enough to cause the Murchisons serious problems.

In geology, he was always delighted when, in areas hitherto unexplored, Silurian fossils were discovered; indeed, as Stafford comments (p. 118), his

"... pride in empire was inextricably linked to the extension of British stratigraphic nomenclature."

His theory that gold was only discovered in Silurian rocks appeared to gain early support from discoveries in Victoria, Australia — discoveries for which Murchison intrigued to gain much more than his share of credit, in a fashion that was truly shameful (p. 37). As Stafford phrases it (p. 37), such machinations

"... reflect the King of Siluria's extreme jealousy in regard to scientific credit, as well as his habit of attempting to alter the historical record for the purpose of self-aggrandisement."

Thereafter, Murchison preened himself under an additional title, "the Gold-Finder". Moreover, after he had gained the Director-Generalship of the Survey, Murchison, as Secord notes (1982, p. 414), "virtually personified geology to the general public". Yet this was not always to the advantage of the discipline (p. 203):

"Murchison resisted every new geological theory advanced after the publication of *Siluria* — his mind by the 1860s has been compared to 'a Silurian matrix, impervious and resistant' ..."

In particular, he rejected Lyell's theory of uniformitarianism and Darwin's theory of evolution (p.9), the latter so disturbing to conventional Victorian minds like Murchison's. Moreover (p. 206),

"Instead of promoting the development of the new, increasingly 'scientific' facets of geology which he found so bewildering or encouraging similar emergent aspects of geography. Murchison masterminded a programme of overseas exploration based on the simple principles of survey and mapping which he himself had employed so productively ... One factor in the rise in popularity of geography may have been that the growing emphasis on technical skills and laboratory analysis in geology caused many potential upper-class scientific recruits to follow Murchison into intellectually less demanding activities such as original exploration or the collection of natural history specimens."

Yet Murchison's effect upon geology were by no means always negative (p. 203), for

"... his vision and promotional ability were ahead of his time, and with his passing, governmental interest in geology markedly diminished."

As regards his patriotism, this is placed neatly into perspective by Stafford in the following passage (p. 191):

"Murchison's greatest significance for the history of empire lies in his role as a promoter of cultural imperialism. While concepts of empire constituted an important influence upon his science, his personal identification with Britain's prestige as a world power caused him to encourage the exploration of British 'know-how' in the form of scientific expertise, organisational modes, and new technologies both in his private capacity and through his direct links with the state. Murchison's *modus operandi*, based on patronage, influence, and mediation of the global flow of information, worked most advantageously in existing colonies whose administrative and cultural traditions facilitated the installation of metropolitan institutions and personnel. But his impact was similarly felt outside the empire in both developing nations and unorganised regions. His career demonstrates that a broader definition of imperialism than that confined to the territorial extension of political control is required to encompass such aspects of cultural expansion."

Treating the World region by region, Stafford analyses successively Murchison's contributions — contributions sometimes negative, but much more often positive — to exploration and development, not only within the British Empire, but well beyond its bounds. His lengthy analysis of Murchison's Canadian involvements (pp. 63-81) will be of particular interest to readers of this journal. Again and again, this analysis illustrates (p. 144)

"... Murchison's adroitness at exploiting opportunities to conduct reconnaissances, his use of friendship with cabinet ministers to bypass obstructionist departmental offi-

cial, and now his influence could be mobilised by ambitious explorers whose projects meshed with the vision of science as a servant of national expansion which Murchison himself had done more than anyone to create."

There can be no question that Murchison's contribution to the establishment of new geological surveys, in a variety of countries within and outside the Empire, was important and beneficial. In New Zealand, James Hector's directorship of the new Geological Survey was to attain for him a prominence in the science of that country which matched Murchison's in Britain (pp. 61-62). Murchison's links with Thomas Oldham, first Director of the refounded Indian Geological Survey, were both strong and positive (p. 115):

"Immediately upon succeeding De la Beche as Director General, Murchison begged his friend Viscount Canning, the Governor-General of India, to carry out the research he deemed essential to the well-being of the Raj by deploying geologists in every presidency. Canning's acquiescence allowed him to boast later that his 'warm intercession' had led to the expansion and permanent endowment of Oldham's Survey. Oldham never forgot his obligation, and for the next fifteen years his personal relationship with Murchison, besides the official information exchanges between the two surveys, remained a strand of metropolitan domination of Indian science. Oldham relayed scientific news and promoted RGS recruitment in India, while Murchison publicised Oldham's work as worthy of increased funding and advised the India Office on improving his museum."

From the time of the East India Company, science had been exceptionally well supported in that subcontinent. Indeed (p. 10)

"As the amateur activities of Company servants gave way to directed research and development during the nineteenth century, India became a gigantic laboratory for governmental experiments in the use of science to achieve economic, political, and social progress by organising the rational exploitation of the country's resources."

Murchison's imperial and international record was not one of continuous successes. Although striving to ensure that science took priority over commercial concerns when surveys were undertaken, he could not always control the Colonial Office's greed for gain (pp. 82-83) and there were times when, as happened in Natal (p. 160)

"... stubborn legislators unconvinced of the ability of science to pay economic dividends prevented the installation of a geological survey ..."

Yet his political adroitness was great and such failures were few (pp. 195-196):

"Despite such exceptions, Murchison's dominant influence on honours, publication privileges, fossil purchases by public museums, book sales, and reputations in general constituted an indirect system of con-

trol which, together with his official patronage of geological survey and academic appointments, effectively subordinated colonial science to the imperial metropolis. The lines of scientific authority in the empire thus paralleled those of political authority for much of the nineteenth century. In all the colonies of white settlement, the growth of indigenous scientific institutions became an important part of the nation-building process."

Murchison's ability to aid the careers of those of whom he approved — especially if they were Scots! — and his subsequent expectation of benefits from his benignity are well exemplified by his relations with William Logan (p. 67):

"Logan's early research on Canadian Palaeozoics particularly endeared him to Murchison. Murchison displayed his evidence in *Siluria* and dedicated its fourth edition to him for applying Silurian nomenclature to 'vast regions of British North America' and proving that Laurentian Gneiss, the oldest stratified rock series then known, underlay even the earliest strata of Sedgwick's Cambrian system ...

"Murchison praised Logan's work as a model to other colonies and as an example of the interdependence of geology and geography. For this latter reason Logan's annual reports were forwarded to the RGS as well as the Geological Survey. When Logan visited London to organise Canada's mineral display at the Great Exhibition of 1851, Murchison secured his election to the Royal Society and used specimens he provided to illustrate a lecture on gold. In 1856, the year Logan was knighted, Murchison accepted the Geological Society's Wollaston Medal on his behalf and arranged his election to the RGS. Logan later reciprocated by contributing his advice on campaigning in the Canadian forests to the RGS's *Hints to Travellers*. In 1867 the *Siluria* dedication and the bestowal of a Royal Society medal helped Logan win an extension for his Survey throughout the new dominion. During Logan's visits to London in the 1860s to oversee the publication of his *Geology of Canada* and act as Canadian Commissioner at several European exhibitions, he consolidated his relationship with Murchison, who provided introductions to many Europeans visiting Logan's museum in Montreal..."

Murchison could also be altruistic. He would battle to ensure good pay for his subordinates and protégés (p.83, 116) and could on occasion act very charitably, as when securing a government pension for the family of Eduard Vogel, who had been murdered while exploring the River Niger (p. 166). He was also ahead of his time in seeking the admission of women to London's scientific Societies — well ahead, indeed, for the Royal Geographical Society did not vote to admit them as members until 42 years after his death!

Murchison's "domination of scientific patronage" (p. 119) inevitably aroused resentment, especially among those who were not

beneficiaries therefrom (p. 195). He could be two-faced, as when he proposed the merchant and financier James Matheson for election to the Royal Society (p. 134)

... — a rather hypocritical act, considering Murchison's prominence in the attempt to reform the Society in 1830 and his disparaging [sic] comment that any 'wealthy or well known person, and M.P. or Bank Director or East India Nabob who wished to have FRS added to his name, was sure to gain admittance by canvassing'."

or when he exhibited Thomas Baines's paintings at geographical soirées, while blocking the artist from participation in the Zambesi expedition and not even inviting him to those soirées! (p. 182).

Murchison could be devious also, as when permitting expeditions sponsored by the Royal Geographical Society to be used as a cloak for espionage activities (p. 97) or when manoeuvring to gain maximum personal credit from work done essentially by others (p. 37). And most certainly, those who dared to oppose Murchison's views did so at their peril!

This, then, was Murchison — opinionated, egocentric, but effective, a man who had succeeded in making himself "indispensable as a scientific adviser" (p. 165) to the politicians of his time. Perhaps his power was not quite so great as that attained by Sir Joseph Banks, whom David Mackay (1985, p. 123) has styled the premier 'scientific imperialist'; but, in British science, it was greater than any individual has attained since.

This book has been considered at length, because it serves to set right the record of Sir Roderick Murchison's attainments. It is a work meticulously researched and annotated, carefully proof-read (I noted only four typographic errors, on pp. 117, 134, 168 and 199 — a small number indeed in so long a work) and logically organized. There are certain irritating gaps in information; for example, Murchison's *second* term as RGS President seems nowhere to be specified. The bibliography is thorough in coverage, but tiresomely lacks any specification of publisher and pagination of works cited. There are very few linguistic infelicities, though "rendezvoused" (p. 12) caused this reader to blench!

The only real problem is the extreme condensation. Again and again, one desires a fuller exposition of an incident than is provided. (For example, what were Vogel's attainments *before* he was murdered? Why is he omitted from the index?) This means also that the book makes rather heavy going; it is easier to scan this work for information on particular topics than to read it from end to end.

Nor has the author been well served by his publishers. The type size is not very small, but small enough to cause crowding of lines and make reading harder. The plates are poorly reproduced, too much a mixture of

"soot and snow", and even the reproduction of text-figures (notably the map on p.2) is poor. A book so important merited better treatment.

For yes, this *is* an important book, surely destined soon to be a standard reference on the shelves of all historians concerned with the development of science during the nineteenth century. What more need one say?

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