



Bust by William Brodie, 1857, in birthplace cottage, Cromarty (NTS).

CELEBRATING THE LIFE AND TIMES OF HUGH MILLER

Scotland in the Early 19th Century

**Ethnography & folklore, geology & natural history,
church & society**

Edited by Lester Borley

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A collection of papers presented at an international conference held in Cromarty from 10-12 October 2002, to celebrate the bicentenary of Hugh Miller. Organised by the Cromarty Arts Trust in collaboration with the Elphinstone Institute of the University of Aberdeen and the Highland Theological College.

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Under the patronage of Dr James Hunter, Rt Hon Lord Mackay of Clashfern,
Mrs Marian McKenzie Johnston, Dr John Nightingale of Cromarty,
Mrs Anne Short, Professor Duncan Rice and Professor Roger Wheatler.

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Foreword

Dr John Nightingale
Chairman, Cromarty Arts Trust

Hugh Miller used his understanding of fossils to transport his readers back in time to witness a spell-binding spectacle of the creation and unfolding of the world in geological time. The papers collected in this bicentenary volume similarly use Hugh Miller's life and writings to open up the great issues of geology, church and society, and ethnography in Scotland in the first half of the nineteenth century – a period of great scientific discoveries, revolution in the church, and of clearances, emigration, urbanisation and rapid social change. Miller's ability to combine the skills of a Highland story-teller with the visual imagery of new technologies of panoramas and dioramas to dramatise his subject may be hard to match, but these papers leave readers in no doubt that this period was every bit as formative as the Scottish Enlightenment.

As a self-taught geologist, a key player in the Disruption, and an acute observer of his own society, Hugh Miller challenges our modern tendency to compartmentalise religion, science and history. From his first attempts to edit his own paper at the age of 18, to his position as editor of a leading national newspaper for the last sixteen years of his life, there was little that Miller did not touch upon. As one of the most widely read Scottish authors of the nineteenth century, his accounts of the Clearances and his contrasts between rural and urban Scotland, Highlander and Lowlander, the English and Scots have done much to shape modern perceptions and, as several of these papers remind us, deserve close scrutiny for precisely this reason.

In his address on Miller, printed in this volume, Lord Mackay of Clashfern concluded that Hugh Miller was a man who knew how to make the best of the opportunities available to him. The same could be said of Cromarty. Left behind by the railroads in the nineteenth century, it was already making much of its association with Hugh Miller on the first centenary of his birth in 1902. A century later Miller is again part of the story through which the small community of Cromarty is reinventing itself as a place at the centre of things. The international conference at which the papers in this volume were delivered was held in Cromarty to coincide with the bicentenary of Miller's birth. Speaking a month later at a British Council conference in Brussels, one of the speakers in Cromarty, Christopher Harvie, held up the ecumenical nature of the Miller event as a template: "mixing local historians, history of science experts and social historians from England, America and Australia, ministers of the Kirk and Lord Chancellor Mackay, and lots of locals, with plenty of good food and drink and a ceilidh – all this in a tiny eighteenth-century northern burgh, with (it seemed) an oil-rig at the bottom of every street. This was high-grade *Wissenschaft*, international, and fun, pretty central to the present Scottish predicament (parochialism versus internationality, science versus religion, science versus cash)."

The Cromarty Arts Trust, as part of its goal of advancing educational opportunities in the Highlands, began preparing for the bicentenary in 2000 with a first conference in Cromarty, Miller's birthplace, on "Hugh Miller in Context: the Cromarty Years", followed by a second conference held in Edinburgh in October 2001 on "Hugh Miller in Context: the Edinburgh Years" (the proceedings of both conferences were published

by the Cromarty Arts Trust in 2002). Thereafter, joining forces with the local community and national institutions, momentum increased and the bicentenary saw a year long programme of over 80 Miller-related events both within Cromarty and throughout Scotland. A new opera on Miller was written and performed throughout the town with every primary school child taking part. The day of the bicentenary itself opened with the unveiling by Dr Margaret Mackay of a four metre high standing stone on the town's shore: commissioned by the Cromarty Arts Trust and Cromarty Harbour Trust, it was inscribed by Richard Kindersley with Miller's report of the departure of the emigrant ship, the *Cleopatra*, in 1831, and the names of 39 ships which are known to have left Cromarty for the new world in the 1830s and 1840s; Miller considered himself unsurpassed as a letter carver and so it seemed particularly appropriate to have some of his words inscribed on stone, words which commemorate Cromarty's place as the principal departure point from the Highlands in these decades; the dedication speech by Margaret Mackay, whose family were amongst those who emigrated on the *Cleopatra*, is included in this volume. Following a piped procession to the Old Kirk, where Lord Mackay gave his address, the conference opened in the afternoon.

The success of the conference showed what it is possible to achieve in the Highlands and provides another feather in the cap of Cromarty, which notably already hosts field stations of both Robert Gordon University and the University of Aberdeen, the latter of which has built up an international reputation for its research on marine mammals. It also provides a marker for the future. A number of speakers at the conference flagged up uncharted areas of study that the Cromarty Arts Trust could encourage in future years within the fields of both geology and history – a powerful plea was made for the systematic study of estate papers which are still in the Highlands, with a view to linking current work on famines and emigration to the wider contexts of war, industrialisation, and population growth.

Such a conference requires support and unstinting effort from many quarters. Ross and Cromarty Enterprise and Scottish Natural Heritage joined the Cromarty Arts Trust in covering the core costs with further generous support being provided by the Binks Trust, Cromarty Firth Port Authority, Highland Council, Ellice and Rosa Macdonald, and the University of Aberdeen among many others. The Cromarty Arts Trust was delighted to be joined in the organisation of the conference by the Elphinstone Institute of the University of Aberdeen and by the Highland Theological College, a constituent college of the University of the Highlands and Islands Millennium Institute. Their respective heads, Ian Russell and Andrew McGowan, were joined by Cromarty Arts Trustee, Philip Hamilton-Grierson, Roger Wheeler, the chairman of the National Trust for Scotland (which has maintained Hugh Miller's cottage in Cromarty since the 1930s) and James Hunter, the historian and chairman of Highlands and Islands Enterprise, as chairmen of individual sessions of the conference. David Alston, Sandy Thomson and Peter Tilbrook acted as rapporteurs of the themed sessions. Colin Macfadyen, Lyall Anderson and Nigel Trewin led tours to the foreshore at Eathie where Miller first began to observe fossils. Michael Taylor of the National Museums of Scotland was unstinting in his advice on all matters Millerite. Very considerable thanks are due to each of these institutions and individuals. But above all thanks are due first to Lester Borley who, with the unstinting help of his wife, Mary, was indefatigable in promoting and organising the conference and seeing these papers through to publication, and second to the community of Cromarty as a whole for going out of its way to welcome delegates and make the conference one to remember.

Last, but not least, we are indebted to all the speakers who gave so much of their time and expert knowledge to make the event a fitting conclusion to our wide-ranging celebration of the life and times of Hugh Miller.

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Address at the Service in the Old Kirk, Cromarty to Commemorate the 200th Anniversary of the Birth of Hugh Miller of Cromarty

Rt Hon Lord Mackay of Clashfern

We gather today in the first parish church built in Scotland after the Reformation of 1560. We are attending a church service. The purpose of such a service is to worship God. But this service is special in that we have also come together to remember Hugh Miller, who was born in Cromarty two hundred years ago on 10th October 1802.

I first learned of Hugh Miller when I went as a young boy with my father to the Grange Cemetery in Edinburgh, where many of the leading churchmen of Hugh Miller's day are buried. There I saw his stone, simply engraved with his name and the date of his death. A simple, dignified, effective memorial to a man whose life was sadly cut short by circumstances which have never been fully understood, but which I attribute to mental illness.

We remember him first as one who was born in Cromarty, which all of us know so well, and where he has a permanent memorial on the hill above us – an impressive statue standing on a pillar of red sandstone rising some fifty feet into the air. The cottage in which he lived is one of the National Trust for Scotland's historic properties, and the fact that it is in its care is itself a memorial to the historic importance of this son of Cromarty. As we stand on the sea front at Cromarty and look out between the Sutors to the Moray Firth, we can picture the young boy with his mother looking out for his father's ship to come home. But that was not to be.

Losing his father when his ship went down in the North Sea when he was only five, together with his two younger sisters just emerging from infancy, Hugh was left in the care of his mother. Her fixed yearly income was about £12, but she worked hard to provide for her children. In this she had the great help of her two brothers, known to Hugh as Uncle James, a saddler, and Uncle Sandy, a carpenter. He was fortunate in his mother and his uncles.

Growing up under their tender care, he learned to love Cromarty and its surroundings, which he explored with a high level of observation. He made the discovery that the art of reading “is the art of finding stories in books”, and he learned to love them. He had a most retentive memory and we must look with appreciation on how this fatherless boy made himself the master of so much of the literature that was available in his day, so that he could quote freely and relevantly from a vast range of classical and more recent authors. His formal education ended with a pitched battle with the schoolmaster. However, by that time Hugh had learned much about nature from the adventures that a young boy could have on the beaches and in the caves and amongst the rocks that lie before us. He had already begun to write, but after a time he was apprenticed to David Wright, who was a stonemason and his mother’s brother-in-law. The hard work of an apprentice stonemason told heavily on his body and on his mind. He was in much pain and often very sick. He was sorely tempted to turn to drink, but we have to be thankful that he successfully resisted that temptation.

His apprenticeship ended on 11th November 1822. By this time, he was an accomplished workman, and I believe that the sense of satisfaction in attaining that standard, notwithstanding the privations to which I have referred, was an important, formative element in his character which today we should cherish.

It is worthy of remark that his first work as a journeyman mason was to build a little cottage for his Aunt Jenny, his mother’s sister, who had long wished to have a home of her own. Hugh completed this work in the spring of 1823, and in the same summer he obtained work which took him to Gairloch in Wester Ross. This gave him a superb opportunity to appreciate the scenery of the West Coast, and I believe fired-up still further the love of nature which had first gripped him here. When he came of age he set sail for Edinburgh, where the sights and monuments of that great city made a considerable impression on him. He found work as a stonemason at Niddrie House in Midlothian.

However, his work as a stonemason involved spending prolonged periods in quarries, hammering stones out of the solid rock. The dust to which he was thus exposed led to his contracting “the stonemason’s disease”, forcing him to return in 1824 to Cromarty where he eventually recovered his health.

The minister who preached in this church at that time was the Rev. Alexander Stewart. He was a most gracious man, very learned, very humble and very spiritual. We have to thank God in this church for such preachers of the gospel and for the fact that Hugh Miller was blessed with such a minister. It was Mr Stewart who performed the ceremony when Hugh married Lydia Fraser on 7th January 1837. An account of her life

and of their marriage, written by Elizabeth Sutherland, has recently been published. For an insight into their lives and times I would commend it heartily.

It was in the surroundings of Cromarty that Hugh Miller taught himself the science of geology, gathering much of his information from the fossil beds at Eathie. It is a tribute to his outstanding ability that Hugh was able, by private study and observation, despite the limits to his formal education, to make such an impact on the science of geology. He was recognized by the most distinguished geologists of his day as having made a great contribution, so much so that a number of fossils were named after him. I believe this to be something remarkable and worthy of acknowledgment in this service, not only in praise of Hugh but supremely in praise of the One who gave him these talents.

But Hugh developed other talents and became a writer of great power, with an easy ability to quote from the classics and much of the best of English literature. These characteristics, together with others, made his writing effective in gaining the attention of the generality of the Scottish people. Whether he wrote about geology or theology, the people of Scotland understood and identified with what Miller wrote. Perhaps these are the special qualities in his writing which, ultimately, brought him success as editor of *The Witness*. Although religion was an important theme for that Edinburgh-based paper, it was by no means limited in scope, for in its pages Miller made many incisive comments on the other great issues of the day, bringing *The Witness* to the attention of a large readership.

At the entrance to Cromarty the sign says “Birthplace of Hugh Miller – Geologist and Writer” – a succinct summary of his achievements.

There is one aspect, though, of his writing which we must mention in particular. In earlier times parish ministers in Scotland were in effect appointed by the heritors, that is to say generally the principal landowners in the parish. The congregation did not have the right to reject the nominee of the heritors. Hugh Miller and many others saw this as an infringement of the right of Jesus Christ, as the head of the church, to rule in it. In Miller’s view the congregation, the people who were the professing Christians in the parish, were the representatives of Jesus Christ in the church, and it was an infringement of Christ’s rights as king and head of his church that the wishes of the people in the church should be thwarted or overborne by persons who did not necessarily have any place in that church, but held their power of appointment on the purely secular ground of property rights.

The debate on this issue had raged through the courts in Scotland and had gone on appeal to the House of Lords. The law of the land laid down by Parliament in 1712 had confirmed the patronage system, which gave the heritors the power to disregard the wishes of the local congregation.

The patronage debate was one in which Hugh Miller engaged with great vigour. Ultimately so powerful was the opposition to this system in Scotland that a very large number of the ministers, elders and people of the Church of Scotland came out of that church in May 1843, to form the new Free Church of Scotland. Hugh Miller's part in bringing the controversy to a head through the medium of *The Witness* was crucial.

The zeal of Hugh Miller for his Lord and Master was certainly vigorous and something which we should celebrate in this church today. It had the effect of course that the Rev. Alexander Stewart and the vast majority of his congregation moved out of this church and eventually built the West Church in which the plenary sessions of the conference will be held.

Neither Hugh Miller nor the Rev. Stewart nor any of the other leaders of the Free Church at the Disruption believed that anyone was perfect while still in this world. Hugh himself would not by any means wish to claim anything like perfection, but I think we can claim for him a devotion to his Master which should inspire us all.

Here, then, we have a native of Cromarty, nurtured by the surroundings with which we are familiar, the firths, the sutors, the beaches, the caves, the fossil beds. Bereft early of a loving father, brought up by affectionate relatives, educated formally only to a very minimal extent, yet blossoming as an able stonemason, as a geologist, as a writer, as a church leader, and as a husband and father. A truly remarkable person.

We thank God today for his memory, and we seek to be inspired by his example of what can be done to make the very best use of the opportunities offered us.



Old (East) Parish Church, Cromarty, photo by Andrew Dowsett

Dedication of Cromarty Emigration Stone, 10 October 2002

Dr Margaret A Mackay, Director, School of Scottish Studies
Archives, University of Edinburgh

As a Canadian descendant of one of the families who left on the *Cleopatra* in 1831, described by Hugh Miller so movingly and carved by Richard Kindersley so beautifully, I – and my cousins who are also here today – feel a mixture of strong emotions: gratitude, pride, humility, love, admiration and celebration on this day.

Ours is a family which abides by the Gaelic admonition: “Cuimhnich air na daoine’ on táinig thu” (“Remember the people from whom you have come”). The generations who were close to my great-great-grandparents, John Mackay from Torroble near Lairg and his wife Christena Munro from Balblair near Bonar Bridge, and eight of their nine children (the ninth, with her husband and children, left the following year), heard the emigration story from those who had experienced it. In time, an annual picnic in the townships of Zorra and Nissouri in Oxford County, Western Ontario, brought their expanding family numbers together for an occasion of sports, fun, remembrance and commemoration and, when the family had been in Canada for over one hundred years, those accounts were published along with family trees in a slender volume which has become a reference point for us all when we gather for more infrequent reunions. Almost forty years ago I first came here with my parents and sister to see the harbour at Cromarty which was part of our history.

It is intriguing to think that Hugh Miller might have seen those Mackays in 1831, might even have spoken with them, for he had family links with Sutherland and they may have stood out a bit from the others. Family tradition has it that they took an axle and two cart wheels with them on the *Cleopatra*, in order to have the makings of a means of transport when they reached the other side. Perhaps they had been advised by letter from those from their community who were already in Upper Canada. They purchased an ox and were known as the “Ox” Mackays in order to distinguish them from the other Mackays in the Sutherland settlement of which they were a part.

They also took a Gaelic Bible with them, inscribed by the minister of Kincardine Parish, the Rev. Hugh Allen, for they were engaged in agriculture at Culrain before their departure. He hoped that “this blessed book may be their guide and solace in the land of their adoption”. No doubt it was in use the day an itinerant missionary came upon the settlers in 1832. “The Psalms which were sung reverberated in the forest”, wrote the Rev. John Carruthers in his journal.

They took extra provisions for the journey. And it was a good thing that they did, for the *Cleopatra* under Captain Morris, a brig of 267 tons carrying at least 246 settlers, was both beset by storms and becalmed during the voyage and, instead of taking the four to six weeks which was the norm at the time for a summer crossing of the Atlantic, took more than twice the maximum. “Thirteen weeks and three days” was how the family story had it. I must confess I was a bit sceptical as a young person – perhaps it only *seemed* that long – until I consulted Lloyd’s Register and learned that the oral record (for which I have a high regard professionally) was absolutely accurate.

Late in the spring of 1831 the *Inverness Courier* and *Northern Advertiser* published notices about two other ships, the *Corsair* and the *Clio*, with positive accounts about their qualities. But weeks went past and they did not appear here at Cromarty and in their place came the *Salamis* and the *Cleopatra*, the latter making a slow journey even up the east coast – in hindsight an omen of what was to come.

In the parlance of our own time, those Mackays were economic migrants, making the decision to emigrate in search of a better life for themselves and their children. They took material goods with them, yes, but also more intangible possessions – their Gaelic language, their pleasure in songs, tales and instrumental music, their religious convictions (John met Christena at a Communion Season) and their strong sense of community – of the family, the township, the congregation, of independence and interdependence. And like so many others, from so many lands, they contributed to the creation of a new society in a place new to them – “the New World” as it was called – though old to its first native inhabitants. Here in what is now my home, Scotland, we have a chance to make a new society too, one that reflects our present world, in which more people are on the move than ever before in the world’s history. I like to think that this is a vision which Hugh Miller would have applauded.

And so now, it is a tremendous honour and privilege to salute *all* who sailed from Cromarty on the ships whose names are carved here, from the *Ami* to the *Zephyr*, and those who saw them go into an unknown future. May their histories inspire us in our time as we dedicate this Emigration Stone today.

The Emigration Stone created by Richard Kindersley from a Caithness sandstone slab is illustrated on the back cover.



CONFERENCE OPENING PLENARY SESSION

Chaired by Professor Roger Wheater OBE,
Chairman, The National Trust for Scotland

Caring for Nature: The Transatlantic Canvas of the Nineteenth Century

Professor David Lowenthal,
Emeritus Professor of Geography, University College London

It is 1859, the year of Charles Darwin's *On the Origin of Species* and of Alexander von Humboldt's death, three years after Hugh Miller's, five years before the publication of George Perkins Marsh's *Man and Nature*.¹ In New York City, the American artist Frederic Edwin Church's huge, costly, magnificent painting *The Heart of the Andes*, long awaited, at last goes on display. Intense excitement attends the unveiling. Church's painting celebrates the credo of unity in diversity enunciated by Humboldt, the epoch's most admired naturalist. In *Kosmos* (1845-1862), termed by Stephen Jay Gould "the most important work of popular science ever published",² Humboldt synthesized precise scientific descriptions with depictions of meaning and beauty in nature, so as to animate the whole of creation. No less important than objective knowledge were human ideas and feelings about nature expressed in poetry, pictorial art and gardening. Landscape painting was for Humboldt the highest form of communion with nature. And the "overall composition and almost every pictorial detail" of Church's *Heart of the Andes* had "its counterpart in Humboldt's words".³

By way of preparation, Church had steeped himself in Humboldt's travel writings, visited his favourite South American scenes, even occupied Humboldt's own abode in Ecuador. After the New York opening, Church sent his painting to Europe so that Humboldt might see the artist's depiction of the scenery that had delighted the great explorer sixty years previously. He was too late; Humboldt had just died, mourned by the foremost naturalists and landscape students of the day, including Darwin and John Ruskin in England, Louis Agassiz and Marsh in America. Inspired by Humboldt's ineffable vision of enlightened progress and cosmic harmony, all adopted his precept that the interaction of feeling and intellect required every explorer to be a naturalist, every naturalist to be an explorer, and both, above all, to be humanists.

Natural history became an enormously popular cult in early 19th cen-

ture Britain and North America. Yet its seeds had germinated mainly outside the English-speaking world. Carl Linnaeus in Sweden had taught naturalists the world over to classify, name and rationally order the whole of animate creation. German chemists and anatomists had revealed the molecular makeup and growth mechanisms of living things. Encyclopaedic polymaths like Buffon and Cuvier and Humboldt had depicted terrestrial nature in all its geographical and historical diversity. Nicolas Poussin's and Salvator Rosa's elegiac classical pastoral landscapes had intensified newly awakened aesthetic delight in rural scenes. The prose and poetry of Goethe and Rousseau had infused Enlightenment nature philosophy with Romanticist sentiment. Alongside Scots and English venturers, Dutch, Flemish, Portuguese, Italian, German and Scandinavian mariners and explorers, traders and settlers had opened to widespread scrutiny the lineaments of previously uncharted lands all over the globe.

Indeed, British and American knowledge and appreciation of terrestrial nature in many respects lagged behind that on the Continent. Most Americans were too busy subduing the wilderness and coping with its perils to contemplate its contents or enjoy its felicities. And rural Britain long remained inhospitable to the studious or curious wayfarer, who was more apt to be set upon by footpads or highwaymen than to find lodgings of even minimal comfort; save for outlaws and paupers, Britons unlike Germans were said to be "too lazy and too proud" to eschew their carriages and wander on foot through the countryside.⁴

Nevertheless, it was chiefly in Britain and America that all these influences converged to make natural history so widely and passionately practised in the 19th century. Moreover, despite profoundly unlike landscapes, social bents, politics and settlement histories, emergent British and American natural history interests were remarkably similar. Old and New World Anglophone involvements with nature did in several respects diverge, as noted below. But there was far more transatlantic likeness than difference, more mutual encouragement than aloofness or discord. The Scottish geologist Charles Lyell in the 1840s and 1850s was struck in America by how easily "laborers and mechanics mingled with those of higher station, to listen with deep interest to lectures on natural theology, zoology, geology", by contrast with similar gatherings back in Britain.⁵ Yet Lyell's American visits played a vital role in bringing together the two nations' natural history concerns.⁶

American devotees of Lyell, Gilbert White, Hugh Miller and Ruskin imbibed the same enthusiasms as British nature-lovers, even if they confronted different plants and animals, rocks and fossils. Identical praise of natural history pursuits as educative, healthful, character-building, progressive, morally edifying and, above all, sanctioned by Scripture animat-

ed outdoor inquiry on both sides of the Atlantic. And as the century wore on, similar fears about the loss and misuse of nature's treasures, and zeal to protect what was left, joined British and American reformers in common conservation crusades. Though memories of the American Revolution and the War of 1812 were still sore, in art and science mutual attachments prevailed.

Miller and Marsh

Two pre-eminent polymath popularizers of natural history, Scotland's Hugh Miller and New England's George Perkins Marsh, exemplify this growing care of nature. By "care" I mean both concern *with* and concern *for* nature, for Miller is famed chiefly as a pioneer of studying nature, Marsh as a pioneer of conserving it. Yet the same Americans who took to heart the chronicle of environmental rapine and the need for reform preached in Marsh's *Man and Nature* were enthralled by the depictions of primordial landscapes in Miller's *The Old Red Sandstone*. On a wet morning in the Catskill Mountains in 1857, the American landscape painter Asher Durand was "so excited by [reading] Miller's revelations", his daughter recorded, "that he could hardly wait for the rain to let up so that he could rush down to a nearby creek, break open some of the sandstone on its banks, and see what it might reveal of the earth's history".⁷

Miller, Scottish stonemason turned geologist/journalist/churchman/ethnographer, needs no introduction to this book's readers. Marsh does. Born in 1801 on New England's northern frontier, Marsh was by turns a classics teacher, lawyer, sheep raiser, woollen manufacturer and marble quarryman, four-time U.S. congressmen, American envoy to the Ottoman Empire (1850-1854) and to Italy (1861-1882). Famed as an authority on English literature and etymology, Marsh helped found and guide the Smithsonian Institution, penned tracts on fisheries and irrigation, spearheaded public science, art and architecture. He wrote on camels and corporate misdeeds, Icelandic grammar and Alpine glaciers. Encyclopaedic reading and keen observation informed Marsh's *Man and Nature*, the first book to reveal the extent and menace of human environmental impact, to explain its causes, and to prescribe needed reforms.⁸

"Causes set in action by man have brought the face of the earth to a desolation almost as complete as that of the moon, and... another era of equal human crime and human improvidence ... would reduce it to such a condition of impoverished productiveness, of shattered surface, of climatic excess, as to threaten the depravation, barbarism, and perhaps even extinction of the species".⁹

Seemingly, Miller and Marsh make strange bedfellows. Their lives

could hardly have been less alike. Though both were self-taught, Miller was a technically equipped geologist, Marsh a self-professed dummy in science. Miller was famously a man of the people, Marsh unabashedly of the elite, in no sense proletarian notwithstanding his “earthy” interests and avocations. Both enjoyed working in quarries, but while Miller broke rocks, Marsh sold marble mined by others. Miller’s main preoccupations were palaeontology and theology, Marsh’s linguistics and diplomacy. Miller was wedded to his own Cromarty life and landscape; Marsh fled his frigid natal Vermont with undisguised relief. Miller was a man of violent extremes and expression, episodically ridden by melancholia, his life cut short by mental unbalance; Marsh suffered many sorrows but enjoyed a stable and serene emotional and social life into ripe old age. Beyond their devotion to natural history, they shared little but common aversions to the papacy, to hero-worship, to autocracy, and to aristocratic landowners and avaricious capitalists.

Miller and Marsh never met; indeed, it is unlikely Miller ever heard of Marsh. Marsh’s seminal environmental essay of 1847,¹⁰ locally printed, was seen by few outside New England; during Miller’s last years Marsh was in Constantinople and the Mediterranean. However, Marsh owned and had doubtless read several of Miller’s books. The Marsh library catalogue – a list of his books later acquired by the University of Vermont – includes Boston-published editions of Miller’s *Foot-prints of the Creator* (1850), *The Old Red Sandstone* (1851), *First Impressions of England and Its People* (1855), and *Testimony of the Rocks* (1857).¹¹ But what Marsh thought of Miller is not known; no work of his is cited in Marsh’s *Man and Nature*.

Yet their otherwise diverse careers exhibit several common traits and strengths:

*Both were acute landscape observers, especially of change over time. Miller’s time-scale was millions of years, Marsh’s at most a few millennia, often one or a few decades; each excelled in vivid portrayals of landscapes before and after transformation.

*Both expressed passionate interest in the ferns and fish, trees and men, whose histories Miller deduced from fossil strata and prehistoric bog, Marsh from Roman brickwork and the careers of words.

*Both conjoined faith in the promised advances of science with devotion to the art and poetics of nature. In the spirit of Humboldt they lauded the fusion of intellect and feeling as essential to a true apprehension of the globe.

*Both advocated natural history as an amateur realm to which even the least schooled observer might usefully contribute – a common trope of

their time. “Nature is vast and knowledge limited”, in Hugh Miller’s words. “No individual, however humble in place or acquirement, need despair of adding to the general fund”.¹² So too Marsh extolled “physical geography” as a subject to “be profitably pursued by all; and every traveller, every lover of rural scenery, every agriculturalist, who will wisely use the gift of sight, may add valuable contributions to the stock of knowledge”.¹³

*For both, self-taught persevering attentiveness made the best observer. Each rested his faith in progress in the hope of an informed and prudent public who would practise mutual stewardship out of enlightened self-interest.¹⁴

*Both exalted immediate experience in nature over speculative theory, and viewed rural life and country ways as requisite to a healthy and virtuous citizenry.

*Both were dedicated to the practical uses of science. By knowing and controlling nature men bettered their physical lot, thereby gaining the leisure needed to cultivate minds and morals.

Natural history in Britain

The astounding growth of popular interest in natural history in Britain has been well charted. Following the path-breaking studies of David Elliston Allen and Lynn Barber (with a chapter devoted to Hugh Miller) have come specialized works on particular realms of nature, Lynn Merrill’s comprehensive *Romance of Victorian Natural History* and the portmanteau collaborative *Cultures of Natural History*.¹⁵ As these works make clear, from the 1820s through the 1850s all facets of natural history – plants, animals, rocks, fossils – attracted public excitement and involvement unequalled before or since. Amateur interest was not unprecedented – 18th century landowners and aristocrats collected curiosities of nature along with art; John Evelyn’s *Sylva* (1664) and Gilbert White’s *Selborne* (1789) celebrated intimacy with well-known features of everyday scenes. But only after the end of the Napoleonic Wars did almost every aspect of nature in Britain attract the fancy not only of aristocrats and cognoscenti but rural clerics and medical students, middle-class ladies, tradesmen, farmers and factory workers.

The craze for nature took diverse forms in each realm, but devotees of flowers, beetles, birds and fossils behaved much in common, and often in omnium gatherum collective pursuits. Each aimed to identify, classify and collect specimens of as many discrete forms or species as possible. The possession of things and the knowledge of facts were twinned obsessions. Linnaean categories brought nature lovers together in a grand collabora-

tive enterprise, gathering myriad minutiae into comprehensive compendia of everything, organic and inorganic, that had ever existed on earth.

Inclusivity was the hallmark of natural history devotees themselves, as well as of their aims. Curiosity formerly confined to the unique, the spectacular and the exotic expanded to embrace the lowly and the commonplace, the minute and even the once repellent. Fascination was now espied in customarily loathed vermin – creatures shunned as nasty or dangerous or disgusting. Nothing on God’s earth, no slimy bug beneath the least stone, lacked intrinsic merit – all creatures great and small, past and present, were lovingly studied as manifestations of the Creator’s wondrous workmanship.¹⁶

Indeed, a central precept of the naturalist enterprise was to view nature’s innumerable facets not as isolated details but as integrated components of an organic whole. Decades before the term ecology was coined in 1866, popular natural science evinced a proto-ecological concern with the interaction of living creatures and their milieus.¹⁷ But the generalizing and synthesizing bent of amateur naturalists, along with their subjective, descriptive, narrative approach, drew the scorn of professionals. Scientific botany and zoology dealt not with the dynamics of living organisms but with dissection and discrete parts, not with whole entities in the field but with fragments in the laboratory.

For some time, to be sure, British natural history resisted the stultifying specialization that by the mid-century made the word “amateur” disreputable on the Continent, no longer a “*dévotee*” but only a “*dilettante*”.¹⁸ Hugh Miller was by no means Britain’s only self-trained geologist; after taking the Woodwardian Chair of Geology at Cambridge in 1818, Adam Sedgwick confessed he knew nothing about the subject: “Hitherto I have never turned a stone”; he promised that “now I shall leave no stone unturned”.¹⁹ As late as 1866 the German chemist Justus von Liebig grumbled that among most British geologists, “even the greatest, I found only an empiric knowledge of stones and rocks, of some petrification and a few plants, but no science”. Liebig was dismayed that “without a thorough knowledge of physics and chemistry, even without mineralogy, a man may be a great geologist in England”.²⁰

Against the arid petrifications of professional science, amateur naturalists remained attentive to the larger fabric of nature. Eager to see how the particulars they observed were interwoven, they learned to appreciate the entirety of their settings. Incorporating yet transcending earlier gardenesque interest in Sublime and Picturesque features, Britons evinced an insatiable appetite for scenic sketches, in words as well as in the pictures of such luminaries as Constable and Turner, of every facet of the rural landscape. At all levels from seashore strands to moors and mountains, from sand specks and protozoa to all-embracing panoramas,

knowing and feeling were conjoined, not conflicting, modes of apperception.

Long after Humboldt, his grand synthesis of science and art – of understanding and caring about nature – continued to vitalize what Philip Henry Gosse entitled *The Romance of Natural History*.²¹ Whereas the dispassionate procedures of professional scientists distanced them from their subject matter – studying vegetable physiology while knowing nothing of plants, as the Cambridge entomologist Charles Babington put it in 1888²² – popular natural science was enlivened by personal narratives highlighting the observer’s own engagement with nature. Literature intensified such feelings; naturalists ceaselessly invoked Wordsworth and Tennyson, for science *required* art, proclaimed Herbert Spencer, “and whoso will dip into Hugh Miller’s works on geology ... will perceive that science excites poetry, rather than extinguishes it”.²³ Ruskin’s attention to rocks in *Modern Painters* excited British devotion to mountain scenery, linking the vast, awesome, captivating subject matter of geology, as Charles Kingsley put it, with every other aspect of natural history.²⁴ If some, like Keats, complained that science unwove the rainbow, most acclaimed the poetic element in science. Miller and Marsh shared the common view that art must suffuse nature, nature instruct art, and their own prose embodied those precepts.

Crucial for Britain’s natural history boom were several social and technological innovations. In the wake of post-Waterloo tranquillity, many found the wherewithal to devote to holiday leisure, notably at the newly fashionable seaside. Improved roads and a fast-expanding railroad grid brought most of Britain within easy reach of growing numbers, putting paid to lingering fears of untamed countryside. Massive urbanization bred revulsion against city filth and squalor, with rural scenes both nostalgically idealized and actively re-experienced; “no longer surrounded by nature, industrialized Victorians had to seek it out”.²⁵ Cheaper printing and lithography put texts and pictures of nature into the hands of millions, stimulating mass visits to the scenes described. White’s *Natural History of Selborne* gained widespread vogue through the inexpensive edition of 1827. The Reverend J. G. Wood’s *Common Objects of the Country* (1858) sold 100,000 copies in its first weeks, five times the first-year sales of Samuel Smiles’s famous *Self-Help* (1859).²⁶ Mass-produced optical devices, notably the compound microscope, spurred absorption with realms of nature invisible to the naked eye, the delicate forms and brilliant colours of myriad tiny creatures admired as evidence of Creation’s inexhaustible wonders. The craze for ferns and the craving for grubbing in tide-pools at the sea-side, popularized by Gosse’s engagingly illustrated handbooks, went hand in hand with the plant display cases and marine aquaria that, thanks to advances in plate-glass manufacture, festooned countless Victorian parlours.²⁷

Victorian naturalists adduced manifold benefits for their pursuits. The study of nature was a tonic to health, to education (schooling increased six-fold in Britain from 1820 to 1860), to morality. It honed the senses of sight and touch, enhanced aesthetic sensibility, dispelled the pallor and dyspepsia of city life and the ills of urban pollution, and kept mind and body fruitfully occupied. Nature study was a favourite nostrum against idleness. The “listless discontent” suffered by the vicar of a remote and unlettered parish might be cured by natural history: “Make a geological map of your parish”, advised Oxford geologist Hugh Edwin Strickland. “Form a collection of all its animal, vegetable and mineral productions”.²⁸ The “muscular Christianity” derided by Matthew Arnold involved much more than strenuous Alpine mountaineering and Arctic exploration. Victorian aversion to sloth, and belief in the restorative virtues of fresh air and exercise, were famously epitomized in the Cambridge geologist Sedgwick’s 1830s outdoor lectures, orated to scores of students while cantering across the Fens on horseback.²⁹

Above all, natural history was lauded as a vital adjunct to Christian faith. Assiduous attention to the intricacies and interconnections of nature heightened awareness of divine creation. In line with Dean William Buckland’s 1836 attestation that geology and fossil relics confirmed Biblical history, the study of nature was commended as not only consonant with, but commanded by, dutiful piety.³⁰

The religious like the other benefits of natural history were, moreover, lauded as accessible to all, not merely to a well-heeled or skilled elite. “Natural history has this peculiar advantage”, wrote the zoologist William Swainson in an extended tribute to its manifold benefits: “it can be prosecuted ... by almost every body, and under every ordinary circumstance... It is as much within the reach of the cottager as of the professor”.³¹ But in England, at least, cottager and professor pursued their interests apart (though the former often supplied the latter with plants and animals, stones and fossils). Working-class devotees of natural history organized their own rambles and collecting excursions and met to exchange specimens and information in pubs shunned by gentlefolk.³² Only in Scotland was natural history a mode of social integration, bringing together, as at Alloa in Clackmannanshire, the earl, the druggist, the prison governor and the blacksmith.³³

Natural history in America

The rise of popular natural history in Britain is well chronicled. As an historian of American environmental ideas and landscape painting, and biographer of that arch-exponent of natural history George P. Marsh, I took it for granted that a similar story was available for America. What a surprise! American social, educational and environmental history up to

1900 are all but silent on this topic. And histories of American science barely touch on the interests of ordinary people; they deal instead with the annals of institutions (the Philadelphia Academy of Natural Sciences, the Owenites' New Harmony, the Smithsonian Institution, the American Association for the Advancement of Science) and the careers of eminent scientists (Benjamin Silliman, Louis Agassiz, Joseph Henry, Spencer Baird). There is nothing remotely like Allen's *Naturalist in Britain* or Barber's *Heyday of Natural History*. And the American material in Merrill's *Victorian Natural History* includes no detailed sources such as inform her richer British data.³⁴

The disparity is perplexing. For it cannot be said that Americans lacked interest in natural history; indeed, one historian terms it "the most widely pursued scientific activity in nineteenth-century America".³⁵ American literature is chock-a-block with nature essays by Thomas Cole, Ralph Waldo Emerson, John Burroughs, William Cullen Bryant, Marsh himself. And British letters boasted no one remotely equivalent to Henry David Thoreau, "who almost invented and certainly mastered a form of nature writing", notes Merrill, "particular, observant, exact, but also synthetic, musing, and connective".³⁶ A passion for nature suffused American literature and landscape painting alike. The hugely popular histories of George Bancroft, novels of James Fenimore Cooper and canvases of Thomas Cole and his followers circulated by the hundreds of thousands. From the 1850s on, Church, Thomas Moran, Albert Bierstadt and other painters and photographers who accompanied Western explorers made America transcendently sublime, and the public bought scenery by the millions. "Of course we vary 'em", said a New York daub factory artist, "next week this tree goes to the left, and the rock comes more to the front, and its a sunrise and not a sunset; [but] landscapes is the thing".³⁷ By 1900, worship of landscape enabled the Scottish-born John Muir to elevate American celebration of wild nature into a spirited crusade for its protection and preservation.

Any transatlantic comparison of natural history interest must remain tentative pending scrutiny of New World primary sources. But it seems clear that popular devotion to nature study expanded about the same time and for the same reasons in America as in Britain. The end of the War of 1812 inaugurated a long period of peaceful economic growth, with new roads and canals opening the eastern seaboard states to easier and speedier travel. The advance of democracy and of schooling promoted egalitarian mores and well-nigh universal literacy. Notions of natural history as a virtuous refuge from the evils of city life, as a healthful and educative and virtuous endeavour, above all as proof of Creation's manifold blessings (the study of Nature, God's own handiwork, was morally preferable to that of artifacts, the work of men)³⁸ – all these spurred Americans as they

did Britons, in some ways even more so. Americans especially affirmed literal faith in the Biblical account of Creation – a faith lent great scientific authority by Harvard’s Agassiz, arch-opponent of Darwinian evolution: to study geology was “to become acquainted with the ideas of God himself”.³⁹ Visiting America in the 1880s, Matthew Arnold was told by one scientist that in his city of 150,000 “there are not fifty who do not imagine the first chapters of Genesis to be exact history”.⁴⁰

Yet at the time the contrasts were more conspicuous than the resemblances. American nature study – like New World nature itself – was judged in its feeble infancy. Well into the mid-century, American practitioners felt inferior to Old World science in general and British natural history in particular. America’s premier naturalists were mostly foreign-born, foreign-trained, their work largely financed and published abroad. Nine out of ten subscriptions for John James Audubon’s *Birds of America* (1826–38) came from Britain.⁴¹ Not until the Boston advent of Agassiz and his acceptance of the Harvard chair in 1848 did Americans begin to feel professionally on a par with Old World natural history. And even then they kept looking over their shoulders at British institutions, milieux and viewpoints.

The timing, intensity and components of popular American natural history differed in several respects from that sketched above for Britain. Americans by and large embraced nature later and less comprehensively; sentimentalized it less but humanized it more; linked love of nature more explicitly and emphatically with love of country; communed with nature’s grandeurs more than its minutiae; concentrated attention on sites of unique splendour rather than, like Britons, spreading their concerns over the whole countryside; stressed the economic and ecological along with the civic benefits of natural history; and came sooner and more strongly to promote nature protection and conservation.

These last two American bents owed much to democratic egalitarianism. English elites disdained working-class naturalists as uncouth interlopers; Americans welcomed them as fellows in a joint enterprise of national improvement. Local farmers’ clubs promoted natural history as a popular pastime with practical and spiritual benefits. Lectures by scientists like Lyell and Agassiz attracted huge audiences – five- or tenfold those in Britain – not only at Boston’s prestigious Lowell Institute but at more than three thousand lyceums, athenaeums and mechanics’ institutes throughout the country.⁴²

The spread of natural history enthusiasm in rural New England was remarked on by a Vermont newspaper in 1868. “In almost every town there is a farmer or mechanic who has addicted himself to some kind of knowledge very remote from his occupation. Here ... a shoemaker who has attained celebrity as a botanist, [there] a wheelwright, who would sell

his best coat for a rare shell". The untutored backwoodsman was deemed wiser than the academic scholar, for the local observer grounded in empirical knowledge had "greater opportunity to make new discoveries ... than the professor whose life is spent in the laboratory". For example, one proto-ecological farmer prudently queried the received "wisdom of exterminating raccoons, observing that they fed on grubs that ruined local meadows".⁴³

Nature study as a prime agent of inclusivity – "knowledge of one becomes knowledge of all"⁴⁴ – was championed in the rapidly expanding common schools as well as by lyceum speakers. In Canada, too, natural history was extolled for bringing together all classes and creeds – French and British, Protestant and Catholic, young and old, elite and populace; it was a calling especially conducive to social harmony because "a true naturalist is never an ill-natured man".⁴⁵

At the root of differing transatlantic views of nature were utterly disparate sagas of land settlement. In Britain, millennia of gradual occupation and cultivation had domesticated most of the countryside; by the 19th century almost the whole realm was within easy reach of a public long at home in it. By contrast, most Americans were still immersed in the pioneering task of carving out homes and livelihoods in a vast, raw and menacing wilderness. The Indian imprint was dismissed as sparse, episodic, impermanent. The nature Americans were speedily taming was no vista of contemplative delight but an alien abomination to be eradicated and replaced with well-tended scenes of human endeavour. Wilderness was not only a physical impediment to civilized progress, it was aesthetically repulsive and morally repugnant. Americans studied it mainly to learn how best to extirpate it.

American settlers loathed untouched nature and loved their own improvements. Thus the historian Bancroft limned the horrors of the Hudson River valley as found by Henry Hudson in 1607:

"Trees might everywhere be seen breaking from their root in the marshy soil, and threatening to fall with the first rude gust; while the ground was strewn with the ruins of former forests, over which a profusion of wildflowers wasted their freshness in the mockery of the gloom. Reptiles sported in the stagnant pools, or crawled unharmed over piles of mouldering trees; masses of decaying vegetation fed the exhalations with seeds of pestilence.... The horrors of corruption frowned on the fruitless fertility of uncultivated nature".

Two centuries of energetic settlement and industry then followed. By 1837 "how changed is the scene", exulted Bancroft:

“The earth glows with the colors of civilization; the banks of the streams are enamelled with the richest grasses; woodlands and cultivated fields are harmoniously blended.... The thorn has given way to the rosebush; the cultivated vine clammers over rocks where the brood of serpents used to nestle; while industry smiles at the changes she has wrought, and inhales the bland air which now has health on its wings. And man is still in harmony with nature, which he has subdued, cultivated, and adorned. For him ... science spreads iron pathways to the recent wilderness; for him the hills yield up the shining marble and the enduring granite; for him immense rafts bring down the forests of the interior”.⁴⁶

Progressive Americans sought nature cleared by the axe, tamed by industry and teeming with mines and mills.

Yet the same Americans were already taking pride and finding solace in scenery more spectacular and virtuous than debased Old World locales *because* it was wild and untouched. In praising wilderness, American poets and painters and naturalists countered critics who felt the New World lacked scenic interest owing to its paucity of human history. The conventional view of Mme. de Staël’s *Corinne*, that “the most beautiful landscapes of the world, if they evoke no memory, if they bear the mark of no notable event, are destitute of interest compared to historic lands”,⁴⁷ applied above all to America. For all its brimming natural plenitude, America was pictorially vacant because wild. Cultural impress on the New World was rudimentary, slight, artless, above all too recent to have meliorated the garish profusion of nature. America was held to be “rude without picturesqueness, and monotonous without sublimity”.⁴⁸

The archetypal aesthetic rebuke of America was voiced by John Ruskin in 1848 (a grievous blow; for Ruskin’s opinions were widely revered in America). *Seven Lamps of Architecture* limns a delectable pastoral forest in the Swiss Jura, blessed with “all the solemnity [yet] none of the savageness” of the Alps, where “clear green streams wind along their well-known beds; and under the dark quietness of the undisturbed pines, there spring up, year by year, such company of joyful flowers as I know not the like of among all the blessings of the earth”. The setting at first seemed to Ruskin dependent on nothing beyond “its own secluded and serious beauty”. But wait; suppose this were not Switzerland, after all, but rather “a scene in some aboriginal forest of the New Continent”:

“[A] sudden blankness and chill [was] cast upon it ... The flowers in an instant lost their light, the river its music; the hills became oppressively desolate; a heaviness in the boughs of the darkened forest showed how much of their former power had been dependent upon a life which was not theirs ... Those ever springing flowers and ever flowing streams had

been dyed by the deep colors of human endurance, valor, and virtue”

– residues of *human* traits embodied in the bordering ramparts of the Castle of Grandson, that massive memorial relic of Swiss medieval valour.

In short, landscape came to life only amid architecture, which “we may live without”, concludes Ruskin, “but we cannot remember without ... How cold is all history, how lifeless all imagery, compared to that [of] ... the uncorrupted marble!”⁴⁹ No marble relics embellished American scenes; savage America was a cultural void. “The charm of romantic association – [of] ruins and traditions, the remains of architecture, the traces of battlefields, the precursorship of eventful history – can be felt only by the European”, he later added. “The instinct to which it appeals can hardly be felt in America”.⁵⁰

With this reproach Americans were in partial if reluctant accord. Their protracted efforts to deny, palliate or extenuate the thinness of New World culture and, per contra, to mount counter-claims of transcendent glory for unspoiled New World scenes long shaped how American nature, culture and history were viewed and portrayed.⁵¹ Many reiterated Ruskin’s plaint. William Cullen Bryant deplored the absence of “tamings and softenings of cultivation” in New World paintings. Home from European tours, American writers and painters bemoaned their own raw, unfinished land. Lack of “a pictured, illuminated Past”, judged the historian John Lothrop Motley, left America with “a naked and impoverished appearance”. All new, it was too bare to live in; “it had merely the beauty of a face without an expression [because] it wants the associations of tradition which are the soul and interest of scenery”.⁵²

Comparing American with Old World settings dispirited the ever-ambivalent Cole:

“He who stands on Mont Albano and looks down on ancient Rome, has his mind peopled with the gigantic associations of the storied past; but he who stands on the [prehistoric Indian] mounds of the West, the most venerable remains of American antiquity, may experience the emotion of the sublime, but it is the sublimity of a shoreless ocean un-islanded by the recorded deeds of man”.⁵³

Patriotic naturalists, however, scorned such woeful misgivings. Marsh censured Ruskin’s “pernicious” theory that “the works of nature are admirable only as the poor life of man has illustrated them, and consequently that the face of creation is an unworthy blank” in the New World. To claim that “wanting ancient memories, American landscape can have no present beauty”, as Marsh parsed Ruskin, was absurd; how could it be that what “God has created cannot acquire picturesque significance ... till

man has consecrated it by his doubtful virtues, his follies, or his crimes!" To the contrary, claimed Marsh, landscapes "need not the hand of man, or any memorials of his virtues or his vices, to awaken the admiration of every soul that has any true sympathy with creative nature".⁵⁴

Indeed, the grandeur of natural landscapes more than compensated for any lack of human linkage. Americans replaced history with landscape and infused it with another dimension of temporal virtue. Nature was ideal tradition, older than the human past, untainted by human folly and crime, morally superior to history's stage sets. "Our mountain fastnesses and trackless plains [boast] ruins of architecture and statuary not one whit behind the foreign remains of forty centuries in power of execution, and far vaster in age and size".⁵⁵

Preferring the "hoary oak" to the "mouldering column", Americans contrasted Europe's "temples which Roman robbers have reared" and "towers in which feudal oppression has fortified itself" with New World "deep forests which the eye of God has alone pervaded". American nature was better, older, purer than the monuments of Europe, declared the historian Frederick Jackson Turner. His countrymen needed no "artificial" palaces and cathedrals, for "in America we have giant cathedrals, whose spires are moss-clad pines, whose frescos are painted on the sky and mountain wall, and whose music surges through the leafy aisles in the deep toned bass of cataracts". Nature in America demonstrated that God built better than men. And His landscapes were far more beautiful. Multiplicity of features made Europe's historical scenes diffuse and heterogeneous. By contrast, American nature, "fresher from the hand of him that made it", evoked "unity and immensity, and abstracting the mind from ... human agency, carried it up to the idea of a mightier power".⁵⁶ By the same token, a "landscape will be great, in proportion as it declares the glory of God, by representation of his works, and not those of man".⁵⁷

It was their God-given munificence that Americans became concerned to conserve. Following the sombre portents in Marsh's *Man and Nature*, American naturalists progressed from exploring and admiring to preserving and protecting – from caring *about* to caring *for* nature. In the last decades of the 19th century conservation began to gain global attention. British conservators urged environmental reform less at home, though, than in far-flung imperial lands. In India, South Africa, the West Indies, St Helena and the Antipodes, foresters, administrators and legislative leaders expressed worries about wood and water shortages, erosion, and habitat devastation, in warnings that drew heavily on Marsh.⁵⁸

As a popular cause, however, nature conservation was at first a solely American phenomenon. This was doubly paradoxical. For one thing, its most charismatic and influential leader was a Scot, John Muir. Muir himself was much indebted to the example and work of Hugh Miller, whose

writings were popular among lovers of the American West.⁵⁹ But the greatest paradox of the ardent crusade to protect the wilderness was the stunning volte-face from Americans' previous heedless, if not vengeful and deliberate, destruction of it.

The prime impulse behind the campaign to save nature, and expressly to husband wilderness, was aghast awareness of its imminent disappearance, in tandem with conscience-stricken guilt at their forebears' rapacity and greed. The much-heralded closing of the American frontier, the engrossment of virtually all public lands by settlers and corporate interests, the clear-cutting of vast forest tracts for lumber and fuel and the looming dearth of timber supplies, the damming of rivers for reservoirs and their channelling for power and irrigation, all lent force to voices urging caution in exploiting resources, reform in land management, and the setting aside of fast-dwindling unspoiled tracts for recreation, leisure and spiritual renewal.

The early American conservation movement combined two intertwined concerns. On the one hand, foresters and policy-makers, alarmed by the rapid depletion of timber supplies and watershed mismanagement, sought control over natural resources to ensure sustained use over the long run. On the other hand, outdoorsmen and wilderness dévotées urged that spectacular endangered locales, like the Adirondacks in the east and Yellowstone and Yosemite in the west, be entirely withdrawn from exploitation. They wanted these sites preserved for aesthetic contemplation, for education in nature lore, for training in pioneer (and Indian) self-reliance, and as episodic retreats from hustling urban enterprise.

Comparing British and American concerns

Merely to list American concerns points up their divergence from British nature interests. Americans gained domestic environmental control a full century later and far less securely than Britons, and were much more ambivalent about the wisdom of having done so. British nature lovers revelled in easy enjoyment of almost the whole of their humanized terrain; Americans confined their devotion to a handful of imperilled remnants of unsullied nature, sacred reserves to be both venerated by millions and left alone – a management conflict only later to become apparent. Remote by definition and in geographical reality, the nature Americans most admired was in places visited only on special occasions, if at all. With no wilderness at hand, British nature concerns remained small-scale, intimate, close to home, enjoyed on a regular and frequent basis. American fears of wholesale species extinction, triggered by the loss of the passenger pigeon and the precipitous decline of bison, brought humanitarians and sports hunters together in a way without parallel in Britain. Only rarely were these transatlantic concerns conjoined, as when American

Audubon and British bird protection societies together halted the killing trade in plumage for ladies' hats.⁶⁰

American resembled British natural history in popular fixation with stones, plants and living creatures. But far more than Britons, Americans stressed the uniqueness of their national realm: love of nature equated with love of country, and America was nature's nation, transcendently glorious because fresh from the Creator's hand. "Wilderness is one great tongue, inciting to love of the Supreme Maker, Benefactor, Father", intoned an 1860 celebrant. "Here, with the grand forest for our worshipping temple, we behold Him face to face".⁶¹

Outdoors America needed to trump Britain in every respect. Thus Americans claimed they hunted for worthwhile peaceful purposes, rather than, as in Britain, to prepare for war. American manliness was a legacy inherited from hardy pioneers whose hunting prowess came from everyday familiarity with, indeed intimate immersion in, nature. Audubon depicted raptors in the act of predation, American men as predators, himself in the heroic image of Daniel Boone.⁶² American adoration of masculinity, far more intense than the "muscular Christianity" of the English, climaxed with Rough Rider hunter-president Theodore Roosevelt's accolade to the "strenuous life": "the virility, clear-sighted common sense, and resourcefulness of the American people is due to the fact that we have been a nation of hunters and frequenters of the forest, plains, and waters" – unlike effete Old World city-dwellers who had lost touch with nature.⁶³

Modern implications

What relevance has 19th-century nature study for us today? The writings of Miller and Marsh, like other naturalists of their time, now seem as outdated in philosophy, as perfervid in piety. Yet much that they wrote, highly useful in their time, continues to hold value for ours. The Humboldtian fusion of art and science that they endorsed remains no less crucial for our own relations with nature. When Marsh and Miller exalted geography and geology as amateur callings open to all, narrow specialization was already becoming a bugbear; now engrossed by taxonomists and theorists, earth sciences are ever more remote from the everyday concerns of ordinary people. The jargon of academic professionals, the anti-intellectualism of the populace, and the indifference of specialist and layman alike to the integrative humanist tradition deprive us of the enthusiastic vitality, the pragmatic optimism and the utilitarian zeal that typified early 19th-century naturalists.⁶⁴

Confidence that their own work was worthwhile lent Victorian polymaths like Miller and Marsh an impassioned energy that explains both why they penned so much and why they cared so intensely about reach-

ing broad responsive audiences. They wrote with resonant force because they sought the betterment of mankind. Both viewed material amelioration as prerequisite to the ultimate goal of spiritual progress; the conquest of nature was a necessary prelude, in Marsh's words, a means toward the greater conquest of the far more intractable world within each of us.⁶⁵

The transatlantic linkages and legacies of Miller and Marsh and their disciples, many of them Scots, continued to inform the study and care of nature. Miller's writings were exemplary for Muir, the Scottish immigrant who opened American eyes to the transcendent splendour of Western landscapes, and whose Sierra Club spearheaded their protection in the national park system. Marsh's ecological insights, for decades neglected in America, were restored to the New World ecological canon by another visionary Scot, the urban planner Patrick Geddes, who in 1920 urged his American disciple Lewis Mumford to read and heed *Man and Nature*.⁶⁶

Such connections attest the enduring potency of the Scottish Enlightenment, long after the loss of the "distinctive individuality" that ended, according to Allan Massie, with the heyday of the *Edinburgh Review*.⁶⁷ For the Enlightenment had not only raised Scotland from Europe's meanest to its most literate country within little more than a century. It had also launched a uniquely influential diaspora. Unlike other peoples massively exiled by landlessness and poverty – Irish, Norse, Italians – Scottish emigrants were notably educated. The Scots who went to America, India, the Antipodes were outstandingly literate. Among them were the botanists, the foresters, the engineers and the administrators who made the British Empire so strongly Scottish.⁶⁸ The combination of observant keenness, improving zeal and strenuous morality exemplified in Hugh Miller's manifold enterprises remains, a century and a half after his death, a hallmark of his overseas Scots successors.

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Cromarty, from an engraving by Clark, courtesy of Cromarty Courthouse Museum

Hugh Miller and the Scottish Crisis

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1. Where extremes meet

“A bullet-hole in a great scene’s beauty
God through the wrong end of a telescope”.

Hugh MacDiarmid’s reaction to the suicide by drowning of the poet John Davidson in March 1909 echoes almost a hundred years later. The death of the Nietzschean atheist in the ruins of his mighty “Testaments” might also echo the earlier death of Hugh Miller: surely a vivid presence in the Langholm Library, if not so respectable a literary affiliate. Look, however, at the opening line of *Scenes and Legends of the North of Scotland* (1835) and you find the central text of MacDiarmid’s career: “Extremes may meet in the intellectual as certainly as in the moral world”.¹

The ambition common to all three men was that of system-building, and system-building in which the scientific was in dialectic with the psychological and the poetic. Hence this central theme of “extremes meeting”, of controlled conflict contained within – but also developing – the personality of Benedict Anderson’s “imagined community”: both of nationality, and of the national “sage”. A dangerous business, involving terrifyingly volatile material.

This was well explained to me, twenty years back, on one of those Edinburgh evenings that seemed almost celestial: Norman MacCaig holding forth in the now-vanished bar of the University Staff Club in Chambers Street, along with Sorley MacLean and Owen Dudley Edwards. MacCaig, as fine a literary analyst as he was a poet, argued:

“Chris Grieve needed Marxism just as W. B. Yeats needed his “system”. Neither was in itself rational or convincing – mumbo-jumbo, more like – but they were catalysts. What emerged from the reaction was insight. Chris’s tragedy was that he went south in 1929 to London, and didn’t do well. His wife ran off, he drank too much and eventually fell off the top deck of a London bus and landed on his head. Thereafter he kept his genius, but lost his talent”.²

You could add another two figures from the MacDiarmid *milieu* –

Grassic Gibbon and Patrick Geddes – in whom vast reading and an adventurous personality fought it out with catalytic dogma: diffusionism in Gibbon’s case, Comtism and evolution in Geddes’s. Again there was a tragic outcome: Gibbon wore himself out at thirty-five, Geddes never really managed to *present* his evolutionary civic humanism. Its ideas remain fricative, though we look down the reversed telescope in horror at the mission-fields he attempted but was frustrated: Palestine and India. A lot of learning is a dangerous thing.

In a contribution to Douglas Gifford’s nineteenth-century volume of *A History of Scottish Literature* in 1988, I argued that, faced with the breakdown of accepted social and religious frameworks and the turmoils induced by new technology, the autobiography as quest, the documentary *Bildungsroman*, rather than the orthodox history, became an essential point of reorientation. I had Carlyle and *Sartor Resartus* (1834) in mind as well as Miller, and Miller was, to his first biographer Thomas Brown “Scotland’s representative man”.³ So, unsurprisingly his own over-reach and the tragic nature of his end begs analysis of an episode of national breakdown. It came only months before the publication of the first volume of H. T. Buckle’s *History of Civilisation in England*, whose second volume in 1861 would take the form of an attack on Scottish philosophy and the overdominance in it of religion: the start of a very bad decade, all round, for Scottish national identity, what with John Stuart Mill’s shattering attack on Sir William Hamilton and the common-sense philosophy in 1864 and an impending education reform, carried out in 1872, which would turn out generally English in pattern. When a group of young academic democrats issued their *Essays on Reform* in 1867 – the group I studied in my own doctoral thesis, published as *The Lights of Liberalism, 1860-86* (1976) – its tone was secular and utilitarian. Although several of the essayists were Scots or of Scots ancestry (James Bryce, Leslie Stephen and his cousin A. V. Dicey, C. S. Parker, John Boyd Kinnear) where they invoked the positive action of the state it was to the British state that they turned.⁴

The “intellectual crisis” case has been extended into the scientific, artistic and theological world by Duncan MacMillan in a subtle study of the Aberdeen-born painter of a meticulously-observed nature, William Dyce, the man who introduced Ruskin to the Pre-Raphaelites:

“Dyce suggests that it is possible to find God even in the world empirically described, and so confronts the central issue of his generation, the reconciliation and the new revelation of empirical science”.⁵

MacMillan links Dyce directly to Miller, in creating the intellectual framework for his “geological-metaphysical” landscape *Pegwell Bay: a Recollection of October 5, 1858*, exhibited in 1859 and now in the Tate Gallery:

“In the mid-century, after the excitement of the Disruption, the

alliance between the true evangelicals and the representatives of the intellectual traditions of the Enlightenment began to break down. The tension between faith and empirical thought was very real and became more acute as the social consequences of economic change became increasingly apparent. It was because he could not reconcile the two sides of his belief that Hugh Miller, stonemason, pioneer geologist, and the leading publicist of the free church, committed suicide. The same tension is clearly apparent in Dyce's late work and is explicitly the subject of *Pegwell Bay*. Indeed, Miller's death in December 1856, which shocked Scotland, may well have been part of the genesis of that painting, so precisely dated and with geology so conspicuously present in it".⁶

This sounds vivid and plausible, yet one finds no mention of Miller in Marcia Pointon's comprehensive study, and plenty of evidence that Dyce was at least a crypto-Catholic. His sympathy with the Jesuits wouldn't win him brownie points in *The Witness*.⁷ Miller's fate certainly resonated in the south in this sort of way, particularly with Ruskin, another Geologist with Attitude, and also in a more negative way. Many years later, re-creating the repressive nonconformity in which he grew up in the Staffordshire Potteries, Arnold Bennett wrote in *Clayhanger* :

"Even Hugh Miller's *The Old Red Sandstone, or New Walks in an Old Field*, then over thirty years old, was still being looked on as dangerously original in the Five Towns in 1873. However, the effect of its disturbing geological evidence that the earth could scarcely have been begun and finished in a little under a week, was happily nullified by the suicide of its author; that pistol-shot had been a striking proof of the literal inspiration of the Bible".⁸

Miller, by this time, was history. I made a quick survey of twenty or so late Victorian biographies on my shelves – James Bryce, Robertson Nicoll, Duncan MacLaren, Gladstone, R. B. Haldane, Henry Drummond, John Buchan, and so on – without finding any reference. This seemed odd, given that Bryce's father was Miller's contemporary and also a gifted geologist, and Drummond was often seen as Miller's successor as the Free Kirk's man of science. Impressionistically, this raised the possibility that Miller, behind all the reverence, all the collected editions, had been "edited out" of the later record. Was he too rebarbarative, too timebound, too *Scots* for intellectuals offering their wares in a genteel, imperial market? Was he eclipsed by the redundancy of Chalmers' ideal of the "constitutional" established kirk, while still leaving establishment men and voluntarists bruised? Had he been sidelined by the crises of the 1860s, over Italy, the American Civil War and democracy? Did post-Carlyleian Walt Whitman, addressing a rather similar audience but by different means and with a different message, preach in his stead?

One discourse relevant to Miller's and Scotland's predicament that I used as my own "catalyst" was that of sociological theorists active in the

1890s, namely Emile Durkheim and William James. Durkheim's *Le Suicide: Etude de Sociologie* (1897) hasn't figured in any of the Miller literature I've read, yet it came out in the same year as James's *Varieties of Religious Experience*. Common, by implication, to both, was the concept of *anomie* – “a state of social disequilibrium in which the hierarchy of values disintegrates and ‘all regulation is lacking’”⁹ – where personality as well as “imagined community” falls apart. This accompanied and was interlinked to Durkheim's research on religion, not ultimately published until 1912, while James collaborated with such wandering Scots as Geddes and Thomas Davidson. James himself was of an Ulster-Scot family, whose father, Henry James the elder, had moved from presbyterianism into the highly-charged milieu of the Swedenborgians and the Sandemanians. This approach doesn't marginalise the Millerian drama, but suggests that a society was involved as well as an individual. James's ideas, I argue in my recent *Scotland: a Short History* (shameless plug, here) seem to loom over the concern about Scots intellectual overstrain visible in the Scots-Jewish-American Wallace Notestein's *The Scot in History* (1946).

2. Miller's Scotland

Overstrain – or at least pervasive effort – pervaded eighteenth-century “improvement”. The conventional view of “enlightenment”, as presented, say, by Peter Gay, regards it as driven by enlightened self-interest: the way of David Hume and Adam Smith. Yet there was also a conservative element, concerned with the origins of society and its relationships to constraint, to politeness or civility; the rational ordering of civic priorities, the avoidance of “luxury and corruption”. This one encounters in Adam Ferguson, Thomas Reid and Dugald Stewart, not to speak of the Smith of the *Theory of the Moral Sentiments* (1759) and the evident support that this had from, and gave to, the Moderates in the Kirk.

It isn't easy to draw distinctions between the Moderates and the “Popular Party”, though Miller and later partisans were quick to do so. To be liberal and modernist in religion didn't necessarily mean signing up to an alliance with the landlords; nor did an obscurantist fundamentalism accompany opposition to them. Much secessionist activity was more likely to lead into bodies like the New Lights or the Relief Church, which were the Scottish equivalent of liberal dissent.

On top of all this was imposed the cohesion demanded of a rapidly-industrialising society continuously at war with France and the cultural consequences of this. Miller was thirteen at the time of Waterloo, and his formal education still had four years to run. Even with the Dundases, Scotland was remote from central authority and thinly governed, yet held in some sort of cultural progression by the all-pervasive influence – on Miller as much as on Scotland – of Walter Scott.¹⁰ Hence the moment of bourgeois power is religious and cultural – there being no straightforward way into the political process. But the 1820s and 1830s saw the fragility of this exposed. Henry Cockburn gloomed over Scotland's economic over-reach, and its narrow technical base, with reason. Subtract the dis-

covery of the blackband ironstone of the Monklands and the means of refining it to give an exceptionally pure and cheap metal for casting and forging, via J. B. Neilson and the hot-blast process of 1829, and an alternative and disastrous conjectural history might emerge.¹¹

Evangelicalism offered in difficult times a religious and social rebirth, a breach with the sclerotic paranoia of Moderatism in the age of Braxfield and Robison, and the Talmudic nitpicking of traditional seceder ideology. Whether taken symbolically or realistically, the theology of the Incarnation – the sense of the immanence of God’s grace demonstrated in the “second covenant” of Christ’s sacrifice – was derived from eighteenth-century humanism as well as from the evangelical revival. This was a new beginning and (worryingly for the seceder tradition) something which dispensed with national boundaries: Thomas Chalmers was almost as well-known in London or America as in Scotland; his reinterpretation of the Covenant as the “Godly Commonwealth” both reawakened seventeenth-century ideals of a united church and united it with the mission of the Clapham evangelicals – Wilberforce, the younger Pitt, Huskisson and so on – by stressing legal equality, anti-slavery, foreign missions and reformed government.

Can one argue that there was, as a result of the above, an impulse to examine the common-sense foundations of religious belief within the part-mystical Covenanting and Highland traditions? Miller’s activity here had an opening to the supernatural sufficiently strong to annoy Robert Chambers,¹² yet there are obvious parallels to the connections between the Grimm Brothers’ contemporary folkloristic researches and their quest, sponsored by their Prussian patron the jurist and academic Karl von Savigny, for the popular roots of moral behaviour, and hence of law, contained in folk tales. This was not I would think the main motivation behind Miller’s *Scenes and Legends from the North of Scotland*, but it must have played its part. Miller’s was only the fourth such collection in Scotland after Walter Scott, Allan Cunningham and Robert Chambers.¹³ This aspect of Germanism obviously interested Miller more than the olympianism of Goethe, which preoccupied Carlyle. In contrast to the latter’s invocation of supermen, Miller and Chalmers went back to Scottish tradition. Popular belief, allied to Covenant ideology, which had been reawakened by MacCrie’s biographies of Knox and Melville, could be integrated with the “German” stress on national destiny.

3. Religion and nationality

Scenes and Legends was not simply an exercise in folklore. Its contemporary history portions plainly reflect the reforming young man asked to compile “The Parish of Cromarty” for inclusion in the *New Statistical Account*, which he completed in September 1836.¹⁴ The entry reflects Miller’s reading in Carlyle, particularly *Signs of the Times* (1829) and *Sartor Resartus* (1834):

“The steam looms of Glasgow and Paisley have stripped the village weaver of his employment; the manufacturers of Sheffield and Birmingham have discharged its smith; the taste for fashionable furniture, to which the improved dwellings of our agriculturalists naturally led, has shut up the workshop of the carpenter; and the love of dress, so universally diffused in the present age, has levelled the domicile of its tailor, and the stall of its maker of highland shoes”.¹⁵

His section of *Scenes and Legends of the North of Scotland* (1835) on the attack of the cholera in 1831-2 plainly echoes the idea of “organic and critical periods”, a Saint-Simonian importation carrying a pattern of development encountered both in Thomas Carlyle and John Stuart Mill.¹⁶ The sense that he was living in a “critical” period again occurs in *My Schools and Schoolmasters*¹⁷ where Miller is frank about his indifference to the “Voluntarist” cause. His biographer Peter Bayne recorded a seven-year battle with outright unbelief, and elements of this also find expression in the *New Statistical Account of Scotland* entry, when he deals with the mindset of contemporary Cromarty: “Their intelligence, too, is of a different cast from that of their fathers, and derived from a very opposite source; it is much less peculiar to them as Scotchmen and Presbyterians”.¹⁸

Miller contrasts this with the man of the 1790s, who was circumscribed but also ordered by his faith:

“His mind became the subject of some serious impression; he applied earnestly to his Bible and the standards of the catechism; and in the contemplation of the most important of all concerns his newly-awakened faculties received their first exercise”.

His conclusion, heavily pervaded by Carlyle, is fatalistic:

“But a thorough, if noiseless revolution has taken place, – new sources of intelligence have been opened up, – it is the newspaper and the magazine, not the Catechism and Confession of Faith, that are now stereotyped on the public mind; and the older and better source, under the influence of causes which it might prove a melancholy, but no uninstrucive task to trace, seems to have lost much of its efficacy”.¹⁹

Indeed this resignation remained up to 1839. Miller, seeing the imagined community of Calvinism in decay, had little time for “the dissidence of dissent” either Scots or English. But the court cases of the late 1830s, Marnoch and Auchterarder, seemed to him a challenge to democratic nationality, and in this context he (acting as journalist and preacher, Carlyle’s new and old priest) made Thomas Chalmers into the Bruce-like “patriarch of the Scottish people”.²⁰ Into this too, fitted his critique of the Court of Session as a “legislative court” imposed by London’s hegemony.²¹

It was the failure of the former *Edinburgh Review's* Lord Brougham (also the grandson of arch-Moderate William Robertson) to appreciate the constitutional implications of the Auchterarder case that brought Miller eloquently into print, in pamphlets lyrical and romantic as well as persuasive – one is reminded of such recent masters as James Cameron and Neal Ascherson. These were sent via Robert Paul to the Rev. Robert Candlish, who would become a future opponent, to the Non-Intrusionist leaders, and Miller changed their title to “Free Churchmen” (this was 1840, only two years after the unwieldy Anti-Corn Law Leaguers became more percussive Free Traders). His pamphlets were praised by figures equally eloquent, if religiously remote, such as Daniel O’Connell and Gladstone.

But was this conflict to further Scots order or British freedom? And what were the dimensions of “Scots”? The evangelical traditions crossed the border. State bounties, enacted after 1801, brought the Irish Presbyterians aboard. But they also increased the tensions between Gael and Saxon (Carlyle was emphatically the latter). Miller, combining both strains, found it difficult to live with this. For him, the Kirk *was* Scotland. The Non-intrusionists were in lineal descent from the Covenanters:

“Then as now, the religious principles which they maintained were those of the covenanters. They were principles that had laid hold of the national mind, and the fires of persecution served only to render their impress ineradicable. Is it not strange how utterly the great lessons of history have failed to impress the mean and wretched rulers of our country in the decay of their vision?”²²

Notice “laid hold of”, a borrowing from Carlyle’s *Edinburgh Review* essay on Scott. Religion equalled nation and, unlike voluntarists of the Duncan MacLaren sort, both Carlyle and Miller refused to take English dissent seriously. The backsliding of the Established Church, however, made it into some Baliol-like traitor: “The Established Churches have become useless in the district, as if, like its Druidical circles, they represented some idolatrous belief, long exploded. The people will not enter them”.²³

Miller’s politics were filtered through his highland experience. At times his division into practical Saxon and mystic Celt seems to anticipate Matthew Arnold’s appropriation of the latter in *Celtic Literature* (1867)²⁴ but it was also marked by stubborn political loyalties. Hence his archaic social proposals, his fear of the great city, his advocacy of peasant proprietors,²⁵ at a time when the peasant was seen by English middle-class radicals such as Goldwin Smith as inherently reactionary: the force which sustained the “Caesarism” of Napoleon III and the irrationality of the Irish. From this academic *laissez-faire* Miller dissented violently – even in the year of decision when diplomacy was advisable – when he described the ruination of Sutherland:

“It was the scrannele voice of meagre famine from the shores of the Northern Highlands, prolonged into a yell of suffering and despair. But

write as you may, apologists for the system, you have ruined the country, and the fact is on the eve of being stated in figures. The poor law assessments will assuredly find you out".²⁶

Finally, his nationalism was – at least episodically – grounded in the “logic of the ‘Scotch’ or Common Sense philosophy. True to the thesis advanced by George Elder Davie, Miller was a supporter of Reid against Hume, and in his last year in an essay called *The Idealistic School* rejoiced when a Reidian was appointed to the Edinburgh Chair of Logic.²⁷

These intellectual convictions brought about his adherence to Chalmers, but there was something more, almost certainly derived from Highland practice: the notion of Miller as the body-servant of “the chief”. This was, according to Carlyle, evidencing the “dead eyes” of Chalmers as a charisma the religious leader lacked, particularly since the apostasy of Edward Irving. Miller, the “faithful chela” supplied it. Similar terms have been used by another Miller, Karl, describing another schoolmaster, his and mine, the Lewisman Hector MacIver: “His courtesy was not unlike that of the haughty, solicitous chiefs who flank Bonnie Prince Charlie in the well-known painting, their plaids thrown round some grief or grudge, shielding some mystery”.²⁸

The same would be observed of another Celt, Brendan Bracken, in the entourage of Churchill, or more recently the confidants of Charlie Haughey. The intersection of these factors accounted for Miller’s near-fanatical loyalty to Chalmers’ person as well as his theocratic ideal. Witness the romanticism of Miller’s reception of Chalmers *en pantoufles* in Cromarty at the end of *My Schools and Schoolmasters*. When Chalmers died in 1847 *The Witness* – almost certainly Miller – recorded: “It was the dust of a Presbyterian clergyman that the coffin contained; and yet they were burying him amid the tears of a nation, and with more than kingly honours”.²⁹

Miller’s subsequent disillusion with the sectarianism of the Rev Robert Candlish, particularly in the matter of education, was bitter. But the eviction of Chalmers’ civic gospel from the programme of the Free Kirk followed logically from the galloping secularisation which the Disruption triggered.³⁰

Reinforcing this political interpretation is the attempt of Lydia Miller, expounding Hugh’s ideas, to get into the predominant stream of political culture in the 1840s: the reformist “novel of public affairs”. This was a genre moribund in Scotland after John Galt’s last, *The Radical*, of 1832, but now effervescent in the south, what with Disraeli, the Brontes, Mrs Gaskell and Dickens. *Passages in the Life of an English Heiress, or Recollections of Disruption Times in Scotland* was a three-decker brought out in 1847 with a title echoing the Benthamite Samuel Bamford’s recent *Passages in the Life of a Radical* (1840). In it the Free Kirk was, in the course of a melodramatic and didactic plot, presented as Britain’s salvation from Jesuitism. Angus Calder stresses that it was aimed at the English market – like Disraeli’s political trilogy, which may have provided a model – but it vanished anyway. Mill riots or Chartists worried John Bull con-

siderably, Jesuits a bit (Disraeli would tear into them in *Lothair*, 1870), Scots Free Churchmen not at all.³¹

4. Crosscurrents: the scientific challenge

As someone who has himself partly “sold his heart/to that old black art”, I appreciate the limited time-scale of journalism: hours to weeks, not years. Miller was a consummate performer, a quite exceptional journalist, but he didn’t make himself into a historian of any sort. Instead, unconsciously but certainly usefully, he made himself weighty by balancing in his own person – as a masterly autobiographer – the immediate and the near-eternal of geological time. This third area of tension became the scientific movement, and the challenge it posed to conventional Bible-centred ideology.

The researches of Hutton and Smith had shown that the Ussherian chronology was untenable, but how was the change to be explained? One response was to adopt a modernist theology: something done by Miller’s senior Thomas Erskine of Linlathen (1788-1870) the friend of Carlyle and F. D. Maurice, and (anonymously) by Robert Chambers. This was straightforward enough, even in the mid-century, when it was a matter of individual conviction. It was a lot more difficult when a whole scripturally-based *Weltanschauung* was called into question. It is arguable that the Kirk’s flight into “controversial divinity” and the essentially political question of patronage was in effect a means of avoiding such self-destructive controversies.

Miller chose to interpret Genesis as symbolic of a cosmic drama. He was repelled by the proto-evolutionism of Lamarck and his followers, notably the disguised Chambers, largely, it seems, out of fear of artisan infidelity. His *Footprints of the Creator* was directed against Chambers’ *Vestiges of Creation*, and he scored some effective points when he argued that his fossil fish “large in their stature and high in their organisation”³² represented new beginnings, which then tended to regress, and not a succession of ever-more complex types: which fitted, at least rhetorically, the organic-critical pattern.

Miller was not a reconciler of science and religion but a talented amateur who was also possessed of – and by – an existential belief in Christ: “the *law* of development versus the *miracle* of creation”. He was, after all, the contemporary of Kierkegaard. As a geologist, M. J. S. Rudwick argues, Miller was minor: “His studies of early fossil fish did little more than amplify and correct some details of Murchison’s stratigraphy and Agassiz’s paleontology”.³³ He is, however, prepared to accept the case for Miller as collector – his finds were the core of the Royal Scottish Museum collections – publicist and educator of rare persuasiveness, without whom Scotland’s geological, and geographical achievement would have been gravely diminished.

Miller was not a mute inglorious Hutton waiting to be discovered. Geology came to him in 1830 through reading George and Peter

Anderson's *Guide to the Highlands and Islands of Scotland*, probably also in preparation for his *Statistical Account* contribution, and rapidly led to his own explorations of the Old Red Sandstone so prominent on the Black Isle.³⁴ Far from being perplexed/destroyed by Robert Chambers, he was very deeply influenced by *Chambers Magazine*³⁵ which introduced him to Charles Lyell and Louis Agassiz, by the 1840s enthusiasm for geology, and indeed by Chambers' *Vestiges* itself.³⁶

Miller took his skills beyond supplying Agassiz and into the realm of self-publicity, like a rather similar amateur with a run of luck, the German grocer Heinrich Schliemann in his excavations in Troy and Mycenae three decades later. The geology remained a disaggregated component of something which activism and Miller's style and sympathies, rather than logic, made attractive. *My Schools* reminds one of E. M. Forster's tribute to another account of a virtuoso amateur in a remote and troubled European region – the astronomer Prince of Salina in *risorgimento* Sicily – when he wrote of Lampedusa's *The Leopard*: "It shows us how many ways there are of being alive".³⁷

The problem was to provide an "evangel" which incorporated research and faith into a new "imagined community": the sort of thing that – looking back on the 1830s from the 1870s – George Eliot made Dorothea Brooke seek in *Middlemarch* (1876). Mr Casaubon was one form of death; the fate of Hugh Miller was another.

5. Post mortem

To go back to the beginning. The violence of Miller's end invites striking, and largely monocausal, explanations. Perhaps these are overdriven. Recent studies of migraine, and of physico-psychological conditions such as Asperger's syndrome may cast light on Miller's symptoms. Both of these chronic conditions stem from, and cause, physical distortions in the brain; both can be accompanied by delusions. Asperger's – a mild form of autism, known in Germany as "the disease of the wise", taking the form of genius in one area, coupled with difficulty in social relationships – has only recently been researched in any depth. It has been suggested in the cases of Ludwig Wittgenstein and, in Scotland, Charles Rennie Mackintosh; it could be linked both to Miller's apparently photographic memory, to his combination of severe logic in one department and credulity in another, and to his occasional lapses in social control. Still, it was probably only one of several interlinked causes, less individually spectacular than syphilis or social-theological crisis, though cumulatively as destructive: overwork, the side-effects of silicosis, migraine, in the context of a broader, socially-induced depression.

These were contributory factors in a complex *malaise*. Miller had powered the Disruption, but by the mid-1850s the crusade had lost way. Jay Brown calls it "not only the greatest failure of Chalmers's career, but also a tragedy for organised religion in Scotland".³⁸ With the withdrawal of only a third of the clergy in May, 1843 the "national" claims of the Kirk,

in social policy and in education, were soon diminished. Even Chalmers' ultimate and creditable recantation of his shellback individualism, when faced with the Irish crisis, in favour of redistribution, awoke no sympathetic reaction.³⁹ Bureaucrats and organisation men took over within the new Kirk, while around them the menaces – of pauperism and headlong urbanisation – increased.

In fact there would have been an accelerated Anglicisation anyway in the wake of the railways, the metropolitan triumph of the Crystal Palace, the Thackeray-Dickens-Trollope social novel, the southward migration of “lads o’ pairts” into the new opportunities opened by Peelite reform, in Whitehall, Oxbridge and (not least) journalism and the English churches. Using the divisions in the “democratic” side that the Disruption aggravated, Scots Tories won back many of the positions they had lost in 1832. The bureaucracy of the bodies which took over education and poor law supervision from the Kirk was disproportionately Tory. The “Blackwoodsmen” went as far as attempting to revivify a conservative nationalism with the National Association for the Vindication of Scottish Rights in 1853-4 – Miller was sympathetic to Scottish patriotism but cool in this case – and the annual migration of the Royal Family to Deeside from 1848 gave an enormous fillip to the Scottish landed magnates, and enabled them to repair much of the damage that 1843 had inflicted on them: a recovery which they maintained until the 1880s.⁴⁰

Miller could react to such setbacks rationally and perceptively. His critique of the Crimean war was that of Adam Smith's division of labour grown dysfunctional:

“The men who beat all the world in heading pins are unable often to do anything else: for usually, in proportion as mechanical skill becomes intense, does it become also narrow; and the history of the two campaigns before Sebastopol brought out very strikingly a certain helplessness in the British army, part of which at least must be attributed to this cause”.⁴¹

But he could also lapse into much the same emotionality as Dickens, himself given in the 1850s to a combination of political foreboding and irrational conservative panic, particularly when confronted with such social disorders as garrotting.⁴²

In Durkheim's terms, the subjective quest for social reassurance failed to find institutional security. But there was also, in Miller's case, a more personal sub-theme. Cromarty remained at the heart of Miller's *mentalité*. It had been something of a boom-town in Miller's childhood, with its own local industrial revolution: 200 in Ross's hemp mill, along with 200 outside workers, £20,000 was coming from the pork trade to London, even although the herring fishery had slumped.⁴³ The town Miller recorded in 1836 was still in good shape, its population up from 2413 in 1801 to 2900. 500 or more of these were Gaelic, and a chapel had been built for them; only six were dissenters.⁴⁴ But in the next decade it would be hit by the sharp and deadly slump which followed the headlong commercialisa-

tion of the Highlands.⁴⁵ Against the urbanisation of the rest of the country, it slipped into sustained decline, Ross's enterprises going under in 1853, and its population fell below 2000 in 1861.⁴⁶ For Miller it was no longer a *feste burg* for his own identity but became akin to Goldsmith's "deserted village", while the cancerous great cities increased.

This he projected in an almost surreal way. Just as the Claim of Right issue rose to its climax, in March 1843, only weeks before the fateful General Assembly, he wrote in *The Witness*, much to Chalmers' annoyance, "A Vision of the Railroad" – a very bad trip indeed. Triggered by the Evangelical campaign to stop Sunday trains on the new Edinburgh and Glasgow Railway, this concern was evidently fused with the unemployment crisis which hit Paisley in the previous year.⁴⁷ The economy of the great cotton town was only saved by direct subsidies from Peel and the members of the Tory cabinet: circumstances which led the young Friedrich Engels to forecast imminent revolution in his *Situation of the Working Classes In England* (1844), and Miller's contemporary Benjamin Disraeli to write his counter-revolutionary melodrama *Sybil* (just about as bloodthirsty as "A Vision", be it said) in the same year. More directly the Paisley crisis spelt the *coup de grace* for Chalmers' efforts to preserve the old Scottish poor law. Yet the "Vision" is far more than the sum of its parts; it seems to be the transcription of a peculiarly horrific dream: of civil war, civic and technical collapse, barbarity and bloodshed.

We know rather little about the conscious record of dreaming, individual by individual. Gladstone, according to Colin Matthew, dreamed – or recollected his dream – only three times, which happened towards the very end of his life. Miller, by contrast, seems to have been very suggestible. For Freud, dreams were generally connected to sex, but for the Edinburgh-based W. H. R. Rivers – analyst of Sassoon and Owen at Craiglockhart in World War I, like Miller an anthropologist, and a politically committed man, as a Labour candidate – in his posthumous *Conflict and Dream* (1923) postulated that dreams were not compelled by the pleasure principle but were attempts in fantasy to resolve current emotional problems. Miller's "Vision" seems to fit in here: an indictment, welling out of his unconscious of personal and social futility. It has strange parallels – wrecked trains, bones, primeval desolation, awful weather – with a much later, equally mysterious, performance by W. H. Auden, "The Fall of Rome":

"The piers are pummelled by the waves.
In a lonely field the rain
Lashes an abandoned train;
Outlaws fill the mountain caves".

You are unlikely ever to forget its last lines:

"Altogether elsewhere, vast
Herds of reindeer roam across
Miles and miles of golden moss
Silently and very fast".

Did Auden read Miller? As a Scottish schoolmaster, Calvinist convert and occasional anthropologist and geologist, he probably did.⁴⁸

Miller's life was marked by exclusion as well as exploration: exclusion of socialism, of Chartism, of religious dissent, of Benthamite bureaucracy. This can't just be put down to his conservatism: you could be a conservative *and* attracted to some or all of the foregoing. Miller wasn't: in his record they simply don't appear. He had his enemies, notably the landed aristocracy, and against them he was single-minded and fanatical: an avenging gunslinger, literally and metaphorically. But what happens when the aristocracy do a body-swerve, when the new Kirk proves politically weak, when the discoveries of infidel science keep on coming, and the all-consuming city sends its wickedest to your front door? And when you are overworked, chronically ill, and depressed? The religious aesthetes of the 1890s used to talk of the alternatives of "the muzzle of a pistol or the foot of the Cross". Miller got both.

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Hugh Miller and Resistance to the Highland Clearances

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I

Hugh Miller held opinions on most public issues of his time, usually expressed in the most pungent and vivid terms. He was the champion of many contemporary causes and he especially embraced the controversies which swept over the Highlands during his own lifetime. Miller became an eloquent and effective scourge of landlordism in the Highlands (and indeed, in the Lowlands too),¹ and was a sworn enemy of the radical economic policies pursued by many lairds which were sometimes referred to as the “Improvements”, or “the removals” or, to use the term which Miller himself helped to popularise, “The Clearances”.

A case may be made that Hugh Miller, across a great deal of his local writings, developed the classic argument about the course of modern Highland history. He produced a highly influential exposition of the entire Highland saga in which the Clearances occupied the central position – it was influential in his own day and also for posterity. His account still defines much of the modern perception of the fate of the Highlanders. The success of his exposition greatly depended on his own direct authority (drawn from his origins and early career as a stonemason). The success of his sustained invective against the landlords also derived from the sheer electricity of his writings, often advanced by the extraordinary potency of his metaphors. Yet his passionate advocacy was significantly constrained by some of the conventions of his time and by his own limited knowledge of the actual record of resistance during the Clearances.

Three aspects of Miller’s case will be emphasised. First, the power of his language and rhetoric and his perception of the Highlands in the age of the Clearances. Second his intervention in the debate may be related to our modern understanding of resistance during the Clearances. Finally, there is the impact of Miller on the Highland controversies and what remains in the larger agenda for the way we understand Miller’s indictment in terms of the balance sheet of the Clearances.

II

Miller made his most powerful intervention in the Highland question at a particular moment of excitation and turbulence in the north – that is in 1843 at a time when religious conflict reached its great crisis and when famine, clearance and rioting were hot in the northern consciousness. It was the year in which Miller published his lengthy and passionate denunciation of the second Duke of Sutherland (and his mother) in an extended pamphlet entitled *Sutherland As it Was and Is or How a Country may be Ruined* (1843). It carried the essence of his entire view of the Clearances though he did not confine his condemnation to the owners of Sutherland.

Miller claimed authority on the condition and history of the Highlands by virtue of his parentage and wider family, his birthplace and his early career as a stonemason in the northern Highlands. He was half-Highlander: his mother was Highland-born and he was close to his uncle who lived in Lairg in Sutherland. Born in Cromarty on the south east fringe of the Highlands, he had close personal association and knowledge of the region from childhood.² As a “journeyman mason” as he called himself,³ he travelled the region for several years in the 1810s and 1820s when the great economic changes in the Highlands were in spate – and he continued to travel the region in later years gaining first hand knowledge of most of the territory – for instance, he wrote a detailed account of Rum in 1844 and the sudden changes that had overtaken the island in the previous few years.⁴ Miller, however, apparently spoke no Gaelic and regretted that he had not been brought up in what he termed “a Celtic tribe”. Michael Shortland has argued that Miller was a man divided, caught in the confrontation between so-called “Highland” and “Lowland” values, between his father and his mother, between the rationality of the Enlightenment and the mysticism of the Highlands.⁵

There was also some sartorial symbolism in Miller’s persona – he enjoyed wearing a modest shepherd’s plaid when he walked the streets of Edinburgh, cutting a slightly incongruous figure.⁶ And there was an interesting role-reversal when Miller inherited a squalid property in Leith and was personally embroiled in an action which required the eviction of his inherited tenant and the disposal of the property on the local real estate market for £50. He breathed a deep sigh of relief when he managed to extricate himself from the rigours of property ownership.⁷

Fifteen years later, Miller had become the fiery critic of the Highland clearers and his case against the landlords was constructed from a sequence of propositions. The first was based on his account of the pre-clearance Highlands, the *status quo ante*. It was an idyllic picture: “We are old enough to remember the country in its original state, when it was one of the happiest and one of the most exemplary districts in Scotland.”

Miller was indeed drawing on his “personal observation of the interior of Sutherland” in about 1810-15. It was a country of “snug farms”, the people evenly spread over the interior and the seacoasts living “in very comfortable circumstances” and in a ‘state of trustful security’.⁸ There were, he conceded, occasional food shortages in the less “genial” locali-

ties, commonly in the two months before the crops ripened, but the people always possessed the means and the savings to tide them over such shortfalls. He asserted unequivocally that “the country never heard of dearth in Sutherland”, and “Never were there a happier or more contented people, or a people more strongly attached to the soil ... nor one who does not look back on this period of comfort and enjoyment with sad and hopeless regret”.⁹ Before the Clearances the Highlands had been a region of gaiety and enjoyment of abundance.¹⁰

Upon this relatively happy and secure world, according to Miller, descended the cataclysm of the Clearances – the introduction of large-scale sheep farming and the destruction of the traditional interior settlements – which was, of course, associated with the displacement of the people to the coasts and beyond.

III

The Sutherland Clearances were a large and very special variant of the general reorganisation of the Highlands that had been in train since the 1770s and Miller was aware of the peculiar status of Sutherland. In Sutherland, he argued, the power of the landed proprietors had been wielded in the most despotic and brutal fashion. In abstract terms (and here he was strongly influenced by the Swiss political economist Simonde De Sismondi, 1773-1842),¹¹ the peasant had been debased into a hired labourer, a proletarian, whom the landlord had “the power to expel as soon as he no longer finds it to his advantage to keep him”.¹² The country had been improved into a desert and its inhabitants had become a melancholy and dejected people.¹³

Miller claimed that in Sutherland 15,000 people had been ejected from their snug inland farms in the most vindictive and atrocious fashion – and he repeated the allegations against the infamous factor/sheepfarmer Patrick Sellar – “by means for which he would in vain seek a precedent except perchance in the history of the Irish massacre”.¹⁴ Miller’s fulminations drew heavily on the contemporary fierce denunciation of the Sutherland Clearances by Donald McLeod¹⁵ who, oddly, was also a stonemason and a native of the country and a tribune of the dispossessed: two stonemasons turned journalist makes one wonder about the category of radical stonemasons.¹⁶

Miller recognised that, despite the evictions, the population of Sutherland had actually increased by more than a thousand during the years of the Clearances: “The county has not been depopulated – its population has been merely re-arranged after a new fashion”.

It had been improved into a desert, the people “compressed into a wretched selvage of poverty and suffering [on the] fringes of the county in its eastern and western shores”.¹⁷ The people had become a “selvage of deep poverty”; melancholy and dejection had covered them. The interior of the county had been converted into solitude for sheep, the inhabitants only expected to squat upon the fringes of the shore in “the selvage of discontent and poverty”.¹⁸ It was an expression he employed three times in

two pages. The displaced people:

“fell down upon the coast of the country ...on moss covered moors or bare exposed promontories, little suited to the labours of the agriculturist, [and] commenced a sort of amphibious life as crofters and fishermen”.¹⁹

Others had migrated and prospered in such places as Cape Breton Island where they lived in “a rude plenty” and possessed a little capital.²⁰

The Sutherland policies were, he observed, the result of the infatuation with certain doctrines which had taken hold of the Countess of Sutherland and her English husband and lowland factors.²¹ Their legendary English wealth had allowed them to use the vast Sutherland estate for “an interesting experiment ... as if they had resolved on dissecting a dog alive for the benefit of science”. This appalling experiment had been accomplished beyond their eyes, having been entrusted to their “footmen”. It was a “disastrous revolution ...a disastrous and very terrible blunder ... a fatal experiment which ruined Sutherland”. His turn of phrase was at its most effective in this line of denunciation – “the shores of Sutherland are covered with what seems one vast struggling village, inhabited by an impoverished and ruined people.” The Sutherland experiment was a lunatic economic exercise which brought no benefits to anyone and soon the landlord – the latest Duke of Sutherland – would reap the result in the form of an anticipated Scottish Poor Law which would force him to pay for the relief of the pauperdom that he had created. “A singularly well-conditioned and wholesome district of county had been converted into one wide ulcer of wretchedness” but cunningly concealed – “this sore has been carefully bandaged up from the public eye”.²²

It was, of course, Miller’s purpose to expose the ulcer and to demonstrate that the Clearances (i.e. the Improvements) were the essential cause of the allegedly worsened condition of the Highlanders. In particular, he claimed that famine – such as that in 1836-7 – was the direct consequence of the evictions – “in the Highlands of Sutherland the famine was the effect of improvement alone”. The people now had no savings, no resources, no security by which to face any harvest shortfall. All gaiety and enjoyment had been erased; and the old enjoyment of abundance, the state of plenty and enjoyment was to be directly contrasted with their “present destitution”.²³ Miller gave the disaster a racial twist which is now familiar – the experiment had been feasible because the people affected “*were mere Celts*” who were replaced “by a few farmers of the industrious Lowland race”.²⁴ The crime was further compounded across the rest of the Highlands where the process was taken further. He described the sequence:

“The great sheep farms were permitted to swallow up the old agricultural holdings; and now the let shootings and game parties are fast swallowing up the great sheep farms. The ancient inhabitants were cleared

off...to make way for the sheep; and now the people of Scotland generally are to be shut out from these vast lands, lest they should disturb the game”.²⁵

IV

Miller’s indictment,²⁶ 37 pages of sustained highly-charged invective, was heavily reinforced, inevitably, by the concurrent and rising matter of religious dispute and church sites for the Free Church. This was the final straw in the degradation of the Sutherland Highlanders – “We are ruined and reduced to beggary before ... and now the gospel is taken from us.”²⁷ He described this as the “supplementary process” by which the second Duke of Sutherland was “deepening and rendering more signal the ruin accomplished by his predecessor”.²⁸ The situation in Sutherland was extreme for here was a population very devout, “wonderfully clean and decent”, whose virtues and piety had been attested at home and in the regiments. From the latter part of the previous century their religious consciences had been tested by the imposition by their landlord of ministers on their parishes without the traditional consent of the people. They were “Men of the world” who were only “tolerably respectable” who had been imposed on them and a “deep-toned” evangelism had developed among them.²⁹ The eventual break with the established church produced an outflow of almost the entire population of the county – Miller claimed that ninety per cent of the Sutherlanders joined the Free Church in 1843.³⁰

The response of the Duke of Sutherland was to refuse to grant sites to the Free Church, despite the respectful petitions he received; the people were compelled therefore to worship “on the unsheltered hillside” in all weather; anyone who harboured the Free Church ministers was immediately threatened with eviction by “the Duke’s creatures”; the establishment churches were meanwhile deserted.³¹

All this, of course, compounded the devastation caused by the evictions; the duke had denied the people their only consolation, “deepening and rendering more signal the ruin accomplished by his predecessor”.³² The refusal of Church sites completed the ruin of the people of Sutherland. In Miller’s dramatic phrases: “it ground into powder what had been previously broken into fragments – to degrade the poor inhabitants to a still lower level than that in which they had been so cruelly precipitated”.

Miller was on the east coast of Sutherland in July 1843 and described the resettlement zones to which the people had been removed from the interior of the county. They were all adherents of the Free Church and complained that they had been ruined by the Clearances and now were denied their religious autonomy. Miller reported that when the duke last passed through the place [Helmsdale] the men stood sulkily looking at him, or shrunk away into their houses, but that some of the women began to *baa* like sheep.³³

V

Thus, in Miller's rendition, the Sutherlanders (and the Highlanders at large) had been subjected to the most extreme mode of provocation: their lives had been destroyed, their culture disrupted, their freedom of conscience and religious observance eliminated, their livelihood subverted. They had been the victims of "atrocities unexampled in Britain for at least a century".³⁴ What was their response, their resistance under such extreme provocation, to the destruction of their social, economic and spiritual worlds?

Miller took the view that the Highlanders had faced their oppression and eviction with admirable stoicism and restraint; they had reacted to landlord despotism without violence and in 1846 he contrasted the Highlanders with the Irish. He had become enraged at the neglect of the Highlanders by government and exploded with the remark:

"They (the Irish) are buying guns, and will be bye-and-bye shooting magistrates and clergymen by the score; and Parliament will in consequence do a great deal for them. But the poor Highlanders will shoot no one, not even a site-refusing laird or a brutal factor, and so they will be left to perish unregarded in their hovels. I see more and more every day of the philosophy of Cobbet's [sic] advice to the chopsticks of Kent. 'If you wish to have your wrongs redressed, go out and burn ricks; Government will yield nothing to justice, but a great deal to fear'".³⁵

The Highlanders, by contrast, were a "dejected and oppressed people ... feeding their discontent, amid present misery with the recollection of a happier past". They were, he said, docile, at least so far.³⁶

Miller was clear that the lack of violent obstruction was not necessarily a sign of acceptance by the Highlanders. They were unwilling objects of clearance and did not co-operate in the evil process. The "unexampled atrocities they experienced in Sutherland had indeed been induced in part by a species of at least passive resistance on the part of the people (for active resistance there was none) and in some degree provoked them".³⁷ Miller believed that this passivity helped to explain the fact that events in the Highlands were little appreciated outside the region: as he said, "the British public know better what is going on in New York than what is doing in Lewis or Skye". There was "a thick obscurity that enveloped the miseries which the poor Highlander has had to endure".³⁸

It has to be acknowledged therefore that the vigour of Miller's angry denunciation was not matched by any advocacy of direct action against the oppressors. In 1843 Miller advised against violence and referred to the Highlanders as "the best-conditioned and most peaceable subjects in Britain" despite the misuse of the power of the "lairdocracy". His attitude to Chartists, radicals and all agitators was indeed always negative.³⁹ He compensated in the sheer weight of his condemnation but he drew a deliberate line against violence.⁴⁰ Nevertheless, there was something ominous and threatening in his advocacy which again echoes his divided psyche.

Thus his pamphlet on Sutherland is full of warnings to the landlords. He pointed out that they lived in a time of revolution, when “lands change their owners, and old families gave way to new ones”. He said a “wise proprietor in an unsettled age” would be best advised to “conciliate [rather] than oppress and irritate the class” who might wage such revolutionary changes.⁴¹ It was a warning, a piece of gratuitous advice to the aggressive landlords: but it was clearly not at all a call to arms.

The combination of the Clearances and the Disruption had produced a dangerous mixture for the landlords and the people were now prepared to ‘stand firm’.⁴² Miller mused on the situation:

“Highlanders, up to a certain point, are the most docile, patient, enduring of men, and that point once passed, endurance ceases, and the all too gentle lamb starts up an angry lion that in its headlong rush upon the enemy, discipline cannot check nor control”.

Miller specifically advised against an “explosion of violence” which would, he said, ruin the people and their case. Yet, at the same time, he fantasised a Chartist solution to the grotesque extravagance and monopoly power of a landowner such as the Duke of Sutherland. Miller facetiously hypothesized that the land might be appropriated from the aristocracy and used for “the community in general”. And “the community in general might be still further benefited by the removal of one said individual [ie. the Duke] to a roadside, where he might be employed in breaking stones – and that this arrangement could not be entered on too soon.” This was Miller’s clever jest, by a man who generally despised the Chartists.⁴³ As Neal Ascherson has remarked, Miller’s sense of justice “struggled with his instinct for order and submission”.⁴⁴

In reality Miller’s advocacy on behalf of the Highlanders was confined to the power of the pen, the exposure of oppression to the conscience of public opinion in which he invested great trust and optimism. He asserted that the great controversy over the Disruption in Church sites would bring the Highlands to the “general mart of opinion”⁴⁵ and this would eventually “shake the foundations of the hitherto despotic power which has so long weighed them down”. Indeed he claimed that the best strategy was to appeal directly to “British opinion...the policy of his Grace, the Duke, cannot be too widely exposed. The press and the platform must be employed. The frank and generous English must be told”.

The “all potent lever” of public opinion would move the world and the Free Church would act as the instrument to translate the Highlander’s wrongs into English and into justice.⁴⁶ But most of all Miller wanted to be crystal clear that he was suggesting “no wild schemes of Chartist aggression on the rights of property”. Information, publicity, political persuasion, journalism – these were the tools for the direct appeal to the “natural justice of the people”.⁴⁷

VI

Such was the essence of Miller's case and his intervention in the Highland controversy in the early 1840s. It was powerful advocacy and he was highly influential in moulding opinion at the time and ever since. In retrospect it is now possible to place some of his diagnosis and advocacy in a wider framework since we now know more about the inner workings of the estates than was exposed during Miller's own life.

The first thing to say is that there is no shortage of evidence to confirm that the Sutherland Clearances were indeed conducted with disregard for the feelings of the people affected; and they were indeed propelled by a doctrine of improvement which drew its tenets from Adam Smith, Thomas Malthus and contemporary political economy. Some of the people employed by the Sutherland estate to implement the plans were heavy-handed and impatient, and dislodged the people in large numbers in great haste and discomfort. Alternative accommodation was provided and the landlord had no intention (at the start) to reduce the total population. The exercise was engineered against the wishes of the people who were not consulted or persuaded about the changes which dislocated all the foundations of their lives. There was rough handling and destruction at the moments of eviction but, even in the extreme case of Patrick Sellar, it is unlikely that murder was committed.⁴⁸

In the second place it is now clear that there was a great deal more physical resistance to the evictions than Miller allowed or seemed to know about. It is now generally agreed that there was much more authentic resistance than we used to think. When Miller declared that there was no active opposition to the Clearances, he was wrong. There had been a long tradition of physical obstruction which involved not only anti-eviction riots but also rough opposition to the placement of unpopular ministers. We can now document many episodes of direct clashes with factors and law enforcers from the 1780s through to the 1850s – often entailing the humiliation of officials, the burning of summonses of eviction, stone throwing, threats to the lives of sheepfarmers, factors and shepherds and the rumour of firearms and gunpowder. The role of women, and men dressed as women, is also well attested. The Highlanders were not uniformly docile and there was sporadic guerrilla-like action in many different locations which produced varying measures of recurrent anxiety, over-reaction and compromise in the landlord camp. In a wider perspective it is possible to see the Highland resistance as a form of pre-industrial social protest in a peasant society under threat, and well up to common historical standards of resistance and sophistication that one would expect in such circumstances.

There was an excellent example of anti-clearance resistance in Easter Ross in 1820-1 on the Gruids estate which exhibited many of the recurrent features of such resistance.⁴⁹ Here the leaseholder Captain John Sutherland (formerly of Scibbercross on the Sutherland Estate – and Sutherland was himself a well-known opponent of the Sutherland

removals) undertook his own evictions against 44 tenants who were in rent arrears in various townships of Gruids. The three Sheriff Officers were met by a crowd of about 100 people, armed with cudgels and sticks; about two-thirds of them were women. The officers were quickly overpowered: Donald Bannerman was seized and the legal papers were taken from him. "He was then stripped and his shirt was tied to a pole fixed to the gable of Murray's barn. A fire was kindled and the papers were burnt. The crowd tied Bannerman's hands behind his back before singeing his front and back in the fire and lashing him with thistles and wands."

Two of them escaped but were chased out towards Lairg and Alexander Mackenzie was re-captured by sympathetic Sutherlanders and he too was "partly stripped and, the other officer, Bannerman, with his britches trailing round his ankles and the rest of his clothes in a bundle on his back, was severely pelted with sticks and mud 'and other nastiness'". In the meantime, Alexander Ross was also recaptured and was "dragged out by two women. He was half stripped and his hands were tied but he was later allowed to escape". In September 1820 the episode was repeated at Sallachy and the sheriff officer, William Henderson, accompanied by ten special constables with their warrants of removal, was met by a large crowd. Now it was the turn of Henderson to be seized and stripped and shown a legal process which the tenants had brought against Captain Sutherland. When Henderson pointed out that it did not provide any defence for the tenants of Sallachy, the crowd became violent and prevented the special constables from landing. The crowd followed the party back to the inn where they forcibly seized and destroyed the warrants. In March 1821 Henderson made a further attempt to serve papers and was met by a large crowd, mainly of women. He was seized, stripped of his clothes and one of the witnesses was forced to burn the papers. The crowd then crossed the river to seize "the damned Rascal Captain Sutherland that they might tear him to pieces or drown him". Captain Sutherland mounted his horse and rode off, chased by the cheering crowd. Subsequently troops were called in to restore law and order and eventually the tenants were evicted and the land passed into the hands of Angus Fraser.

Hugh Miller was closely acquainted with Gruids yet curiously he made no mention of such noisy opposition to the removals. Resistance in the Clearances was as diversified as the many varieties of clearances themselves. Thus at the time when Miller was writing, the parish of Durness erupted into quite large-scale disturbances in which a tenant farmer, Anderson, decided to clear off his subtenants – expressly against the wishes of his own landlord, the Duke of Sutherland. In this case, the landlord was bound by the terms of the lease and was powerless to prevent the clearance – and was consumed with anger and frustration. A dozen years later, in Coigach in Wester Ross, the small tenants successfully obstructed the laird on numerous occasions and eventually kicked up such a sense of opposition that the landlord abandoned the idea of clearance as simply too unpopular to stomach.⁵⁰

Nevertheless, even when we have counted up and categorised all the instances of resistance, the fact remains that, whatever the shortrun effects, the Clearances were not halted and the resistance was not successful in turning back the policy. Landlord power and the evictions were not impeded and the people were removed across the board. This was part of the tragedy of the Highland Clearances.

The strategy of non-violence that Miller advocated was also ineffectual – that is unless we look at the much longer run. It is commonly remarked that there could have been, and should have been, more resistance than there was. Miller's angry denunciation was a substantial contribution to the literature of vilification which eventually undermined the Highland lairds and landlordism at large. But it was not much sustained in the years after 1843 except by Miller himself. Eventually, however, it is possible to argue that the weight of public opinion, galvanised by active resistance in the 1870s, and in the hands of pro-crofter propagandists, paved the way for the Napier Commission of 1883 and, of course, for the subsequent legislative intervention by Parliament which clipped the wings of Highland proprietors in a way which Miller would surely have approved.⁵¹ The making of this public revulsion was a vindication of Miller's own advocacy in 1843. Moreover he contributed decisively to the blackening of the name of Highland landlords which remains their prevailing reputation even down to present time. This may not be much consolation to those who were cleared and those who were the victims of the Sutherland experiment. But it was a remarkable achievement in terms of the culture of British political life and in the annals of social protest.

VI

There are several aspects of Miller's account of the Highlands which merit brief observation in the present context.

First, it is evident that some of Miller's attitudes to the Highlands were influenced by Enlightenment thinking which on some issues brought him closer to his intellectual enemies than he would have been keen to concede the similarities of some of Miller's propositions with the thinking of, for instance, Patrick Sellar who was the most extreme proponent of the "Improvement" ideology. Both Miller and Sellar were prepared to characterise the Celt as a racial type, and both were prepared to regard them as "aborigines" who had been left behind in the progress of mankind.⁵² They both compared them to Aboriginal people in Australia and America – though as Michael Shortland notes, Miller did not use the typology to the disadvantage of the Highlanders "whom he sees as making up in youthful, uncorrupted vigour what he lacks in intellectual development." Sellar was vastly less sympathetic – but employed the same "stage" system of civilisation as the basis of his thinking.⁵³ For Miller the Highlander was less materially well off, less enlightened, less civilised than the lowlander, but also less depraved. His prescription for the Highlanders was more education and material prosperity. He was equally prepared to say that the Highlander was constitutionally indolent, but he ascribed this to the

weather and to the severity of conditions in the Highlands, rather than any moral failings.⁵⁴ Miller was prepared to say that that “some three days’ journey into the Highlands might be regarded as analogous in some respects to a journey into the past of some three or four centuries.”⁵⁵ This was an echo of the contemporary view of the Highlanders and something which Miller held in common with many of the critics of the Highlands, not least Patrick Sellar. This was one of the contradictions and paradoxes which are so conspicuous in Miller’s life.⁵⁶

A second point in the agenda is the historical structure of Miller’s diagnosis of the Highland problem. Miller indictment of the clearing landlords was first and foremost a moral argument directed against the greed, insensitivity and cruelty of the landlords.⁵⁷ But Miller also asserted a pragmatic intellectual case: it was based on the notion that the great changes in the Highlands were unnecessary and had culminated in economic and social disaster for all parties. The people were dispossessed, degraded and impoverished; the landlords themselves gained little in the long run and the nation as a whole benefited very little. It had been “a disastrous change”.⁵⁸ He believed that the Clearances simply made no sense. Miller’s case was a blanket denial of the need for any kind of change in the Highlands – the past was better than the new context of the modernizing Highlands.

It is instructive to juxtapose Miller’s view with that of his mentor Sismondi who wrote extensively on rural change across Europe in the first decades of the nineteenth century and particularly denounced the events in the Highlands. Sismondi was a sincere admirer of Adam Smith and extolled the Smithian harmony of interests and the success of the market in creating a great abundance of goods. He did not wish to challenge these propositions nor the necessity of competition. The key element in Sismondi’s thinking was his emphasis on the problems which were generated in the expansion of the industrial economy – he was especially disturbed by the poverty and economic crises which accompanied industrialization. He pointed to the immobility of capital and labour under the whip of heightened economic competition.⁵⁹ In other words improvement and human advance occurred in the long run, “but only at the cost of great suffering and hardship”. In the short run, people like the small holders in the Highlands (but also vast numbers of other categories of workers) were simply ruined. Sismondi fastened on to the obvious adverse human consequences that occurred in the period of transition to large-scale industry. The fruits of industry and “Improvement” simply did not reach the labouring people – the labourer in industrialization, as Alexander Gray used to say, received little of “the clotted cream of *laissez faire*”.⁶⁰ Improvement was being bought only at the cost of great suffering and hardship and these costs were being borne by the likes of the common Highlander. The benefits of economic progress were not fairly distributed in the fiercely competitive context of economic growth – consequently the government should intervene to safeguard human welfare and control competition and innovation (to “retard the social chariot” which,

in its accelerated course, seems to be on the point of “plunging us into the abyss”).⁶¹ Significantly however Sismondi, like Miller,⁶² was strongly opposed to socialism – and at the end of his life of criticism Sismondi confessed that the problems were almost beyond comprehension, that he was helpless and bewildered with the world.

Miller himself was confused by circumstances around him. When he looked at the recent history of his own parish of Cromarty in 1836, he was unable to unravel the benefits and the costs of competition and improvement. He was intensely conscious of the severe changes that had buffeted and undermined the local economy yet he had to report improved living standards. He was signally unable to connect the two elements in his description.⁶³

It seems that Miller’s entire case against the Clearances depended on his construction of the *status quo ante* the Clearances. We can call this the “Golden Age” assumption: the relative ease, prosperity and security of the old Highlands.⁶⁴ Miller claimed personal authority for the view yet it conflicts with much (though not all) of the surviving evidence about the Highlands in the 18th century. It seems that Miller had little appreciation of the recurrent famine conditions in the Highlands, the high mortality rates which must have prevailed, the sheer penury of the people, and the arbitrary oppression with which they could be treated in the severely hierarchical society of the Old Highlands. Miller was also blind to the demographic question in the Highlands and the fact that the population of many parts of the Highlands doubled and more during a few decades around the turn of the century.⁶⁵ Yet it has to be said that few of these issues have been systematically investigated despite considerable advances in historical scholarship in the past few decades.⁶⁶

There is, therefore, an outstanding agenda which remains untested in the Miller exposition of the Highland problem – historians with resources should be asking what exactly were the social and economic conditions in the pre-clearance world and how they were affected by the great changes which marched over the country at the end of the century – in particular the effects not only of Clearances, but of southern industrialisation, of war and, most of all, of unprecedented population growth. Surprisingly there has been little systematic investigation of the great archives of the Highlands directed to those questions. The balance sheets of the Clearances (and of Hugh Miller) are yet to be struck – and this perhaps would be part of an agenda for a new university in the Highlands and a new generation of historians of the Scottish Highlands.

References

1 His attacks on landlords included issues of access to the land - most notably in the Great Tilt Case - see George Rosie, *Hugh Miller. Outrage and Order* (Edinburgh c. 1981). p. 100. See also Michael Shortland (ed) *Hugh Miller's Memoir. From Stonemason to Geologist*. (EUP 1995). p. 2 and also Stewart Mechie, *The Church and Scottish Social Development, 1780-1870* (1960) pp. 161, 166-7.

2 His cousin George Munro was a Gaelic-speaking stonemason in Lairg. Miller ranged around Lairg and Loch Shin early in his life. Mason work was a passport to mobility. See Rosie, op. cit. p. 25.

3 [Hugh Miller] *Poems. Written in the Leisure Hours of a Journeyman Mason*, (Inverness, 1829), p. 262.

4 See Derek Cooper, *Hebridean Connection*, (London, 1977) pp. 81-2.

5 See Shortland, op. cit. pp. 12-3, 49-52 See also Hugh Miller, *My Schools and Schoolmasters*, (1881 Edition, Edinburgh) pp. 269-71.

6 See David Vincent in Michael Shortland (ed), *Hugh Miller's Memoir. From Stonemason to Geologist*. (EUP 1995) p. 240. Archibald Geikie also referred to Miller's striking appearance in Edinburgh, in his "Hugh Miller: His Work and Influence", *Landscape in History* (London, 1905) p.257.

7 He inherited the property in Leith in the summer of 1824 - where he went at that time partly to find work but also to get rid of this semi-derelict property - out of his father's estate apparently on Coal Hill at Leith - and it was a drain on the family's funds. It had been turned into "a dockside whisky den, the roost of a series of miserable lodgers who never paid their rent, a whorehouse (until the authorities intervened) and home for "the ghost of a murdered gentleman whose throat had been cut in an inner apartment by the ladies, and his body flung by night into the deep mud of the labour". Rosie op. cit. p.36.

8 *Sutherland As it Was and Is OR How a Country may be Ruined* (1843), p. 5. See also Hugh Miller, *My Schools and Schoolmasters*, pp. 270-1

9 Hugh Miller, *Sutherland As it Was*, p. 15.

10 *Sutherland As it Was*, p.24.

11 The best selection of the works of Simonde De Sismondi is *Political Economy and the Philosophy of Government; A Series of Essays Selected from the Works of M. De Sismondi* (London, 1847); this contains his writing on Scotland and on the landed interest, pp. 151-195.

12 *Sutherland As it Was*, p.4. For Miller the conversion of the old tenant farmer into farm servant was a critical deterioration in the status of ordinary Highlander. See Peter Bayne, *The Life and Letters of Hugh Miller*, (2 vols, 1871) p. 88.

13 *Sutherland As it Was*, p.5.

14 *Sutherland As it Was*, p. 5.

15 Douglas MacGowan (ed.), *The Stonemason*, (Praeger Press, Westport, Connecticut, London 2001), with "Foreword" by Eric Richards, pp. ix-xiii. Miller's dependence on McLeod (and Sismondi) was a large part of the case in defence of his father made by Thomas Sellar in his *The Sutherland Evictions of 1814* (1883) - see especially pp. 3,57,

16 On the opportunities afforded by the trade see Mackenzie op. cit. p. 15.

17 *Sutherland As it Was* p.5.

18 *Sutherland As it Was* p.7.

19 Quoted in Rosie, op. cit. p. 94. See also Hugh Miller, *My Schools and Schoolmasters*, op. cit. pp. 292-5.

20 Quoted in Rosie, op. cit. p. 4. Miller, *My Schools and Schoolmasters*, pp. 292-5. Another evocation of pre-clearance conditions is found in Hugh Miller, "The Highlands," reprinted in his *Essays, Historical and Biographical, Political and Social* (Edinburgh, 1873), pp 207-217. The Cape Breton Island settlers were, in reality, subject to recurrent Highland-like famine conditions which prompted much re-emigration, even as far as Australia and New Zealand. See Eric Richards, "Varieties of Scottish Emigration in the Nineteenth Century", *Historical Studies*, 21 1986, pp. 473-494.

21 Miller was, of course, especially caustic about factors - the "creatures" who crept around their masters and misinterpreted their wishes - "showing their low and menial natures". See Rosie, op. cit. p. 120.

22 *Sutherland As it Was*, op. cit. p. 31.

23 *Sutherland As it Was*, op. cit. pp.25-6.

24 Miller, in common with many of his contemporaries, could not resist racial stereotypes: he was particularly contemptuous of the Irish and, of course, Catholics especially. When he visited England in 1847 he observed the expatriate Scot *in situ*: he observed that, however poor, the Scots became "the overseers and book-keepers, sometimes even partners in lucrative works and were usually well liked and looked up to." The Irish, by contrast, "always remained drudges, and were regarded with great jealousy by the labouring English." Quoted in Rosie, op. cit. 229. Miller conceded however that the "peculiarities of race are not specific and ineradicable, but were induced habits and idiosyncrasies engrafted on the stock of a common nature by accidents of circumstances or development." Quoted in W.M.

Mackenzie, *Hugh Miller: a Critical Study*, p. 209. See also Rosie op. cit. p.66.

25 Quoted in Rosie, op. cit p. 100. See also his attack on the Duke of Leeds and Athole, *ibid.*, p. 202. Miller noted the irony of the shootings and game parks “fast swallowing up the great sheep farms” and the Scottish people denied access to the land for fear of disturbing the game. See Rosie, op. cit p. 100.

26 Miller’s pamphlet provoked an anonymous rebuttal entitled *Sutherland and the Sutherlanders; Their Religious and Social Condition; or the Duties of the Church and the Chieftains*, (Edinburgh, Myles MacPhail, 1844). This was a substantial attack on Miller and a defence of the Sutherland family and has occasionally been inaccurately attributed to Miller himself. See Hugh K. Mackay, *Sutherland and the Sutherlanders; their religious and social condition: a puzzling attribution*, in “Notes and Queries”, *The Bibliothek*, 6, 1971, pp. 29-30.

27 *Sutherland As it Was*, op. cit. pp. 7. 28.

28 *Sutherland As it Was*, op. cit. p.29.

29 *Sutherland As it Was*, op. cit. p.18. See also Rosie, op. cit p. 52. On the uncomfortable relationship between the clergymen and the landlords in the age of the clearances: see David M.M. Paton, “Brought to a Wilderness: the Rev David Mackenzie of Farr and the Sutherland Clearances”, *Northern Scotland*, 13 (1993) pp. 75-101; Alexander B. Mearns, “the Minister and the Bailiff: A Study of the Presbyterian Clergy in the Northern Highlands During the Clearances,” *Scottish Church History Records*, 24 (1990) pp. 53-74; Eric Richards, *A History of the Highland Clearances*, 2 vols, (London, 1982 and 1985), passim. Interesting points about the clergy of Sutherland are made in [Anon], *Sutherland and the Sutherlanders; Their Religious and Social Condition; or the Duties of the Church and the Chieftain*, (Edinburgh, Myles MacPhail, 1844), especially regarding their contributions to the *New Statistical Account*, op. cit. p 22.

30 *Sutherland As it Was*, op. cit. p. 7. Rosie, op. cit. p.122. See Stewart J Brown, *Thomas Chalmers* p. 335.

31 *Sutherland As it Was*, op. cit. p. 12.

32 *Sutherland As it Was*, op. cit. p. 28.

33 Bayne, *The Life and Letters of Hugh Miller*, op. cit. p. 359.

34 Rosie op. cit. p. 124.

35 Quoted by Mackenzie, op. cit pp. 190-1.

36 *Sutherland As it Was*, op. cit. p.21. Miller, “The Riots in Ross”, *The Witness*, 4 October, 1843.

37 *Sutherland As it Was*, op. cit. p.20.

38 *Sutherland As it Was*, op. cit. p.31.

39 He famously wrote to Miss Dunbar of Boath that Cromarty itself was “infested with a kind of vermin called Radicals.” Cited in Mackenzie, op. cit p. 186.

40 *Sutherland As it Was*, op. cit. p.32.

41 *Sutherland As it Was*, op. cit. pp. 3-4, 19. Miller did not argue for a fundamental reform of the land laws which suggests a conservative political frame to his thinking. See, A.C. Cheyne *The Transforming of the Church* (1983), p. 146.

42 *Sutherland As it Was*, op. cit. p. 32.

43 *Sutherland As it Was*, op. cit. p. 19.

44 Introduction to George Rosie, *Hugh Miller: Outrage and Order* (Edinburgh c. 1981). p. 1; see also *ibid.*, p. 58.

45 *Sutherland As it Was*, op. cit. p. 31.

46 *Sutherland As it Was*, op. cit. p. 34. Miller held “British opinion” in high respect and believed that “the press and the platform must be employed”. He admired Cobbett (who had written trenchantly on the Highlands). See Rosie, op. cit. p. 68. Of England he reported warmly “of that independence which the Scotchman wants; and village Hampdens - men quite ready to do battle on behalf of their civil rights with the lord of the manor as the Scot with a foreign enemy.” Geikie identified Oliver Goldsmith as another of the influences on Miller, op. cit. p. 279.

47 *Sutherland As it Was*, op. cit. p. 34.

48 See, for instance, Eric Richards, *Patrick Sellar and the Highland Clearances: Eviction, Homicide and the Price of Progress*, (Edinburgh, Polygon at Edinburgh University Press, 1999).

49 This section is based on an article by Malcolm Bangor-Jones in *Am Bratach* (June 2000) which draws on Precognition papers of the time. See also Eric Richards, "How Tame were the Highlanders during the Clearances?" *Scottish Studies*, Vol. 17, 1973, pp. 35-50.

50 See for instance, Eric Richards, *The Highland Clearances; People, Landlords and Rural Turmoil* (Edinburgh, Birlinn Books, 2000) Chapter 15. And more particularly idem, "The Worlds of Patrick Sellar", *Transactions of the Gaelic Society of Inverness*, forthcoming.

51 Miller had said that the Clearances exemplified "a defect in the British Constitution...that the rights of property may be so stretched as to overbear the rights of conscience". Cited in Rosie, op. cit. p. 120.

52 See Rosie, op. cit. p. 93 and Shortland, *Memoir*, p. 52.

53 See Eric Richards, *Patrick Sellar and the Highland Clearances: Eviction, Homicide and the Price of Progress*, (Edinburgh, Polygon at Edinburgh University Press, 1999). On Miller's stage view of humanity see Shortland, op. cit. p. 52; and compare with Sellar in Richards, "The Worlds of Patrick Sellar" *Gaelic Society*, op. cit. Contemporary understanding was most clearly embodied in theories of human development popular in the late 18th century - see for instance Henry Brougham's *Enquiry into the Colonial Policy of the European Powers* (Edinburgh, 1803), II, pp. 507-18.

54 John Henry in Michael Shortland (ed): *Hugh Miller and The Controversies of Victorian Science* (1996), says that Miller believed that indolence certainly existed in the West Highlands but was inclined to relate it not to moral failings but to the circumstances: 35 inches of rain, blasting storms, and fish which refused to be caught: "there was certainly little in their own circumstances to lead to the formation of new habits of industry." Anybody in those straits would be indolent: pp. 164-5.

55 David Vincent quoting Miller in Shortland (ed.) op. cit. p. 237. Miller repeatedly emphasized the primitive character of the old Highland way of life, contented though it was: "it was the agriculture of the first ages" he said; it had not changed in many generations and a thousand years separated the Highlanders from the advances of the south country. He recollected a village where there prevailed "so primitive a state of things with regard to the common arts of life as existed only 19 years ago in this wild district". None of this meant that they were any less contented than the people of, say, the Lothians. Quoted in Rosie, op. cit. p. 104.

56 See Rosie, op. cit., p. 47 and Richards, *Sellar*, pp. 302-4.

57 Miller believed that the Highlander needed more education and material prosperity; the Lowlander more virtue and attention to things of the spirit. Shortland, op. cit. 54.

58 *Sutherland As it Was*, p. 17.

59 For Miller on the adverse effects of competition on the small farm system - see Rosie, op. cit. p.50.

60 Alexander Gray, *The Development of Economic Doctrine*, p. 191.

61 Sismondi quoted by Gray, op. cit. p. 196. Cf. Miller on competition quoted in Rosie, op. cit. p.44.

62 Miller was adamant "We are recommending ... no wild schemes of Chartist aggression in the rights of property." Cited in Rosie, op. cit. p.34.

63 See Miller's mild-mannered discussion of local conditions in his contribution on the parish of Cromarty in the *New Statistical Account* (1836) which contrasts with his violent denunciation of the lairds five year later.

64 One of the aspects of the old way of Highland life was the plight of the women whose condition he did not romanticize. See for instance, Hugh Miller, *My Schools and Schoolmasters*, op.cit. p. 285-6 and Bayne, *The Life and Letters of Hugh Miller*, op. cit., p. 115. He made no bones about the poverty and hardship of the Highlanders especially regarding the prematurely aged women burdened under the sheer hard work of their existence: "How these poor Highland women did toil! I have paused amid my labors under the hot sun to watch them as they passed, bending under their load of peat or manure, and at the same time twirling the spindle as they crept along, and drawing out the never-ending thread from the distaff stuck in their girdles". Cited in Rosie, p. 25.

65 Miller referred to the demographic question after his visit to Rum in 1844 when he scorned the economists' notion that such places could be over-populated. See Derek Cooper, *Hebridean Connection*,

pp. 81-2. The question of population was connected with that of emigration from the Highlands on which Miller seems to have said surprisingly little. Some Gaelic ministers in the 1840s appear, according to Sheila M. Kidd, to have advocated emigration as the best future for many Highlanders. In the writing of *Cuairtear nan Gleann* (a promotional guide in the 1840s) no mention was made of either Clearance or famine, and the people were advised to treat their situation with “passive acceptance”. Kidd suggests that “The implication here is that the Gaels themselves are to blame for over-population, with no mention of landlords opposing emigration in the very early years of the century and of them allowing the sub-division land and add to their own income.” Sheila M. Kidd, “Caraid nan Gaidheal and ‘Friend of Emigration’: Gaelic Emigration Literature of the 1840s” *Scottish History Review*, LXXXI, 2002, pp. 52-69.

66 See for instance R. A. Dodgshon, *From Chiefs to Landlords* (Edinburgh, 1998) passim.



Dunnett Head, Caithness, photo courtesy of Scottish Natural Heritage



SYMPOSIUM ON ETHNOGRAPHY AND FOLKLORE

Chaired by Dr Ian Russell
Director, The Elphinstone Institute, University of Aberdeen

Summary of Discussion

Cllr. Dr David Alston, Curator, Cromarty Courthouse Museum

An emerging theme might be summed up in Miller's own words: "Life itself is a school, and Nature always a fresh study, – and the man who keeps his eyes and his mind open will always find fitting, though, it may be, hard schoolmasters, to speed him on in his lifelong education".

Bill Brogden in the course of describing the joint summer schools held in Cromarty by RGU and Mary Washington College, Virginia, gave us two perspectives on Miller:

Miller as "another student" exhibiting curiosity – interest in design – desire to create a system of ideas. With open eyes and mind and Miller as a "great Scot" because no-one told him he couldn't be one.

Lizanne Henderson presented Miller as a folklorist (or proto-folklorist) who "observed, recorded, listened" – and to this she added "with the heart of a Cromarty man".

Ian Fraser's account of place names of the Cromarty Firthlands brought us up against some of the limits of Miller's interests – his surprising lack of knowledge of Gaelic, despite contact with the language. Ian Russell pointed out the particularly rich "onomastic mix" in the area (Pictish, Norse, Scots, Gaelic etc). Although Miller did not study this he made similar comments about what he regarded as the peculiarly rich mix of folklore.

From the discussions sparked by the papers by Ted Cowan and Lizanne Henderson we agreed:

- * that Miller was a pioneering folklorist and deserves greater attention on this account
- * that he is not simply a collector but a story-teller, emotionally engaged in his material, striving to find the appropriate literary modes and voices in which to tell his tale, never dismissing the lore as something only for simple people and simple minds and (interestingly) acknowledging and usually naming his sources
- * that there are paradoxes in his attitudes to folk belief and culture, and that we should perhaps regard Miller as a pioneer of interest in the paranormal, which would flourish later in the century

We have, I think, disagreement about Miller's qualities as an historian

– is he simply “not historically minded” (Ted Cowan) or is he a man of his time struggling with the expansion of history without clear models for using the evidence.

Despite the welcome disagreements there is a common view that Miller’s work contains valuable historical source material that he constantly strives to provide Cromarty with a respectable past, authenticated by his own experience and family history and that when coupled with his geology he works on an astonishingly wide canvas, from the parish (in his folklore) to the planet (in his geology)

Some of the same themes have been picked up in the second session.

Gavin Sprott began with an interesting parallel between Miller and Dr Johnson – both men with a love of words, religious men, travellers; both men of fierce opinions and eminently quotable – and both with a capacity for bad poetry (in Miller’s case) and bad drama (in Johnson’s). Gavin Sprott then gave us a masterly overview of the process of industrialisation of the countryside. There were many points here to ponder but I will stress two:

* that Miller in his lifetime was observing the creation of “national, commercial farming”

* that Miller acutely observed that the Sutherland clearances were an “experiment” (expanding on a point made yesterday by Eric Richards): that the use of the Stafford fortune meant that what happened was not commercially driven. Had it been so it might have been done differently: instead it was, in Miller’s words, a case of “vivisection” – an experiment in social engineering carried out on living beings.

Gavin Sprott concluded with his own observation that the subsequent history of the nineteenth century seemed to show that the “decency” which Miller advocated as the response to Clearance was futile: only “crofters behaving badly” seemed to make a difference.

Elizabeth Sutherland’s researches on Lydia Miller and her circle offer us important additional insights into Miller’s character and important additional material for the study of the society of which they both formed part. It is encouraging to see that Miller recognised that “half of the intellectual qualities of Cromarty resided in the female population of the town”.

Miller brought his powers of observation to bear on the changing economy, culture and class structure of a small Scottish town in the early nineteenth century – and many Scots lived in such small towns. Elizabeth Sutherland has shown us that Lydia also brought (in Hugh’s words) powers of “active and acute reason” and “active observation” to the same subject. I believe that in the combination of Cromarty as an inherited artefact (its buildings) and the subject of Hugh and Lydia as commentators we have the makings of important future studies in the “history of manners” (Ted Cowan).

Lucille Campey’s study of emigration from the north-east Highlands has established that Cromarty was a principal point of emigration for Canada before 1855 – an important recovery of our history for us locally

and of wide significance in understanding emigration as a whole. Miller's connection with this is I hope clear through yesterday's dedication of the Emigration Stone on the links. Lucille Campey's talk, like Gavin Sprott's, was a masterly overview of a complex topic. I am simply going to commend to you Lucille's latest book, which shows what can be done by way of new research in Highland history, and I hope points the way to future studies within the Highlands.

Finally, through David Forsyth's presentation on the settlement of Otago we touched on the ways in which the culture and ideals of the Free Kirk (and more generally of the Highlands) were exported to other places – concluding with the interesting thought that, not only did many emigrants carry Hugh Miller's books with them, but that Miller might be perceived as the “ideal emigrant” – hardy, educated, religious and thrifty.



Cromarty Courthouse, Cromarty, photo by Andrew Dowsett

Place-names of the Cromarty Firthlands

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In linguistic and historical terms, this area of Easter Ross has some unusual, and in some ways, unique features in terms of place-names. We look out over a firth which formed a significant frontier in Dark Age times, yet which also provided a routeway between the Norse Earldom of Caithness and the richer lands south of the Moray Firth. It is in precisely this zone that we can observe features of several different languages, spoken in roughly the period 800-1200 AD which no other easterly region north of Forth can replicate. From the evidence of place-names, it is clear that Pict, Norse and Gael laid down firm foundations of settlement. So we are in what was once a zone of conflict, as well as one of economic opportunity.

Place-names provide us with evidence which is part linguistic, part historical and part socio-economic. In all cases they occur as a palimpsest (defined as “a piece of writing material or manuscript on which later writing has been written over the effaced original writing”).¹

These layers of onomastic material, like the palimpsest, are frequently frayed at the edges, contain substantial tears and holes, and are sometimes bonded together, so that interpretation is sometimes difficult. It is tempting to speculate that Hugh Miller found such linguistic problems of great fascination, although it would be several decades after his death before attention began to be paid to place-names as a serious scientific study.

In Cromarty, our attention is keenly drawn to the landscape that was so familiar to Miller. The process of naming this landscape was conducted by people who were intimately familiar with it. It is clear that early settlement names, whether Pictish, Old Norse or Gaelic tended to use natural features as the specific or descriptive element in compounded names. This is especially true of items in the terrain which were prominent visually. The presence of a distinctive hill feature, a bend on a stream, a major sea-inlet, a cliff, a loch, or a dangerous marsh would mark a human settlement as locally unique, and therefore clearly identifiable in societies which were largely illiterate.

Examples of such names might include:

Shandwick – “sandy bay”

Munloch – “place at the head of the loch”
 Culbo – “farmstead by the rounded hill”
 Fearn – “place of alder trees”
 Tarrel – “over-cliff”

The problem with interpreting many of these names lies in the very nature of the palimpsest. Much of the terminology that was familiar to our forebears, whether Gaelic or Scots, has become obsolete, and even fluent speakers of modern Gaelic find many of the older place-names quite obscure. Moreover, we can only guess how a Celtic speaker of, say, the ninth century, pronounced a place-name like *Picalnie* or *Pitnellies*, or how a Norse settler pronounced *Langwell* or *Dingwall*. All we have to guide us is the documentary record, where early forms of these names occur. In some of the earlier manuscripts, some of these forms are doubtless unreliable.

Nevertheless, the place-names record remains vital, and in some instances, the *only* one available to us. The Pictish place-names in our area reveal tenuous evidence of an agricultural economy which points to cattle rearing, limited grain cultivation, and a good deal of hunting and fishing. Names such as *Pithogarty*, *Picalnie*, *Pitfuir*, *Pitkerrie* and *Petconnoquhy* (now Rosehaugh) are numerous enough to suggest that these “portion” or “share” settlements represent a prosperous agricultural economy in the period of Pictish occupation.² Although jumping to conclusions on scanty evidence is often onomastically suicidal, it is tempting to suggest that *Pitnellies* in Tain parish, which W. J. Watson in his *Place-Names of Ross and Cromarty* gives as the Gaelic *Baile an Eunlaith*, “farm-toun of the birds”,³ is connected with *Loch nan Tunnag* “loch of the ducks” just to the north. This lies in the middle of the *Morrìch Mòr* “the great sea-plain”, an area which is rich in wildfowl, and therefore an important resource.

Norse names in the zone are identifiable, but relatively few in number, and often opaque as to derivation. *Arboll* near Inver, *Cadboll*, *Bindal* by Portmahomack, *Shandwick*, and perhaps *Plaids* near Tain, are the most obvious north of the Cromarty Firth, while in the Black Isle *Braelangwell*, and *Udale* Bay are the most likely candidates.⁴ What are we to make of this sparse Norse outcrop?

Watson sought to provide derivations for most of these names, but apart from the generics *ból* “farmstead”, *dalr* “valley” and *vik* “inlet” we find that few of the other Norse elements, especially the specifics, can be positively identified. The most obvious, such as *Langwell*, *langa-völtr*, “long field”, and *Shandwick*, *sandi-vik* “sandy bay” supply us with little extra information. The presence of *Dingwall*, *thing-völtr* “assembly field” is in Crawford’s words “a remarkable survival of a significant administrative place-name so far south which must reflect the organisational activity of a community of Norse speakers settled around the Cromarty Firth in the wake of the recorded conquests of the earls in the late ninth and the eleventh centuries”.⁵

It is only when we examine the Gaelic place-names that the palimpsest

becomes reasonably readable, but the time-factor introduced here provides yet another problem to the onomastic record. Gaelic came into widespread use in this zone probably from the eighth century. But were Gaelic place-names coined as soon as a Gaelic-speaking society emerged? Or did Gaelic borrow from the existing corpus of Pictish names? Probably both processes occurred in parallel, but Gaelic proves to be highly versatile in terms of the coinage of names from the Dark Ages on.

Gaelic becomes used as the language of names for a wide range of topographic features. This is especially true of mountain terminology. In the same way that an Inuit uses a large number of terms to describe snow and ice so Gaels have developed many terms to describe mountains and hills. Gaelic was spoken in parts of Easter Ross within living memory - certainly in parts of the Western Black Isle. So any language which has been spoken in the same area for well over a millennium has had time to penetrate to the very roots of the named landscape.

The Gaelic *baile* "farmstead", "farm-toun" is very common in the area.⁶ Examples include: in Tain parish, *Balcherry* and *Balnagall*; in Fearn, *Balnagore*, *Balintore*, *Balmuchy* and *Balindrum*; in Tarbat, *Balnabruach*; in Resolis, *Ballycherry*; in Rosemarkie, *Balmungie*; in Avoch, *Ballone*; in Knockbain, *Belmaduthy* and *Balnaguie*; and in Killearnan, *Balaguneerie* and *Balagunloune*.

What is interesting about many of these names is that few of them occur in documentary evidence much before 1500. Some are clearly late, such as *Balnaping* in Nigg where there were a number of small plots of land separated by palings⁷ and *Balinroich* in Fearn which was originally part of the estate of Meikle Allan acquired by William Munro c1570, so "Munro's toun" is an appropriate derivation. *Balintore* is on record as Abbotshaven in 1654, with a Gaelic form *Port an Ab* "the abott's port", the present name having been coined ("bleaching-toun") during the development of the flax industry in the late eighteenth century. So many examples of what we usually accept as the most fruitful layer of Gaelic settlement names, those in *baile*, do not generally represent an early stratum of Gaelic settlement, at least in this area.

A number of apparently conventional Scots place-names in the area display earlier, Gaelic, origins. Examples include *Heathfield* in Kilmuir Easter which appears in 1479 as "Kalruquhuy", clearly Gaelic *cùl-Fhraochaidh* "heathery nook". *Hilton* in Fearn is on record in 1610 as "Balnaknok", Gaelic *Baile na cnoic* "toun of the hillock". *Castleton* in Rosemarkie, is given the Gaelic equivalent, *Baile a' Chaisteil* "toun of the castle", and *Redcastle* is *An Caisteal Ruadh*.⁸

There was certainly a period when such names were used by both Scots and Gaelic speakers at a time when bilingualism was widespread. Some re-naming, Gaelic Æ Scots, and Gaelic Æ English, did take place, and direct translation of Gaelic names to Scots/English, when this was lexically possible. The Newtons, Hiltons, Millfields, Castletons and Chapeltons were probably rendered by their Gaelic equivalents as long as the old language was spoken in the area.

The rise of Scots as a spoken language and more importantly as the language of trade, agricultural development, as well as of the socially sophisticated is an important factor in the onomastic story. This is less evident in the Gaelic west, where many of the landowning classes, often clan chiefs, spoke Gaelic until the twentieth century. Here in Easter Ross we see an accelerating change, both social and economic, being expressed in the place-names, especially the names of farms and estates. There were strong anti-Gaelic factors here. Some are obvious, like the unpopularity of Gaelic after 1746, the development of the improved estates about the same period, and the rise (and fall) of the textile industry, based largely on locally-grown flax. Many of the *toun* names, however, are on record well before the eighteenth century, particularly those with particular attributes, like *Milntown* in Kilmuir Easter, which appears as “Myltoun of Methat” in 1479; *Millcraig* in Rosskeen (“Craigemyln”, 1479); *Woodhead* in Resolis, on record as “Woodheid” c1560, and *Milltoun* in Resolis, on the Blaeu Map of 1654. In Cromarty parish, *Davidston* first appears on record in 1529, and *Peddjeston* in 1578.⁹

There are numbers of Gaelic names, coined post-1500, which reflect the continuing use of Gaelic as a language widely spoken in the zone. The introduction of the Gaelic Chapel of Cromarty in 1783 points to an influx of Gaelic speakers into the developing industries of the burgh in the second half of the eighteenth century, as well as into the general labour force of Easter Ross, whether industrial or agricultural. In 1792, Marinell Ash notes: “...there were complaints about a case heard in English before the Kirk Session of Kilmuir Easter because only one of the ten members of the body understood the language”.¹⁰

A century later, W. J. Watson was still able to record Gaelic forms for names such as *Newton* in Cromarty (*Am Bail’Ur*), *The Sutors* (*Na Sùdraichean*) and *Raddery* in Rosemarkie (*Radharaidh*).

The population of the fishing communities such as Balintore, Avoch and Rosemarkie were by this time largely Scots-speaking and the influx of Gaelic speakers had largely dispersed to the landward areas where crofting townships and small-holdings afforded land and employment. This explains the range of Gaelic place-names in the zone to some extent. But a few old people still spoke a little Gaelic in Balintore as late as the 1970s.

Finally, it is necessary to draw attention to a significant number of introduced names from the eighteenth century onwards, some of them fanciful and esoteric.

Rosehaugh in Avoch was a coinage by Hugh Rose to replace the existing *Petconnoquhy*; *Ardoch* was re-named *Poyntzfield* by George Gun Munro in the late eighteenth century in honour of his new wife Charlotte Poyntz, and *Arabella* replaced “The Bog” on a farm in Kilmuir Easter, after Hugh Rose’s wife, *Arabella Phipps*. In Nigg parish, “Polander” Ross, a wealthy magnate who had made his money as a mercenary in Poland, bought an estate which he called *Ankerville*, in 1721.¹¹ It was formerly called *Kindeace*. In Tain, the name *Culpleasant* is an unusual hybrid containing the Gaelic *cùl* “nook”, “corner” and *Gaza*, outside Tarbat was

reputed to be so-called because of its sandy soils and desert appearance, although Watson records that the population were referred to by the parish minister as *muinntir Ghaza*, “the men of Gaza” because of their irregular attendance at church.¹² Thus, the fashion for personal names attached to the landowning classes appears to be a prominent feature of the place-names of this area.

The overall impression one gets of the place-names of the Black Isle and Easter Ross is their unusual variety, and of the facility with which name-change occurred. The stock of place-names is highly responsive to linguistic change, but the Easter Ross names demonstrate another trait – the response that place-names provide to economic and social development.

References

- 1 *Illustrated Oxford Dictionary*, 1998, 589
- 2 For a good discussion on Pictish names in the area, see W F H Nicolaisen, *The Picts and Their Place-Names*, Rosemarkie, 1996.
- 3 W J Watson, *The Place-Names of Ross and Cromarty*, Inverness, 1906, 33.
- 4 See I A Fraser, “Norse and Celtic Names around the Dornoch Firth”, in *Firthlands of Ross and Sutherland*, ed J R Baldwin, Scottish Society of Northern Studies, Edinburgh, 1986, 23-32
- 5 Barbara E Crawford, *Scandinavian Scotland*, Leicester University Press, Studies in the Early Middle Ages 2, 1987, 96.
- 6 See the distribution map in W F H Nicolaisen, *Scottish Place-Names*, John Donald, 2001, 177, and a local *baile* distribution in Fraser (op.cit.), 28.
- 7 W J Watson, *The Place-Names of Ross and Cromarty*, Inverness 1906, 52
- 8 *Ibid.*, 43
- 9 *Ibid.*, 125
- 10 M Ash, *This Noble Harbour*, 1991, 44, quoting W Macgill, *Rossshire*, Vol 1, no 108, p 72.
- 11 *Ibid.*, 111
- 12 Watson op. cit., 46

Learning from Cromarty: the lessons of town and landscape

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Two things were critically important for Hugh Miller. The first is the guidance available from recourse to first principles. And the second is the word – not just in the biblical sense of the Word, nor even necessarily words, but print as the very culture of thought. These were mutually supportive in his earlier life, and apparently pretty well balanced. In his later years the matter is not so clear. Writing in 1852 (in *My Schools and Schoolmasters*) of his youthfully innocent intellect, “Life is itself a school, and Nature always a fresh study...the man who keeps his eyes and his mind open will always find fitting, though it may be hard, schoolmasters to speed him on his lifelong education”.

In Cromarty he kept his eyes and mind open, and therefore was able to see things that the word (or Word) seemed to deny. The visual evidence of rocks in perplexing form and context had always been there, but only Hugh Miller was able to see it. Many have wondered why he should have been so gifted, and various explanations offered. One that has not been put forward, I believe, is his possession of two sorts of education that were most rare in his day, and remain marginal even now. He was literate, and loved literacy and all it stood for. He was also what we today would call a designer, and therefore possessed a visual “literacy”. His skills as a sculptor have been quite shamefully neglected, and this is even more remarkable in that other qualities and circumstances have been exhaustively pored over. In his lifetime his work as a stone-mason was overlooked as evidence of regrettable poverty, redeemed by his poetics. Subsequent interest naturally springs from his and his associates’ literary testament. Please consider for a little while that it was his conjoined abilities to bring visual and wordly “literacy” together through the design of sculpture that allowed him to encompass the story of the rocks, (as well as banking administration, fervent spiritual argument in print, and managing a newspaper). It is in this sense that the Scottish Architecture Summer Schools¹ have come to know Miller, and like him they have taken what they see, as well as what can be read about it, as artefact. So Cromarty as town, and as landscape, as well as locale, may have lessons for us, as the rocks had

lessons for us through Miller's insight.

We are fortunate to have a very clear vision of Cromarty in Miller's early manhood, and as Cromarty's own rather poorer luck after the railways transformed life, the town has remained remarkably recognizable in that form. James Clark made a coloured print of the town, firth and contiguous landscape which is both picturesque and topographically informative. He also made similar likenesses of nearly 20 other burghs, big and small, and these were published and very widely available. We can see from this picture a number of things which made Hugh Miller's world modern and quite different from his grandparents' world. The disposition of the trees, the distinct large parks protected by windbreaks, the town with its regularly composed houses, are products of the 18th century and thus were new, whereas the placid shipping in a benign, and sunny, Cromarty Firth, and well dressed stout folk we might have expected at any time. The form of the town is old, and it is characteristic.

A main street (Church Street) runs roughly parallel to the shore line of the firth, and it is lined on both sides with houses and their associated garden ground. This street is safely above high water and does not flood, whereas the fishertown closer to the firth is subject to flooding. In fact parts of Cromarty now lie under the water: these houses cluster and crowd together. That Miller's house is comfortably sited near the Church and the Town House testifies to his secure, even fortunate position in life. But not so fortunate as his richer neighbours with much bigger houses, and none so fortunate as the laird whose house overlooks all from its position within an artfully landscaped park.

Not only is the town form old, so too, is its relationship to the laird's house, and his extensive grounds have always marked the distinction, both in space and in implication. But curiously enough Cromarty House itself is new, as is its park, as indeed are the vast majority of the neighbouring houses to Miller in the town. The thought that brought about the new way to build, to configure towns, grounds, and fields had significant beginnings not too far from Cromarty. A few miles westward along the Black Isle is Rosehaugh, a Mackenzie house, built in the 17th century: the same Mackenzie who built Caroline Park near Edinburgh and who employed John Reid. Reid wrote about the business of designing landscapes, and he appears to be the first to publish about it in Scotland in 1683.

His imaginative template brought hierarchical and symmetrical order not only to the planning of the house (revolutionary enough in itself) but he extended these into the courts, the gardens, the orchards, woodlands and even fields beyond. His organizing principles were shared, and though no replica of his ideal design is known to have been realized, the Earl of Mar and Kellie's great landscape at Alloa comes close. The latter united great house, gardens and woodlands with landscape, distant prospect, and even mountains, plus the industry to pay for it all – coal mining; all within a unified design. The concerns that gave rise to these efforts were revised and explored during the 18th century. A significant further change was recognized by Henry Home, Lord Kames in his *Elements of*

Criticism when poetic response or feeling was seen to come from designed landscape in the association of ideas. This gave not only legitimacy to ruined ancient buildings, and sites, but also to the “rude” forms of the highland countryside. Thus the geometric layout of woodland plantation at Cromarty House in the later 18th century has become landscaped, and when Miller writes he uses the conventions of appreciation of landscape which derive not only from Kames, but Gilpin and Scott too:

“The Parish of Cromarty is of an irregularly oblong figure...a high bold outline irregularly edged stripe of fir wood covers, for about six miles, the upper line; a broad arable belt mottled with cottages and farm steadings occupies the declivity; while the terrace below...advances in some places in the sea in the form of low promontories and is scooped out in others nearly to the base line of the escarpment...It is surrounded by a highly picturesque country; and is rich in prospects which combine the softer beauties of the lowlands with the bolder graces peculiar to an alpine district”.²

Hugh Miller’s Cottage is dated 1711, and it is sited with its gable to the street with garden ground to one side, and a narrow gap to the other. Its roof is thatched, the gable end is crow-stepped, and the windows are small and placed for the convenience of those inside. That form of house remained typical into the early 19th century, and in nearby places such as Dingwall its like can still be seen. But as a new way of comprehending landscape had had a boost nearby, so also did the design of building. James Smith had an extensive practice as an architect in late 17th and early 18th century Scotland, including designs for regularizing Cawdor Castle just across the water near Nairn.

Colen Campbell who is thought to have worked with Smith at Cawdor later acquired his collection of drawings, and this not only included the Cawdor project but also drawings by the great 16th century master Andrea Palladio, and it was he who was able to bring high renaissance detail and principle to bear on farm building. As Palladio brought architecture home to the country, so Campbell showed how these principles applied in Britain. *Vitruvius Britannicus* (published from 1715) contains not only monumental building designs for churches and great houses, but also the first treatment of the cottage as architecture, as well as houses of middling size whose offspring are such an ornament of Cromarty, and even the prototype for the new Cromarty House.

Campbell was not the only writer to encourage new building style and scope, just the closest to Cromarty. One of the qualities most attributed to Cromarty, and by extension, reason for even more surprise at Miller’s intellect and the town’s civility, is the town’s distance from everything else. Travel by road, and by railway, and this sense is confirmed, especially the long view of the Sutors when crossing the Black Isle from Rosemarkie, when Cromarty seems to take an age to reach.

But railways appeared in Miller’s later years, which is not that long ago. The big things that happened there happened before, certainly for Miller

personally, and even the cultural forces that shaped landscape, building, even the way one perceives these things happened when traveling by sea was easier, and from that perspective Cromarty is very far from being isolated. It had always been advantageously situated, easy for shipping to Aberdeen, or Edinburgh, or to Gothenburg, or to London, and even well into the 19th century it was a place of embarkation for America.

So as locale, so too the meaning of what our eyes see, and the lessons we might learn from that sight, there remain conventions of thought reinforced by our own literary devices which trip us up. These might have overcome Miller in the end, but for his Cromarty time he managed to keep both his mind and his eyes open.

References

1 Conducted jointly since 1993 by Mary Washington College, Virginia and the Robert Gordon University, Aberdeen. Students of conservation from the USA and students of architecture from the UK learn to use their open minds and eyes to study Scottish architecture, landscape, urban design, and monuments. From Cromarty they move on to Aberdeen, Edinburgh and Glasgow and their studies encompass Pictish work through Adam and Mackintosh to current problems. Each year a characteristic Cromarty subject is introduced by David Alston, and then “dissected” under Brown Morton’s non-invasive surveying technique, and the findings presented to the town. Past subjects have included Townlands Barn, World War emplacements on the South Sutor, and Sculpture of Hugh Miller.

2 *New Statistical Account, 1836*, pp.1-2.



Hugh Miller's Cottage, Cromarty, photo courtesy of The National Trust for Scotland

Miller's Tale: Narrating History and Tradition

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In 1830 Hugh Miller wrote, "Objects appear much more distant when viewed through the dim hazy vista of oral tradition, than when seen relieved by the clear dry lights and mellow semi-transparent shades of written history".¹ This paper aims, quite simply, to investigate the relationship between History and Tradition in Miller's work. As is well known, the author believed that the reign of superstition was over, "the last faint ripples of that storm which tempested the ocean of past time, and made shipwreck of human happiness, are breaking one by one upon the shores of the nineteenth century",² yet traditions, often "superstitious" in nature, continued to inform his work and his attitudes to the past, as forcefully as his religion or his ideas about geology. Yet while tradition, in his mind, somehow authenticated people and place, he had some rather curious views about history, almost amounting to antiquarianism. Also, after he overcame the amateurish notion that history was absolute, existent and comprehensive, he seemed somewhat confused as to what its function actually was – to record or reinterpret, explain, excuse or exculpate – though even as his historical sense developed he retained a sound grasp of the potential significance of folklore³ in understanding the motives and attitudes of those who inhabited the past.

Miller's Tale, in other words, was inconsistent. Like so much else which occupied his burning mind it presented a mass of contradictions. It will be argued through a brief investigation of his attempt to sympathetically confer a respectable past upon Cromarty and the North that the relationship between History and Tradition was as central to his lifelong thinking as the other massive subjects which so fascinated and consumed him. Conveniently enough, his ideas on these subjects can be traced between his first published book, and the last of his lifetime, and even earlier, if we consider his prentice pieces published in the *Inverness Courier*, balanced at the other end of his life by the voluminous chunks of contemporary history that he wrote for *The Witness*.

The maritime metaphor of tradition wreaking havoc on the ocean of past time was appropriate for, as it happens, the pages of both *Scenes and Legends of the North of Scotland* (1835), one of the greatest literary celebrations of a locality, and *My Schools and Schoolmasters* (1854), surely one of the definitive books to come out of nineteenth century Scotland, are soaked in sea spray which impacts upon the senses every bit as powerfully as the extended rhetorical passages which enhance his geological treatises. Storms frequently recur in his writing, mirroring those that we suspect haunted his imagination to the tragic end at Portobello. *My Schools and Schoolmasters* concludes with the greatest turmoil to engulf nineteenth century Scotland, perhaps the defining moment of that era, the Disruption, which was not purely concerned with such issues as patronage and voluntarism, but rather with fundamental questions about the role of the Kirk in a modern industrialised society and about the deluded folly of permitting the English establishment to direct the fate of Scotland's most hallowed institution. Whether he was discussing theology or geology Miller was one of the greatest communicators in a period which was perhaps even more concerned with communication than our own. He was a man who could conclude an essay on *The Palaeontological History of Animals* as follows, brilliantly combining long-past time with present and future:

“We have been looking abroad on the old geologic burying-grounds, and deciphering the strange inscriptions on their tombs; but there are other burying-grounds, and other tombs, – solitary churchyards among the hills, where the dust of the martyrs lies, and tombs that rise over the ashes of the wise and good; nor are there wanting, on even the monuments of the perished races, frequent hieroglyphics, and symbols of high meaning, which darkly intimate to us, that while their burial-yards contain but the debris of the past, we are to regard the others as charged with the sown seed of the future”.⁴

To read Miller's stunning account of “The Mosaic Vision of Creation” would place the most persistent atheist in awe of both God and the testimony of the rocks; to read it aloud is to hear the convinced stentorian tones of the lecturer addicted to the rhetorical climax, one intent upon sending his audience home with minds full of ideas and images which would – to borrow from Robert Burns, one of Miller's heroes – “haunt them until the floodgates of life shut in eternal rest”.

While his geological works are permeated with a sense of the epic his reflections on the folk tradition are on a much smaller scale, more concerned with the individual rather than the universal, with the parish rather than the planet, but yet preserving and manifesting elements which are

common to the experience of all Humankind. Miller's "schoolmasters" in folklore included his mother and his uncles, as well as other relatives, workmates and casual acquaintances. In the early nineteenth century it was fashionable, not to say almost essential, for writers to acknowledge a mentor in supernatural lore. Burns had his Betty Davidson, his mother's maid, Scott and Hogg their mothers, and later Stevenson was indebted to his nurse, Cummy,⁵ but Miller largely depended on "old grey-headed men, and especially women", a commendably wide range of informants. His wife, Lydia, however, later condemned Miller's "fantasy-possessed" mother, Harriet, for infecting him with "tremendous doses of the supernatural" which, she believed, contributed to his suicide.⁶

Like almost everyone else who has ever written on the subject he was convinced that tradition was on the verge of disappearance; such tradition included "oral knowledge of the past", supernatural beliefs and superstitions. Although he regarded superstition as "a weed indigenous to the human mind", which "will spring up in the half-cultivated corners of society in every coming generation", he recognised that the superstitions of the future would be different from those of the past. The "garb of custom and opinion" changed from generation to generation. But at this point, on page 3 of his first book, *Scenes and Legends*, he introduced a geological analogue: plants and animals of past time were not those of the present; life was different "when the very stones of our oldest ruins existed only as mud and sand". Later he would refer to his manuscripts as "useless scraps of paper", which nonetheless were of interest as "fossils of the past epoch of my life".⁷ He once memorably described his gradually dawning understanding of a poem by one of the medieval "makars", couched as it was in unfamiliar Scots, as being like creating the sense which he found in it; "it came gradually out like some fossil of the rock, from which I had laboriously to chip away the enveloping matrix".⁸ It thus seems likely that Miller regarded traditions as fossils preserving valuable, and otherwise irrecoverable, information about the past.⁹

Lydia's allegation that Miller's suicide was attributable to his mother having filled his head with tales of witches, fairies and ghosts, phantoms which returned to haunt him at the end, has been sympathetically investigated by Elizabeth Sutherland in her recent biography. Therein she points out that the unfortunate Lydia was not at all well herself when she fed the information to her husband's biographer.¹⁰ Michael Shortland suggests, citing the physician, James Miller, that Hugh was haunted by the Old Hag of Nightmare in his last days, literally hag-ridden.¹¹ This is a known and recognisable condition.¹² The proposition is persuasive though not entirely convincing because the Victorians, like ourselves, were not good at dealing with suicide. Dr Miller must have known of his patient's interest in the supernatural which he then used to diagnose his

fatal illness, neatly linking superstition and self-murder as would any self-respecting nineteenth-century rationalist. What is truly surprising, perhaps, is that not more people admitted to sharing Hugh's fascination for the occult. In what was still an age of transition many were pulled in both directions and later in the century many distinguished individuals made no secret of their membership of The Society for Psychical Research, the existence of which reflected something of a craze for the paranormal. Indeed in the latter respect Hugh Miller could be seen as something of a pioneer rather than an eccentric.

There is no need to tediously rehearse Miller's ideas on the subject of tradition since he expresses these perfectly well himself in *Scenes and Legends*. What is of considerable interest is that Miller discusses his informants and in many cases actually names them, a basic courtesy which many contemporary collectors neglected. He is very unusual, in the context of the 1820s and 1830s, in that he existed among the people from whom most of his information was drawn. Thus his accounts have more of the reek of the peat fire than of the smell of the lamp about them.¹³ Second he believed that his collections formed "a kind of history of the district of the country to which they belong". So far as he was concerned, the traditions of an obscure village were as significant as the histories of great countries, in revealing information about human nature. He was determined to avoid dullness in telling his tales but he cautioned his readers that some matters were beyond his powers, notably the "obscurity which hangs over the beginnings of all history – a kind of impalpable fog", which of necessity, he thought, engendered a lack of interest in the reader. Herein he came close to anticipating the modern delusive obsession with relevance,¹⁴ and although he exaggerated his own lack of talent, the reader can almost hear him heave a sigh of relief in reaching the seventeenth century. In this respect he was a true son of the Enlightenment whose historians, such as William Robertson and David Hume, had displayed a high disdain for the heritage of medieval Scotland. He also shared the interest displayed by these two luminaries in conjectural history. Like them he was fascinated by the history of manners, of how people conducted themselves in the past, the nature of their attitudes and beliefs; hence his sympathetic interest in folklore. The stonemason from Cromarty was tracing the "footprints of the more savage traditions of a country in the earlier pages of its history",¹⁵ long before he began to follow the footprints of the Creator.

But Hugh Miller did have a problem. What on earth was he to use for history, especially that of a remote and distant part of the country such as Cromarty? As another distinguished authority had observed,¹⁶ in the absence of evidence recourse must be had to the opinions of "the writers of our country". One was to hand in the inspired ravings of Sir Thomas

Urquhart whose inventive discourse Miller plundered, imparting, as he said himself, more information to the reader about the fabulous history of Cromarty than he could possibly wish to know, and at the same time conveying the sense of boredom which, he had implied, reposed in early history. It was Alypos, forty-third in line from Japheth and contemporary of Reheboam fourth king of Israel, who first discovered Ochoner (now Cromarty) named for Bestius Ochoner, son of Alypos. Thus were Greek place-names bestowed on the whole of the Black Isle. To Ochoner came Nomaster, son in law of Alcibiades from Greece. Nomaster ruled, to be succeeded by his son Astorimon as king of Cromarty, who in turn defeated the Scythians, ancestors of the Picts. As Miller undoubtedly suspected all of this was total nonsense, but it carried him through the impalpable fog surrounding historical beginnings. In his account the presence of humanity, as we know it, is revealed by archaeology, by ruins in a landscape such as vitrified forts and brochs. What we now know as the Pictish stones were, in his view, erected by the Vikings – “their design and workmanship display a degree of taste and mechanical ability which the Celtae of North Britain seem never to have possessed”.¹⁷ Miller erroneously, but convincingly, deconstructed the messages of the stones using the same methods which enabled him to read the rocks, though he studied the latter to much greater effect.

The chapter on Urquhart¹⁸ offers a splendid blend of credulity and admiration, of the learned and the popular, of doubt about the extraordinary individual who was the source, coupled with the reverence for putative local history, for Urquhart's rank, and for the written word. This last betrays a respect born out of inexperience which is sometimes still to be found among amateur historians unconfidently ploughing their way through printed materials which they simply do not understand in pursuit of what can only be described as the antiquarian.

Not unexpectedly Miller is fairly expansive in his treatment of religion though he had to admit that in some respects later ages were as savage as the “darker periods that went before”. Herein lay a paradox which greatly troubled him, for people did not necessarily become less superstitious in the more religious era. As he began to draw more upon oral tradition – upon the historical treasures “locked up in the minds of the inhabitants”, he conventionally noted that such traditions were “rapidly falling into decay – mouldering away in their hidden recesses, like the bodies of the dead”. Others, however, would survive. “Those vestiges of ancient superstition, which are to be traced in the customs and manners of the common people” would be preserved by the scholar, as they were forgotten by the folk, under the influence of progress, learning and enlightenment.¹⁹ Yet he may have advanced such views with a confidence which he himself did not find altogether convincing, doubts which persisted until the self-

inflicted bullet of superstition entered his heart. Each generation develops a new vocabulary for the ghastly spectres which once haunted its ancestors; for Miller they were subsumed in the word, "depression".

He was clearly troubled that superstition was not banished, as it should have been, with the dawning of the Reformation, a conjuncture that he effortlessly chronicled. Protestants remained more marked by primitive paganism than they were by the popery of their immediate ancestors; priestly saints' days had been forgotten while the festivals of the druids, such as Halloween, were still observed.²⁰ It is obvious from many of his writings that the later Covenanters were for him a crucial source of inspiration and fascination, and yet he could observe that during the persecutions, "a sort of wild machinery of the supernatural was added to the commoner aspects of a living Christianity. The men in whom it was exhibited were seers of visions and dreamers of dreams; and standing on the very verge of the natural world, they looked far into the world of spirits, and had at times their strange glimpse of the distant and the future".²¹

Such amalgamation of religion and superstition was most likely to occur, he thought, under three distinct conditions. The first was in times of political convulsion such as the British Civil Wars of the seventeenth century, or the French Revolution. The second happened in times of calamity such as plague, famine or persecution. The third took place when one faith replaced another. Thor and Odin might be displaced, but the more "neutral superstitions" survived the change, such as witches, fairies, ghosts and seers.²² Such reflections, remarkable for one who, if not deeply religious when these words were penned, was emphatically a cultural Christian of the Presbyterian variety, led naturally into a discussion of prophecy and second sight, and the fullest surviving account, until that of Alexander Mackenzie, of the prophecies of the Brahan Seer. He was not totally sceptical but he perceptively observed that it would be easier to prove that the events mentioned by the seer actually took place, rather than that they had been foretold.²³ What is even more remarkable is the uninhibited honesty of the respected editor of *The Witness*, admired Free Church leader, and widely read scientist who could calmly admit to such beliefs in his hugely influential book *My Schools and Schoolmasters* (1854), in which he did not altogether distance himself from stories of ghosts, witches, fairies, goblins, portents, human sacrifice and second sight. Returning to Cromarty in 1825, after his first visit to Edinburgh, he was struck by, but did not condemn, the superstitions of the seamen. Not even the hindsight of post-Disruption Scotland caused him to condemn their beliefs in wraiths, ghosts and death-omens.²⁴ Miller was famous as a feisty, formidable individual, quite incapable of being directed according to Thomas Chalmers,²⁵ and yet his tolerance of superstition, which speaks volumes for the man's humanity, is truly remarkable. "There is

much of interest", he wrote, "in catching occasional glimpses of a bygone state of society through the chance vistas of tradition". The latter, he thought, illustrated "the rock whence we were hewn, and the hole of the pit whence we were dug". But they also served to dissipate starry-eyed notions which people always seem to entertain about the past, serving as a corrective to those who "see most to admire in society, the further it recedes from civilisation".²⁶

It was a similar empathy which connected him to the past of his own people. In an eloquent passage, concerning the telescoping of history, he wrote of seeing two men who fought at Culloden, of talking with an old woman who had in turn conversed with an individual who had attained maturity during the Killing Times of the 1680s, so revered and memorialised by the Covenanters. A maternal aunt remembered Miller's ancestor, John Feddes at the age of ninety, a man whose buccaneering exploits he dated to 1687. Such accounts, like the repetition of traditions, "link the memories of a man – to those of the preceding age, serving to remind him how one generation of men after another break and disappear on the shore of the eternal world, as wave after wave breaks in foam upon the beach, when storms are rising, and the groundswell sets in heavily from the sea".²⁷ Storming around the edge of another metaphor he certainly was, but he encapsulated the immediacy of oral tradition. Utilising the usual reckoning of three generations to a century, the lifetimes of only sixty individuals – a reasonable audience for a talk on Hugh Miller! – would form a direct link between the present and the time of Christ.

It was, of course, through the invocation of his ancestors, through anecdote and example, drawn mainly but not exclusively from tradition, that Miller's tale conferred authentication upon Cromarty's past. But he went even further. In recounting the supposed deeds of Wallace in the Black Isle he quoted "the muse of a provincial poet, who published a volume of poems at Inverness about five years ago".²⁸ This was an unenviable display of youthful arrogance for the minstrel was himself, and poet he was nane. However, for both approaches to the history of his locality, he had ample precedent. In distinguishing three classes of tradition he noted the first, strictly local but based on actual events, the second, pure inventions, and the third a mixture of the two which was open to interpretation by the scholar, be s/he historian or folklorist. How far did he stray from one category to another? And if he did, does he deserve to be blamed? After all, the major, gigantic, unavoidable authority in this field had shown the effectiveness, and even the respectability, of manipulating familial particularism and sheer fantasy – often one and the same.

Walter Scott's contribution was as colossal as it is immeasurable and love him or loathe him he cannot be ignored. He was deeply read in the literatures of Europe as well as Scotland and the British Isles. He knew the

ballads intimately and had an acquaintance with the sagas, was a collector, a poet, a novelist and an historian, a man who strove to reconcile the dichotomous elements of his country's past while formulating his own idiosyncratic vision of Scotland's present and thus its future. He created some of the world's greatest historical novels, unashamedly and unself-consciously quarrying his materials from the rocks of Scottish experience, yet in his *Tales of a Grandfather* (1828) he deliberately distorted and trivialised his national history, stressing at every opportunity the backward barbarism and violence of Scotland and the Scots before they were rescued by the beneficent political union of 1707. Above all, as the great Marxist critic George Lukacs indicated, this Tory Unionist with his mind fixated on medievalism, who totally failed to confront the reality of modern Scotland and who orchestrated an anachronistic alternative identity of bogus tartanism, was arguably the first writer (outside of the New Testament) to involve ordinary women and men in the historical process. His impact upon posterity worldwide was enormous. Even Leopold von Ranke whose "scientific history" was to dominate and almost smother the subject for a century, not least in Scotland, claimed that it was the novels of Scott which first interested him in historical investigation.²⁹

In his *Minstrelsy of the Scottish Border* (Kelso and Edinburgh 1802-3), possibly the most influential work on Scottish folklore ever published, Scott described a completely integrated historical and literary microcosm. His primary interest, however, was in history, that of the landscape and his own people. The first part of the publication was devoted to historical ballads, the second to the romantic variety, those which by implication derived from medieval romances, and the third part comprised imitations. In foregrounding history with such emphasis Scott essentially initiated a debate which would rumble on for a century or more.

Much ingenuity is to be detected in the efforts of Scott and his disciples to prove the historicity of the ballads. Walter pointed the way by seldom hesitating to confidently indicate a location, context, or genealogical information about the main participants, on the slimmest of evidence. Indeed, under Scott's tutelage ballads were made to dictate historical events otherwise unknown, as well as to illuminate those well documented.³⁰

Hugh Miller does not seem to have been particularly interested in ballads though they were not unknown to him,³¹ but he was without question a disciple of Scott.³² During his first visit to Edinburgh he hung out, like some modern pop fan, hoping to catch a glimpse of the great man. Other possibilities were James Hogg, Francis Jeffrey, Dugald Stewart, John Wilson and "Delta" (David Moir) though he was unsuccessful on all counts. However, Scott had undoubtedly pointed the way, implicitly setting the example of using family traditions, irrespective of whether they

were actually true, to authenticate the past. The Great Wizard may have set another precedent for, as he was told in no uncertain terms by James Hogg's mother, the practice of recording and publishing ballads, however invaluable, was hastening the end of the tradition; and the same could be said of folklore in general. There was a well-known Gaelic proverb to the effect that, "the feather of the goose would drive the memory from man", (and woman too). In 1826 Scott suddenly announced that men of breeding could no longer sustain "any belief in the superstition of the olden time, which believed in specters, fairies, and other supernatural apparitions. Those airy squadrons have long been routed, and are banished to the cottage and the nursery".³³ With such a contemptuous dismissal, though hopefully it was a temporary aberration, Miller could not possibly have agreed. And yet, he too, though he confidently anticipated a day when superstition would be consigned to the archive and the library, could be accused, through his writings and publications, of, like Scott, ultimately destroying the very traditions he was so intent upon preserving.

On the other hand he undoubtedly saved much that might have been lost. In his defence it should be recognised that a man of his literary talents could not help but embellish. This is the person, after all, who made the speculations of theology, and the terminology of geology and palaeontology, accessible to lay readers in their hundreds of thousands throughout the English-speaking world. "Sennachie", as he was nicknamed in boyhood, became, as an adult, one of the greatest communicators of the Victorian era. At the same time he freely admitted to writing for the hugely influential Wilson's *Tales of the Borders*³⁴ thus further contributing to the blurring of fiction and tradition.

The amateur antiquarian of *Scenes and Legends* became, if not perhaps a historian as such, at the very least a mature interpreter of his country's past, in *My Schools and Schoolmasters*. According to his wife he drew his earliest inspiration from Scottish history.³⁵ He remained best informed about religious matters, but by the time the book appeared he had consulted a respectable amount of local documentation and had digested more of the traditional clan histories, than are evidenced in *Scenes and Legends*. For his *Memoir of William Forsyth* he consulted the Cromarty kirk session records. He introduced evidence to suggest that if people in 1839 were no less happy than those two generations earlier, they were not "half so merry". He was thinking of "a transition stage in society – a stage between barbarism and civilization – in which, through one of the unerring instincts of our nature, men employ their sense of the ludicrous in laughing one another into propriety". Thus in Cromarty changelings were laughed out of existence when the youths of the village switched all the babies in their cots. Worried mothers heard their cries and, failing to recognise their offspring assumed them stolen by the fairies until told of

the prank. Thereafter the fairies enjoyed less repute and were never again charged with the theft of children. "A popular belief is in no small danger when those who cherished learn to laugh at it, be the laugh raised as it may".³⁶ His remarks recall the story that Sir Thomas Urquhart died of laughter on learning of the restoration of Charles II. Urquhart's laughter was Rabelesian and he was the incomparably gifted translator of the irreverent François Rabelais, both of whom well understood that all the great historical dramas unfold before the chorus of the laughing people.³⁷ Perhaps Hugh Miller shared their understanding.

By the time he penned his account of Cromarty for the *New Statistical Account*, (1836) he had consulted Scotland's "black-letter historians", which is to say, those of the sixteenth century. He demonstrated his critical acumen with reference to the various visible archaeological remains in the parish, and neatly slipped in a reference to a local event (1492) in the *Acts of the Lords of Council*. No Scottish parish, he thought, had more traditional stories than Cromarty, whose legends, deriving from a variety of origins, were "distinctly impressed with the character of the past ages". His short historical account of Cromarty is as informative and accomplished as any in the entire series, demonstrating a shrewd understanding of the impact of social and economic change. People, to be sure, were becoming more free "from the influence of superstition", but, ominously, the reading of newsprint and journals was replacing religion.³⁸

Towards Gaeldom he displayed an ambivalent fascination, which mirrored his qualified response to the phenomenon of Macpherson's Ossian. He was astonished at the indolence of the Gaels but was intrigued by their archaic cultural survivals. In 1823, he wrote, a three days' journey into the Highlands "might be regarded as analogous in some respects to a journey into the past of some three or four centuries".³⁹ He was contemptuous of those who occupied the "border districts of the Highlands" because he considered them corrupted,⁴⁰ but he penned in a few pages a brilliant picture of the ruin of the *Gàidhealtachd*⁴¹ and no-one can doubt the passion behind the devastating *Sutherland As it Was and Is; or, How a Country May be Ruined*,⁴² even though written at half-power. No part of Britain had been more self-sufficient than the far north before its deliberate destruction. It was one of the ironies of history, he thought, that the "paganism" (heathenism, barbarism, lack of "civilisation"), previously associated with the outlying regions of Scotland, had now been transferred to her cities.⁴³ Hugh Miller did not like what his world was becoming. If tradition had been the cement which bound members of the old communities together its disappearance was giving rise to urban squalor, freethinkers, radicals, chartists, alcoholics, criminals and mindless existentialists.

It was geology which held the physical world together, documenting a time scale which quite simply boggles the mind of the non-comprehend-

ing historian. No other writer sets the drama of history on such a vast stage. It is impressive enough when Miller casually remarks that a stand of oak trees date from a time when the neighbouring clans “had not yet begun to be”.⁴⁴ A discussion of the age of the Cromarty coast is interrupted to announce that “it is full time that man, the proper inhabitant of the country, should be more fully introduced into this portion of its history”.⁴⁵ Over and over again the author rehearses the message of the rocks; “of that long and stately march of creation with which the records of the stony science bring us acquainted, the distinguishing characteristic is progress”, culminating in the arrival of Humankind.⁴⁶ Despite the vast chasms of time and the massive epochs that went before, “the planet which we inhabit seems to have been prepared for man, and man only”.⁴⁷ He well realised that the “years of human history form but a portion of the geologic day that is passing over us: they do not extend into the yesterday of the globe, far less touch upon the myriads of ages spread out beyond”. He agreed with Thomas Chalmers that the Scriptures do not date the antiquity of the earth; “if they fix anything it is only the antiquity of the human species”.⁴⁸ And how complex, baffling, perplexing, trivial, magnificent and disappointing humanity turned out to be. We can almost detect in Miller a preference for the silence of the non-human millennia rather than the clamour of the present age. Yet he recognized his own obligation to search, Godlike, for understanding. From the old stonemason, John Fraser, he learned that the finished work was contained within “the rude stone from which it was his business to disinter it”.⁴⁹ A comparison can be drawn with the craft of history, the shape of which is to be detected partly in the amorphous body of surviving sources awaiting interpretation, partly in the subjectivity of the historian. Just as Hugh Miller could see beyond history to the diuturnities of previous epochs, so he realised that history was composed of more than documents and archaeological remains. The past had a voice, if only we would listen, and it was preserved and enshrined in tradition, be that “the broken vestiges of an obsolete and exploded mythology”,⁵⁰ or popular attempts to explain the events of yesterday.

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7 *My Schools and Schoolmasters*, 384.

8 *My Schools and Schoolmasters*, 243.

9 cf. Gillian Bennett, 'Geologists and Folklorists: Cultural Evolution and the Science of Folklore', *Folklore* 105 (1994) 25-37.

10 The story originally appeared in Peter Bayne, *The Life and Letters of Hugh Miller*, 2 vols. Edinburgh (1871) vol. 1, 15-18. Discussed in Sutherland, *Lydia*, 150-3. In her introduction to Hugh Miller, *Tales and Sketches*, 2nd edn. (Edinburgh 1869), Lydia remarked that "the sort of literature of superstition revived or retained in 'The Lykewake' there are a great many people who think the world would be better without" (x-xi). She was clearly nervous about such matters. She also quoted her husband on the subject of fairy tales, which, he asserted served to show the benefits of more enlightened times when schools and science had banished such things from the world. She then added, however, "So with this utilitarian view of the subject let us rest satisfied, unless we are of those who, feeling that the human mind is a harp of many strings, believe that it is none the worse for having the music - of even its minor chords - awaked at times by a skilful hand" (xi-xii). One has to wonder whether this statement preserves some echo of her disagreement with Hugh on this topic.

11 Michael Shortland ed. *Hugh Miller's Memoir. From Stonemason to Geologist* (Edinburgh 1995), 71.

12 David Hufford, *The Terror that comes in the Night: An Experience-Centered Study of Supernatural Assault Traditions* (Philadelphia 1989) passim.

13 Which is to suggest that he acquired his traditions by the fireside rather than from libraries thus placing him alongside people like James Hogg rather than Charles Kirkpatrick Sharpe or John Graham Dalyell, see Lizanne Henderson and Edward J. Cowan, *Scottish Fairy Belief. A History*, (East Linton 2001), 198-9.

14 E. J. Cowan and R. J. Finlay, 'Introduction' in Cowan and Finlay, *Scottish History: The Power of the Past* (Edinburgh 2002), 1.

15 Hugh Miller, *Scenes and Legends of the North of Scotland or The Traditional History of Cromarty* ed. James Robertson (1835; Edinburgh 1994), 15.

16 Roderic O' Flaherty in his *Ogygia, or a Chronological Account of Irish Events*, trans. James Hely (1685; Dublin 1793).

17 *Scenes and Legends*, 40.

18 *Scenes and Legends*, Chapter 7. It was doubtless a reading of Miller which introduced Hugh MacDiarmid to Sir Thomas Urquhart whom he included in his *Scottish Eccentrics* (London 1936), 26-56. On Urquhart see John Willcock, *Sir Thomas Urquhart of Cromartie, Knight* (Edinburgh and London 1899), Richard Boston, ed. *The Admirable Urquhart. Selected Writings* (London 1975) and Sir Thomas Urquhart of Cromarty, *The Jewel*, eds. R. D. S. Jack and R. J. Lyall (Edinburgh 1983); the editors describe their subject as "a man whose imagination was certainly too great for the age in which he lived" (p. 37). Miller characterized him as "one of that singular and highly curious class of geniuses, in whom rare and uncommon talents seem to rest, not on their proper basis of practical good sense, but on a substratum of extravagance and absurdity" (New Statistical Account vol. 14, p.8). The material on Cromarty appeared in Urquhart's *Pantochronochanon* (1652). Cromarty should certainly host a conference in 2011 to mark the 400th anniversary of this astonishing man's birth. He is now remembered, if at all, as the world's greatest and most inspired translator of Rabelais.

19 *Scenes and Legends*, 51-3.

20 *Scenes and Legends*, 54.

21 *My Schools and Schoolmasters*, 31-2. See also Edward J. Cowan, 'The Covenanting Tradition in Scottish History', in Cowan and Finlay, *Scottish History* 121-46.

22 *Scenes and Legends*, 155.

23 *Scenes and Legends*, 158. Alexander Mackenzie, *The Prophecies of the Brahan Seer (Coinneach Odhar Fiosaiche)*, (Stirling 1899; Golspie 1970).

24 *My Schools and Schoolmasters*, 361-2.

- 25 George Rosie, *Hugh Miller; Outrage and Order. A Biography and Selected Writings*, (Edinburgh 1981), 65.
- 26 *Tales and Sketches*, 301.
- 27 *My Schools and Schoolmasters*, 125-8.
- 28 *Scenes and Legends*, 48-50.
- 29 Edward J. Cowan and Douglas Gifford, 'Introduction: Adopting and Adapting the Polar Twins', in *The Polar Twins* (Edinburgh 1999) 13.
- 30 Edward J. Cowan, *The Ballad in Scottish History*, (East Linton 2000), 6, 11.
- 31 *Scenes and Legends*, 119, 170, 370.
- 32 See 'The Scott Monument' in *Hugh Miller, Leading Articles on Various Subjects*, ed. John Davidson (Edinburgh 1870), 111-118.
- 33 Henderson and Cowan, *Scottish Fairy Belief*, 198.
- 34 *My Schools and Schoolmasters*, 522. Some of Miller' s stories which appeared in *Wilson' s Tales of the Borders; Historical, Traditionary, and Imaginative*, 6 vols. (London, Glasgow & Edinburgh n.d.) were 'The Widow of Dunskaith' vol. 2, 409-13, 'Recollections of Ferguson' vol. 3, 89-91, 'Recollections of Burns' vol. 3, 145-58, 'The Salmon-Fisher of Udoll' vol. 3, 313-9, 'The Lykewake' vol. 4, 41-8, 'Bill Whyte' vol. 4, 161-8. All were printed in *Tales and Sketches*, while 'The Widow of Dunskaith' was also published in *Scenes and Legends* and in *Chambers Journal*, see *Tales and Sketches*, xiii.
- 35 Sutherland, *Lydia*, 31.
- 36 'A True Story of the Life of a Scottish Merchant of the Eighteenth Century', *Tales and Sketches*, 341-4. The 'True Story' was originally privately published as *Memoir of William Forsyth* (London 1839).
- 37 Mikhail Bakhtin, *Rabelais and His World*, (Bloomington 1984), 474.
- 38 Sir John Sinclair ed. *NSA*, 15 vols. (Edinburgh 1845) vol. 14, *Ross and Cromarty*, 1-18.
- 39 *My Schools and Schoolmasters*, 285-7.
- 40 *My Schools and Schoolmasters*, 234.
- 41 *My Schools and Schoolmasters*, 292-5.
- 42 Hugh Miller, 'Sutherland As it Was and Is; or, How a Country May be Ruined', in Miller, *Leading Articles*, 388-453.
- 43 *My Schools and Schoolmasters*, 364-8.
- 44 *My Schools and Schoolmasters*, 254.
- 45 *Scenes and Legends*, 29.
- 46 *My Schools and Schoolmasters*, 381-2.
- 47 *My Schools and Schoolmasters*, 370.
- 48 *My Schools and Schoolmasters*, 461.
- 49 *My Schools and Schoolmasters*, 272.
- 50 *Scenes and Legends*, 57.

The Natural and Supernatural Worlds of Hugh Miller

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On Christmas Eve, 1856, Hugh Miller tragically committed suicide at his home in Portobello. Newspapers ran obituaries commemorating the vast talents of this sea captain's son from Cromarty; as stonemason, geologist, journalist, author, and theologian. None, however, described him as a folklorist, though admittedly, the term was still a relatively new one, coined only in 1846 by William Thoms.¹ George Rosie's biography (1981) proficiently investigated Miller the artisan, the journeyman, the banker, the newspaper editor, and the scientist, but not, unfortunately, Miller the folklorist.² In 1994, it was stated by James Robertson that "as his bicentenary approaches, his [Miller's] importance as a folklorist may overtake his standing as a geologist or theologian".³ This paper will attempt to address whether or not Miller has indeed been given satisfactory recognition, which he most certainly deserves, as a pioneering folklorist. It is my personal contention that this very rich area of Miller's work and life has not received sufficient consideration. There are, of course, a few notable exceptions. Richard Dorson wrote eloquently of Miller's outstanding contribution to the field of folklore in *The British Folklorists* (1968), remarking that *Scenes and Legends* (1835) and *My Schools and Schoolmasters* (1854) revealed "what the whole literature of folklore rarely divulges, the place that folk tradition occupies in the life of a town, and in the life of a man". Dorson was also quick to point out that *Scenes and Legends* "exceeds all expectation for a pioneer collection of local narratives and merits a recognition it has never received, as a superb record of folk traditions seen in their full context of village society and history".⁴ Also, David Alston and James Robertson's essays are both valuable and helpful contributions.⁵

This paper will explore Miller's role as a proto-folklorist within the appropriate contexts of the times in which he lived, the developments within Scotland and the wider world toward the study of "popular antiquities" and "gross superstitions", and, of course, the man himself. What can we learn, from Miller's extensive writings, about his own attitudes to folk belief and culture, and more specifically, what can we know about his attitudes towards the supernatural? A good deal of work on Miller has focused upon his passion for the natural world, but what of his fascination with the supernatural world?

Premonitions, Second Sight, Ghosts, Mermaids, Fairies, Witches; all of these fit snugly beside Fossils, Shells, Plants, Fish, Animals, when discussing the interests of Hugh Miller. But how did he separate these issues, if indeed he truly did separate them, within his own world view and belief system? James Robertson, for one, does not believe that Miller, at least in his younger years, saw a division between the natural and supernatural worlds and suggests this as the reason why he was able to reconcile his religious beliefs so readily with his scientific knowledge.⁶

Miller: Folklorist or Fakelorst?

Miller did not set out, in the manner of a modern folklorist, to record the tales, legends, customs and beliefs of the people of the Black Isle. He was not concerned with variants or motifs or performance contexts – all issues, among others, with which modern folkloristics concerns itself. Rather, Miller penned his stories with a desire to share them with the wider world – for educational purposes as well as entertainment. There was, however, another, perhaps more important reason. Miller, like so many collectors of the eighteenth and nineteenth centuries, was obsessed with the idea that “folklore”, the lore of the people, was dying out and it was essential to record, for posterity, the traditions of his native land. Robert Burns, Sir Walter Scott, Allan Cunningham, James Hogg, Peter Buchan, Anne MacVicar Grant, Robert Chambers, William Grant Stewart, to name just a few, were motivated by a similar fear that legends and ballads, folktales and festivals, were fast disappearing from the cultural map of Scotland and it was up to them, the collectors, to preserve their memory. For Miller, the sense of loss concerning traditions literally eroding away must have been amplified given the context of where he was from and the times in which he lived. As in other parts of Scotland, the districts around Cromarty were undergoing overwhelming change in the first half of the nineteenth century and Miller was present to witness those changes first-hand.

Each generation, our own included, seems to have believed that the former generation was not only more superstitious, but generally had more folklore. Miller was no exception and encapsulates the sentiment metaphorically:

“I see the stream of tradition rapidly lessening as it flows onward, and displaying, like those rivers of Africa which lose themselves in the burning sands of the desert, a broader and more powerful volume as I trace it towards its source”.⁷

While Miller was mourning the decline in folklore, he was just as likely to lament the destruction of the natural world. “The raven no longer builds among the rocks of the Hill of Cromarty; and I saw many years ago its last pair of eagles . . . the badger too – one of perhaps the oldest inhabitants of the country . . . has become greatly less common . . . than in the days of my boyhood; and both the fox and otter are less frequently seen”.⁸

That he was suitable for the job as collector and, in part, custodian of his native traditions is unquestionable. His flare for writing and his keen powers of observation were most definitely an asset. Even as a boy he was a born investigator. Trawling the beaches for rocks and fossils, while also mining books, and most importantly his friends and relatives, for stories of Scotland's past, family history or tales of the supernatural, he wanted to know it all.

His work is of tremendous value, not only because he was the first person to record systematically the folklore from this region, nor simply because of the sheer volume of material he collected – literally hundreds of legends, folktales, personal narratives or memoration, local history, and so on – but because here we have a collection of narratives presented by someone emphatically existing within the society from which the stories come. He is a perfect example of what one folklorist has termed the “esoteric factor” (from within a culture or group), rather than the “exoteric factor” (from outside the culture or group).⁹ Many folklore collections have been assembled by persons from outside of the circle. But Miller, his writing skills aside, was able to understand and communicate the information with insight and empathy because these were his stories too. As a child, he was exposed to all manner of oral history and storytelling and it is within that framework that he learned his skills as a communicator of lore and legendry.¹⁰

Donald Smith's recent work *Storytelling Scotland: A Nation in Narrative* (2001), though sadly he omits to mention Miller, begins his discourse with a statement that could readily be applied to Miller's style of narration:

“Two motivations or interests tend to drive oral storytelling. On the one hand there is the need for a cultural geography – a desire to place the interaction between environment and history in known locations, and to express the importance of nature within the framework of cultural memory. Land and environment shape the story while stories influence how we see the world of nature. Oral traditions reflect a collective mentality, world view or vision in which nature and environment play a dynamic rather than a passive role”.¹¹

Miller has effectively captured the oral storytelling traditions of his home, at least at that moment in time. The stories have been frozen in time, etched permanently on the page and in the reader's consciousness, like the fossils upon the rocks he so loved to collect.

One area of concern, and possible controversy, is knowing when Miller is giving a faithful account, a heavily embroidered narration, or a completely invented piece of fiction.¹² In other words, is Miller a folklorist or a fakelorest? My personal suspicion rests with the middle option; that Miller “improved” the stories so as to make them more interesting or, perhaps in some cases, to make them fit for outside consumption. If this is indeed what Miller did, he certainly would not have been the first or last

to do so. In the context of the times such embellishments were not necessarily considered a bad thing. Even the great doyen of Scottish history, literature and culture, Sir Walter Scott, a figure whom Miller admired and by whom he was particularly inspired, regularly tampered with the evidence. The great man was no doubt well intentioned, but his actions nonetheless represent a great frustration for the modern folklorist who is often fixed upon purity and lack of contamination although rarely finding them.

In assessing the value of traditional ballads as a historical source, David Buchan argued that ballads “can contain certain emotional truths, the attitudes and reactions of the ballad-singing folk to the world around them”.¹³

May I suggest that Miller’s stories, including those of the supernatural, often convey this sense? Many of his accounts are emotionally charged, full of description and atmosphere. “Of all the old mythologic existences of Scotland”, Miller soberly remarked,

“there was none with whom the people of Cromarty were better acquainted than with the mermaid. Thirty years have not yet gone by since she has been seen by moonlight sitting on a stone in the sea, a little to the east of the town; and scarce a winter passed, forty years earlier, in which she was not heard singing among the rocks, or seen braiding up her long yellow tresses on the shore”.

He recounted the legend attached to a Cromarty shipmaster called John Reid who, at the beginning of the eighteenth century, reputedly met a mermaid by the “Dropping Cave” on May Day. He captured her and would not release her until she granted him three wishes; not to die at sea, good fortune to follow him, and to win the love of Helen Stuart whom he adored. The mermaid agreed to his demands before springing into the sea where she disappeared.¹⁴

Miller does not just report these tales from a distance; he actually invites the listener or reader into the tale-teller’s home. It is a shared experience, as all good folklore should be; not static, but vibrant and alive. His account of a witch by the name of Stine (or probably more correctly Shtina or Sheena) Bheag o’ Tarbat is a worthy example. Her history, relates Miller, “formed, like the histories of all the other witches of Scotland, a strange medley of the very terrible and the very ludicrous”. It was said that she was responsible for the deaths of her own son and husband by raising a hurricane while they were at sea because they were considering delating her for a witch before the presbytery of Tain.¹⁵ In 1738, a crew of fishermen was holed-up at Tarbat Ness for a few weeks, unable to return to Cromarty due to stormy weather. The men went to see Stine Bheag who was “famous at this time as one in league with Satan, and much consulted by seafaring men when windbound in any of the neighbouring ports”. Her cottage was “ruinous and weather-beaten” and “there issued dense volumes of smoke, accompanied by a heavy oppressive

scent". When the men entered her cottage they saw the hag sitting on a stool in front of the fire performing a spell. She was flinging handfuls of seaweed into the hearth and muttering a Gaelic rhyme. Miller, always the scholar, explains that the seaweed was *Fucus nodosus*,¹⁶ the kind "which consists of chains of little brown bladders filled with air". Inside the smoke-filled hovel, the flames "glanced on the naked walls of turf and stone, and on a few implements of housewifery which were ranged along the sides, together with other utensils of a more questionable form and appearance". In the corner stood "a huge wooden trough, filled with water, from whence there proceeded a splashing bubbling noise, as if it were filled with live fish . . . and was sentinelled by a black cat, that sat purring on a stool beside it". Other objects in the room included a bundle of dried herbs, the skeleton of some animal partially moulded with red clay, and a staff "with the tail of a fish fastened to one end, and the wings of a raven to the other". One of the men, a fellow named Macglashan, approached Stine and asked her to favour them with a breeze to take them to Cromarty. The old woman asked for the stoup of the ship and performed a spell upon it. The next day the men set sail for home.¹⁷ This encounter was related, many years after, by Macglashan, though given the date of the events (1738) it seems unlikely that Miller heard it first-hand from this source.

Miller relates information that he could not possibly have known, but yet effectively communicates what he himself imagined a witch's cottage to look like. His imagination was, in part, a blend of all the voices who ever told him about witches, Macglashan's included. Herein lies the validity of Miller as a folklorist. While his information may at times be fanciful and dressed up in his own flair for colourful language and verbosity, his accounts would have been recognisable to the people from whom he heard them, if not always in accurate or specific detail, then in sentiment.

Hugh and the Fairies

Miller tells a story, which involves the fairies, in the least likely of his publications, *The Old Red Sandstone* (1841) – though as one gets to know Miller's work we soon learn there is rarely anything predictable about him, and a conversation about fairies side-by-side with a disquisition on geology is not unusual in the slightest. The story concerns two children, a boy and a girl, who, one Sunday morning in Burn of Eathie, stayed behind while all the rest of the community were at church. Just at the noon hour, the siblings observed a number of figures riding by on horseback:

"The horses were shaggy, diminutive things, speckled dun and grey; the riders, stunted, misgrown, ugly creatures, attired in antique jerkins of plaid, long grey cloaks, and little red caps, from under which their wild uncombed locks shot out over their cheeks and foreheads".

As the last in the procession of "uncouth and dwarfish" riders went by, the boy summoned the courage to ask who the riders were:

“‘What are ye, little mannie? and where are ye going?’ inquired the boy, his curiosity getting the better of his fears and his prudence. ‘Not of the race of Adam’, said the creature, turning for a moment in his saddle: ‘the People of Peace shall never more be seen in Scotland’”.¹⁸

What the children had witnessed was the departure of the last fairies from Scotland. The final farewell of the fairies is a theme that has always been a part of fairy tradition from the very earliest to the most recent of times; “the perpetual recession of the fairies”, as one scholar has called it.¹⁹

Miller states that the events at Burn of Eathie had taken place “nearly sixty years ago”, somewhere around the early 1780s. No names are provided, notable because Miller generally gives names if he knows them, but the inclusion of the date is surely intended to lend credibility to the truth of the story. Earlier on, in the same passage, Miller relates further conversations with three separate individuals who had encountered the fairy folk, for only one of whom he provides a name. Donald Calder, a Cromarty shopkeeper, had “more than sixty years ago” (taking us back to the 1770s) been walking along the path between Cromarty and Rosemarkie at night when he was surprised to hear “the most delightful music he had ever heard” coming from a mysterious source which, though he searched, he could not find. Even more peculiar was that the chorus, “in which a thousand tiny voices seemed to join” was addressed to him: “Hey, Donald Calder; ho, Donald Calder”. The shopkeeper quickly came to the conclusion that supernatural forces were at work and he hastily beat a path home “under the influence of a terror so extreme, that, unfortunately . . . it had the effect of obliterating from his memory every part of the song except the chorus”. On his arrival home, he discovered that instead of lingering to listen to the music for just a few minutes, he had in fact spent the better part of the evening caught up, it would seem, under the fairies’ spell. Of his other two informants we are told of an old woman who had seen the fairies dancing as the sun was setting when she was a small girl, and an old man “who had the temerity to offer one of them [the fairies] a pinch of snuff”.²⁰

In *My Schools and Schoolmasters*, the reader is introduced to a man called John Fraser, a stonemason who had been a great influence upon Miller. His ability “of drawing shrewd inferences from natural phenomena” is what impressed Miller most about this untaught yet highly intelligent man. Fraser applied his skills of logic to “the travelled stone of Petty”, a large boulder which had moved from the beach into the middle of the bay, a distance of several hundred feet. Local tradition had it that the boulder had been carried there by the fairies, but Fraser, theorised that it had, in all probability, been carried by a sheet of thick ice. This he concluded following his canny observation that stones of some size floated atop ice as it drifted past his cottage on the Cromarty Firth. As ice was something that he knew about, and fairies were something of which he knew little – such as their ability to carry heavy objects – he favoured his

ice theory, “such was the natural philosophy of old John”.²¹ Time, of course, would prove him right. There is no suggestion in this particular story, that either John Fraser or Miller disbelieved in the possibility of fairies, only that alternative explanations could also be entertained and investigated. This is also an example of rationalisation; while for some it was perfectly reasonable that the fairies were the culprits, for others, alternative options could prove acceptable.

The contradictions within Miller’s attitude towards the supernatural surface in his opinions about the fairies, for while he suggests that after the fairies had departed from Burn of Eathie “it would have been vain to have looked for them anywhere else”, he is on record as having believed in their continued existence himself. After Miller’s death, the naturalist Robert Dick from Thurso expressed, perhaps a little unkindly, little surprise toward the suicide for he thought Miller’s “mind was touched somehow by superstition”. He recounts that one afternoon, while the two had been looking over their specimens together at Holborn Head, Miller suddenly jumped up and cried, “The fairies have got hold of my trousers!” He kept rubbing his leg and would not accept the explanation from Dick that perhaps an ant or some suchlike insect had in fact crawled up his trouser leg, but insisted, “it was the fairies!”²²

On a more sombre note, this was by no means the only instance when Miller revealed his metaphysical side. As a boy, only five years old, he witnessed a terrifying vision of a severed arm floating before him which was later interpreted as a death omen related to the tragic death of his father at sea. Such an event was bound to make an impression on his developing young mind, though curiously, Miller did not attempt to explain the incident other than to remark “its coincidence . . . with the probable time of my father’s death, seems at least curious”.²³

Conclusion

Miller walked between two worlds. He was a country-boy with a parentage of both lowland and highland blood, brought up among people who valued their folklore and traditions. But he was also an urban-dweller, searching for acceptance among the highly educated men and women with whom he mixed. Occasionally Miller must have found himself emotionally trapped between the two worlds, and we do get glimpses of these moments in his attitudes toward the supernatural. While he has great respect and admiration for his informants, and for their beliefs, some of which he admits to sharing, he paradoxically rejects supernatural beliefs as “superstitious” nonsense. Miller was perfectly capable of grieving over the disappearance or erosion of folk beliefs, while at the same time, applauding the arrival of “reason” and “rationality”. But why the paradox? During this period, there was a strong current against Scottish oral tradition among the educated classes, by whom it was regarded as “crude” and “uncivilised”. The best a collector such as Miller could expect from this audience was a fascination with the “primitive”, intrigued by “survivals” of days gone by. As folk beliefs and customs came to be

regarded as “quaint” or mere “whimsy”, many collectors felt the need to distance themselves from the material they gathered, thus displaying an “educated”, or indeed, “scientific” approach or interest.²⁴ A contemporary of Miller’s, Robert Chambers from Peebles, described the folktales he collected “of a simple kind, befitting the minds which they were to regale . . . they breathed of a time when society was in its simplest elements, and the most familiar natural things were as yet unascertained from the supernatural”.²⁵

“Superstition”, in Miller’s view, may have been a “weed indigenous to the human mind”, but Miller was wise enough to know that the superstitions of today are not necessarily the superstitions of tomorrow. Just as in the natural world immense changes are always taking place: “Geologists tell us that the earth produced its plants and animals at a time when the very stones of our oldest ruins existed only as mud or sand”.²⁶

The issues under discussion are, of course, never black and white and we will never know the innermost thoughts and feelings of Hugh Miller, the man. A sentiment of Miller’s that many readers can share, or at least sympathise with, is the sense of a loss of magic in the world when we become adults. He regretfully related that: “the marvels of his childhood had been melting away, one after one – the ghost, and the wraith, and the fairy had all disappeared; and the wide world seemed to spread out before him a tame and barren region, where truth dwelt in the forms of commonplace, and in these only”.²⁷

One part of this brilliant and enigmatic man accepted that accounts of the supernatural were simply humankind’s way of dealing with the unexplainable and the unknown – “the evils which men dread, and the appearances which they cannot understand, are invariably appropriated by superstition: if her power extend not over the terrible and the mysterious, she is without power at all”.²⁸ Unfortunately, he writes, “we cannot subject human character, like earth or metal, to the test of experiments which may be varied or repeated at pleasure; on the contrary, many of its most interesting traits are developed only by causes over which we have no control”. The whole world, he concludes, is a giant laboratory in which God is the chemist. We are, all of us, subjects in this laboratory, but we are also its spectators. Though we might not be able to alter the experiment, we can gain knowledge through observing “its various results”.²⁹ This is what Miller did so well. He observed, he recorded, he listened, not simply with the mind of a scientist, but also with the heart of a Cromarty man.

References

- 1 William Thoms, using the name Ambrose Merton, wrote to *The Athenaeum* in 1846 to suggest that instead of the definition “Popular Antiquities, or Popular Literature” a better terminology might be found “by a good Saxon compound, Folklore – the Lore of the People”. *The Athenaeum* No. 982 (22 August 1846) 862-3, reprinted as William Thoms, “Folklore”, in *The Study of Folklore*, ed. Alan Dundes (Englewood Cliffs, N. J.: Prentice-Hall, 1965) 4-6.

- 2 George Rosie, *Hugh Miller. Outrage and Order: A Biography and Selected Writings*, (Edinburgh: Mainstream, 1981).
- 3 James Robertson, intro., Hugh Miller, *Scenes and Legends of the North of Scotland*, (1835; Edinburgh: B&W, 1994).
- 4 Richard Dorson, *The British Folklorists: A History*, (London: Routledge and Kegan Paul, 1968) 138, 140.
- 5 David Alston, “The Fallen Meteor: Hugh Miller and Local Tradition”, *Hugh Miller and the Controversies of Victorian Science*, ed. Michael Shortland (Oxford: Oxford UP, 1996); James Robertson, “Scenes, Legends and Storytelling in the Making of Hugh Miller”, *Hugh Miller in Context*, ed. Lester Borley (Cromarty: Cromarty Arts Trust, 2002).
- 6 Robertson, “Scenes, Legends and Storytelling in the Making of Hugh Miller”, 19.
- 7 Hugh Miller, *Scenes and Legends of the North of Scotland*, (1835; Edinburgh: B&W, 1994) 2.
- 8 Hugh Miller, *My Schools and Schoolmasters, or the story of my education* (1854; Edinburgh: William P. Nimmo, 1869) 299-301.
- 9 W. Hugh Jansen, “The Esoteric-Exoteric Factor in Folklore”, *The Study of Folklore*, ed. Alan Dundes (Englewood Cliffs, N. J.: Prentice-Hall, 1965) 43-51.
- 10 James Robertson commented “It is my belief – and I am sure it was Miller’s too – that storytelling is almost as natural to human beings as breathing, and is one of the basic building-blocks of human society”, “Scenes, Legends and Storytelling in the Making of Hugh Miller”, 18.
- 11 Donald Smith, *Storytelling Scotland: A Nation in Narrative*, (Edinburgh: Polygon, 2001) 5.
- 12 Miller divided the traditions he collected into three main categories: local accounts of real events; stories of pure invention; and lastly, traditions which are a combination of the first two. *Scenes and Legends of the North of Scotland*, 3-5.
- 13 David Buchan, “History and Harlaw”, *Ballad Studies*, ed. E. B. Lyle (London: Brewer, 1976) 29-40.
- 14 Miller, *Scenes and Legends of the North of Scotland*, 277-90. Reid did marry Helen Stuart and the family prospered for nearly a century but their line died out at the beginning of the nineteenth century with the death of their grandson. The remains of Helen Stuart lie within the chapel of St. Regulus. Helen’s only daughter married Sir George MacKenzie of Cromarty and is buried in Inverness.
- 15 Stine’s son had inadvertently seen his mother engaged in an orgy and told his father what he had witnessed.
- 16 This seaweed is now known as *ascophyllum nodosum*. I am grateful to Dr. Michael Turner of Oban for this information.
- 17 Miller, *Scenes and Legends of the North of Scotland*, 269-76.
- 18 Hugh Miller, *The Old Red Sandstone* (1841; London: Dent, 1922) 215.
- 19 For more on this theme see Lizanne Henderson and Edward J. Cowan, *Scottish Fairy Belief: A History*, (East Linton: Tuckwell P, 2001), and Barbara Rieti, *Strange Terrain: The Fairy World in Newfoundland*, (St. John’s: ISER, 1991).
- 20 Miller, *The Old Red Sandstone*, 214.
- 21 Miller, *My Schools and Schoolmasters*, 275-6.
- 22 Robert Dick qtd. in *Hugh Miller’s Memoir*, ed. Michael Shortland (Edinburgh: Edinburgh UP, 1995) 75.
- 23 Miller, *Scenes and Legends of the North of Scotland*, x.
- 24 For more on the developmental phase of folklore as a “science” or “discipline” see, for instance, Gillian Bennett, “Geologists and Folklorists: Cultural Evolution and “The Science of Folklore””, *Folklore* 105 (1994) 25-37, William Bascom, “Folklore and Anthropology”, *The Study of Folklore*, ed. Alan Dundes (Englewood Cliffs, N. J.: Prentice-Hall, 1965) 25-33, Alexander H. Krappe, *The Science of Folklore: A Classic Introduction to the Origins, Forms, and Characteristics of Folklore*, (New York: Norton Library, 1964), G. L. Gomme, *Folklore as a Historical Science*, (London: Methuen, 1908).
- 25 Chambers described the material he collected as “the production of rustic wits” or “the whimsies of

mere children, and were originally designed for no higher purpose than to convey the wisdom or the humours of the cottage, to soothe the murmurs of the cradle, or enliven the sports of the village green". He cautions his reader, "not to expect here anything profound, or sublime, or elegant, or affecting . . . the absence of high-wrought literary grace is compensated by a simplicity coming direct from nature". *The Popular Rhymes of Scotland*, (1826; 1841; London and Edinburgh: W&R Chambers, 1870) vi, 48.

26 Miller, *Scenes and Legends of the North of Scotland*, 3.

27 Miller, *Scenes and Legends of the North of Scotland*, 323-4.

28 Miller, *Scenes and Legends of the North of Scotland*, 60.

29 Miller, *Scenes and Legends of the North of Scotland*, 229-30.



Calotype of Hugh Miller by Hill and Adamson, 1843, courtesy of Scottish National Portrait Gallery

The Changes Miller Saw

Gavin Sprott, Keeper of Social and Technological History,
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Every age flatters itself that it has seen unprecedented changes. But that is the nature of change, *ipso facto*. One can speculate about the rate of change, but how does one measure that? At the end of the day, it is all in the eye of the beholder, and what is just as interesting is people's attitude to change, and no less the attitude of Hugh Miller to it. At first sight, Miller might be identified with a conservative tendency, and who like a republican old Roman harked back to lost virtues. Yet he had as hearty a dislike of obscurantism and romantic mysticism as he did of radicalism, and sought to enlist science and reason on his side. Although obviously a very different character, he had a surprising amount in common with one man for whom he had a great admiration – Dr Johnson. They both enjoyed strenuous argument, had a sense of fun, a strong compassionate streak, they took personal piety seriously, they were subject to moods of depression, they were fiercely independent, they valued education over rank, and on a personal level they were traditional in their values. They both marched naturally towards what might be called the sound of moral gunfire. Both raised what in other hands would have been journalism into something much more substantial. Johnson collected words as Miller collected fossils, and both made forays into their respective sister kingdoms in journeys of discovery, and were agreeably surprised by what they found.

What actually did Miller find, in Scotland as well as his travels into England? In the broadest sense, industrialisation. That may seem tritely obvious, but it is worth applying that to the countryside as well as growing urbanisation, and it will provide a broader context for Miller's attitudes. When Miller was born, the Agricultural Revolution was already a century old in Scotland. By 1760 it was sweeping west and north of the Forth, but there were still large areas that were only touched in isolated instances. That included Buchan, substantial parts of Galloway, the Lowland coastal strip extending up to Caithness, the Highlands and the Northern and Western Isles. But even in parts of these areas the 18th century cattle trade was something new, and as we shall see it was a forerunner of more serious changes. There are two aspects to this: the general concept of "improvement", and more particularly what came to be called "high farming", and the Clearances.

The landmarks of “improvement” – the Agricultural Revolution – in the Cromarty area are very well charted in the late Marinell Ash’s *This Noble Harbour*.¹ But what actually was improvement? It is worth reminding ourselves what the practicalities entailed, because as a working man, Miller would have been as struck by that as well as by the bigger picture.

Improvement was first a change in the system of land use. The old-style land-use tended to zone the land into arable and pasture, with a certain amount of general-purpose land in between. The best arable was intensively manured and cultivated, and the poorer arable cropped until the yield did not repay the effort, and it was left to recover over a period of years. The latter was also a quarry for turf used for building purposes, and sometimes for adding to compost to provide more manure. The main pasture lay outside the arable, and it was there that the stock was taken from spring until the in-by ground was cleared of crops. This *commonty* or common grazing would be carefully farmed, with the stock herded from one place to the next to take best advantage of it. This could extend to summer grazings far from the main settlement.

This old-style farming would become the butt of severe criticism on the part of the Improvers, and there were various reasons for this. In reasonable years it provided a subsistence for the population, but it produced little in the way of a commercial surplus. It was dependent on the natural resources of pasture, timber and fuel regenerating in proportion to their use, and as population outstripped the productive capacity of this system, the balance was reversed. Hence the frequent reports of a landscape stripped of timber, and the distances people now sometimes had to travel to get peats. And worst of all, the old-style farming was vulnerable to the seasons, because of the lack of winter feed for the stock. The latter half of the 17th century had seen a run of relatively benign seasons – until 1695. Then followed the proverbial seven ill years, in which there was widespread famine. Easter Ross was badly hit, and the memory was still there over a century later.² Overall, to the improver’s eye, the old-style farming was ramshackle, wasteful, a charmless rural slum of ignorance, indolence and poverty. That is the message of the considerable literature of improvement, not least Sir George Steuart Mackenzie of Coul in his country report for Ross and Cromarty,³ writing in 1810, a point when change was making a considerable impact.

Yet the old-style system had its own logic, and it is hard to see how else a small population scattered over a land where there were extremes of fertility within a small compass, and with a fairly simple level of technology, could have farmed. Put crudely, the good of the much more extensive lower-grade pasture was transferred and concentrated on the higher-grade arable, and this was done through the manure generated by the cattle. They were the vital interface, and the relationship between people and their beasts was thus very different in the old-style system. People lived through the animals and their products – which included energy for cultivation and transport – rather than consuming them like a crop. In terms of breed, this dictated an all-round character – hardiness, resistance to

disease, good mothering and easy birthing characteristics. It is not as if people did not have the wit to breed something different, it was that the environment proved the best breeder of what the old-style system required.

By the same token, the old system produced a different social and mental outlook. Now, it is possible to speculate, but difficult to really know what this may have been, because it is now so far below the horizon of our experience. But this is something that must have been very real to Miller. He experienced the old pre-industrial social set-up first hand during his childhood visits to his Sutherland cousins, and later as a working mason in the western Highlands. By way of contrast, he saw the condition of farm servants in the Lothians who were too ill or old to work. No wonder his attitude towards industry was ambivalent, and easily conflated with the contrast between Lowland and Highland, the conflict between a colourful “barbarism”, and sober and perhaps dull “civilisation”. But what character in the older social set-up might have struck a chord with Miller? If there was one outstanding element, it was the communal emphasis of so much activity. While that meant a continual obstruction of individual initiative, yet there was much that could not be done without communal action or agreement. Within this there was probably an appetite for discussion, argument and neighbourly quarrels, and a subtle running battle between individuals and a quite authoritarian tyranny of the majority.

One thing that would have been evident to observers at the time, but which is more difficult to imagine at a distance is how the old pre-improvement farming tied people into a system. It was a tree in which everyone had their perch, however wretched or near the edge of existence that may have been, and the key to this was land. The laird held his land of the crown, the tenant held his land of the laird, and the sub-tenant held his scrappy little yard of the tenant. If through misfortune or improvidence one fell out of this system, there was nowhere to go, because before the Agricultural Revolution there was little market for casual labour and no public works worth speaking of to absorb the unemployed. (That is one connection Miller failed to make when he marvelled at how recent collier serfdom had been.⁴ In fact, it was no more than a brutal job-creation scheme of the seventeenth century, and an attempt to cope with the insoluble problem of beggary.) Miller seems to have identified the *mealers* or mailers, the recently settled small-holders that he and others saw in Easter Ross with representatives of an old order, “small independent men” who were being shoved out by the “big farm system”. Although drawn from the ranks of the old-style farming population, these people were in fact something new, more akin to the *moss-lairds* that Lord Kames had settled on Blair Drummond Moss in Stirlingshire half a century earlier, or the *crafters* of Buchan breaking in small patches on the bare windy hillsides a generation later, but all in the hope of getting a foot-hold on the new tenancy ladder. But what was evident to Miller and any observer at the time was that the new system that he saw in lowland Ross-shire had a kind of all-conquering power that consumed everything in its path, a sec-

ond incarnation of the change that had occurred in East Lothian and Berwickshire early in the previous century. Miller was both fascinated by it and suspicious of the human consequences, as his *New Statistical Account* entry for Cromarty shows.

The new farming had taken a grip in the area before the outbreak of the French Wars in 1793, but was swept forward by the war-time economics. The difference between the industrialisation of East Lothian and Easter Ross and Cromarty farming was that in the latter case the change in the system of land use and new technology came in the same package. The essential character of the new farming was not just the scale, but the integration of arable and pasture in new rotations, and the deliberate production of winter feed by sowing grass and root-crops. Instead of a small island of intense arable set in a sea of rough grazing, the new farming cultivated much more ground, but at only a fraction of the intensity. This alone changed the appearance of the land drastically. Away went the numerous pockets of mire and wetland with a drastic sweep that would reduce present-day nature conservationists to apoplectic rage, and over most of the Lowlands the areas of cultivation spread out and eventually touched their neighbours. And since the livestock had to be separated from what were now neighbouring crops, hence the “enclosures” or dykes and hedges of which all the improving literature speaks.

This change was a massive one, and required unheard of sums of investment to set it up, and an equally remarkable physical effort to realise it. The investment came mostly from outside the area, the fruits of judicious government service, and the spoils of war and empire. The physical effort was dictated by one imperative – the requirements of the new crops of sown grass and turnips. Neither would thrive on the sour, weed-ridden and wet ground of the old-style farming. This is the theme that runs constantly through that first great work of agricultural journalism, Andrew Wight’s *Present State of Husbandry*,⁵ based on the reports he had made for the Commissioners of the Annexed Estates. A curious visitor to Easter Ross, Wight was an East Lothian farmer with a practical eye for detail, and the need to get what he called “a good stool of grass” was paramount. This could only be achieved by a strenuous regime of stone and weed clearance, drainage and liming. This was all hand-work, the initial basics done by large squads of men “trenching”, or systematically deep-digging the ground, picking out the smaller stones and sometimes even blasting the larger ones. The old serpentine and high-crowned *rigs* or cultivation ridges had to be straightened and sub-soil drains dug into the ground between them.

Although that would achieve drastic change, it could still be disappointing, because the surface run-off might not reach the new drains. The years of the French wars sustained high prices, but were punctuated by bad seasons that could defeat even the new farming. That problem would be addressed by the new system of thorough sub-soil drainage developed by James Smith of Deanston in 1833. This involved a sub-soil plough that broke up the hard pan beneath the topsoil and allowed the surface water

to reach the drains. It is from this point that the ground to the east of the Kildary, Fearn and Tain axis assumed its almost prairie-like character. Another element that went with the new farming was new building, and in this Miller was a direct participant.

There is more to this than meets the eye. Farm buildings are part of the farmer's working plant, just as much as a plough. They are a means of handling stock and processing and storing crops. This applied to pre-improvement buildings as much as those bred of farming improvement. The difference was that the old-style buildings were part of the organic cycle, in that their construction included turf and thatch, both of which were eventually recycled onto the land, besides the function of the buildings in processing peat into potash and conserving and composting the animal waste products. Miller noticed the organic element in the construction of his Sutherland cousins' habitations,⁶ and was aware of the correlation between improvement and the character of the farm steadings, for instance the further west one went in the Black Isle. As a stonemason he was in fact a prominent part of the new order, where the fabric of farm buildings became separate from the organic cycle. The rural building trade that he knew was the creation of improvement, just as much as the vastly expanded trades of the smith, the *wricht* or joiner, the saddler and the mill wright. Otherwise, who was to shoe the horses, make and relay the socks and coulters on the new ploughs, make the new carts and furnish the ironwork, kit out the large new breeds of draft animals, or build and maintain the new corn and threshing mills? The new rural building trade was very much part of this different order. It was linked to vastly expanded or even new rural industries: quarrying, commercial forestry and saw milling, slating, tile and brick making, lime burning and so on. In turn these were all reliant on new roads or port facilities, the product of rural industrialisation.

It is tempting to see the Highlands as perhaps some charming but rather ramshackle arcadia that was invaded by a kind of cruel progress. Arcadia or none, the change was earlier and more insidious than may appear at first sight. The Union of 1707 secured both England's northern frontier, and a new and growing part of Scotland's trade. It legitimised an already extensive poaching in England's colonies, and the considerable cattle trade across the Border. The rough justice that followed the '45 also led to the end of the curse of cattle theft, and an economic Indian summer for the Highlands. This cattle trade was one among other cash crops from the Highlands, timber and soldiers. It was the first of what might be called a series of monocultures: sheep, then deer, modern forestry, tourists, and perhaps even fish farming. From continuing as part of the age-old system of seasonal land use, the shielings or hill grazings became in effect summer cattle ranches. The proprietors soon caught on to the potential, and from the mid-18th century they began to let hill grazings as separate entities, thus putting the lid on the old system of land use wherever this took effect. An instance in Easter Ross was at Kildermorie at the head of Loch Morie in 1792, the *Year of the Sheep*, where this hiving off of

grazings to sheep men deprived local people of access to what had once been their common grazing.⁷ Despite the uproar, the laird had his way.

The Clearances had two quite distinct manifestations. Primary clearance moved the population around within a district, usually turning people off better land and resettling them on *crofts* (a Lowland word) or smallholdings on poorer land. There was always a proportion of people who went on, either to villages, towns, the Lowlands or beyond. But secondary clearance was ultimately more drastic. Whether it moved on people that had already been shifted in primary clearance or broke up older settlements, it was *as an fhearán* – off the land. The most famous target of Miller's wrath was the Sutherland clearance, which was initially primary clearance, dating from 1813, although he lived long enough to see the secondary clearance that set in when the kelp industry began to fail after the French wars.

As with the change in character that attended the shielings, subtle and indeed sad ironies underlie the process of the primary clearances. Although it had long been a crop in the garden of the *big house* (and a wonderful curiosity, as Miller remembered), only from the middle of the 18th century did Clanranald force his recalcitrant tenants to cultivate the potato. By the end of the century, they were dependent on it, along with vast swathes of the rest of Northern Europe. The disaster of the blight and great famine in Ireland and the north west of Scotland has obscured the star qualities of the potato. Unlike grain, a cold and over-wet spring will not cause it to rot in the soil, and a wild back-end will not devastate the harvest. Unlike grain, it does not need the same process of *winnowing* or ripening, careful and laborious storage, threshing, cleaning and milling or malting to render it usable. It can be dug up and cooked. And of most relevance to the displaced small tenant surveying his new allotment of uncultivated ground, the potato could be placed in rows on the surface, together with whatever manure was available, the soil and vegetation from the spaces in between flipped over on top with the spade or its variant the *cas chroom*, and the tubers would work their magic and not only produce a crop, but break in the ground and smother the other vegetation. This modification and miniaturisation of *rig* cultivation had long been known in the Lowlands as the *lazy bed*, and in the Highlands as *an feannag*. It is hard to see how the primary clearances and the creation of the new crofting landscape would have been possible without this combination of lazy bed and potato.

Miller's comment on the Sutherland Clearances is very striking, that it was "a sort of Russia on a small scale, that has just got another Peter the Great to civilise it". Further, "even the vast wealth and liberality of the Stafford family militated against the hapless country: it enabled them to treat it as the mere subject of an interesting experiment, in which gain to themselves was really no object – nearly as little as if they had resolved on dissecting a dog alive for the benefit of science".⁸ The vast wealth was the income of the Bridgewater Canal, but the "liberality" is equally important. The estate gained nothing from its efforts, and despite the burdens

imposed by the new Poor Law of 1845, would have been much richer by throwing sovereigns into the River Naver than building all the roads, bridges and other infrastructure that it did.

The attitude of the conservative 19th century proprietor was wonderfully expressed by General Traill-Burroughs, the laird of Rousay, when he spoke before Lord Napier and his commission at Kirkwall on 23rd July 1883".⁹ Is the property mine, or is it not mine? If it is mine, surely I can do whatever I consider best for it?" The general's wording was careful, in that he specified what was best for it, not doing what he wanted with it, admitting a burden of social responsibility. Yet what brought to an end this extraordinary power that the proprietor had, and of which Miller so disapproved?

The Napier Commission, which was to lead to the 1886 Crofters Act, was not a response to reasoned evidence and discussion in Highland and Island county court-rooms, but crop failure, violence and uproar in Ireland. In a nutshell, the 1879 harvest there was a disaster, and was followed in 1880 by evictions of people who could not pay their rents. This led to Parnell and his Irish Land League, and the Irish Land Act of 1881 that led to security of tenure and judicially determined rents. Against this background there were poor harvests in the North West in 1881 and 1882, followed by poor wool prices and failure of the East Coast herring fishing on which many of people in the Isles relied for income. The winter of 1882-3 was grim, and it looked as if an action replay of the famine of 1845 onwards was developing. The explosion of popular unrest in Skye in particular led to government action, to prevent the Irish virus taking root in Scotland.

What would Miller have made of this, with his strong antipathy to militant action and working men's combinations? It perhaps underlines his misplaced optimism that the values that he so valued from a pre-industrial age could transcend the change.

Nor does the irony end there. Miller was a familiar and striking figure in the streets of mid-century Edinburgh, not least because of his shepherd's plaid. In the city by this time plaids were an old-fashioned accoutrement reserved for the occasional antiquarian at curling matches and such like. Otherwise they were the province of working shepherds, and might be seen at markets, shows and funerals, and had a practical use for carrying lambs. The Lowland shepherds that invaded the North with their sheep were often enough the devils of the piece in the popular imagination, they with their plaids and their dogs often being described as the miserable and diminutive congregations that replaced the natives in the parish kirks of the cleared districts. And to the natives they were barbarians:

“When one of them sets himself to the hill
When he rises early,
A lowland shriek will be coming from his throat,
Calling his dogs after him:

His roar is music that is no joy to us:
A braxy sheep in a sack across his back,
He swathed in his grey plaid
With a nest of lice brazenly in his hair.

When he comes on us downwind
Pity those that will be on the leaside,
His stench may not be bearable
And he carrying the guts home...”¹⁰

For Miller the plaid was a proud mark of a man who was not ashamed of having worked with his hands for a living. It identified him with such worthies as James Hogg, the Ettrick Shepherd. But one wonders whether the irony of the comparison with those who supplanted his mothers’ kin in Sutherland occurred to him.

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My Lydia and the Women of Cromarty

Elizabeth Sutherland, Writer, Rosemarkie, Ross and Cromarty

One of Hugh Miller's characteristics which many years ago endeared him to me was his genuine admiration and non-patronising respect for women. In *My Schools and Schoolmasters* he wrote: "The town had its small but very choice circle of accomplished intellectual ladies... And my circle of acquaintance included the entire class".

These women were very much part of the prosperous, expanding, middle-class Cromarty that Lydia joined in 1830. They read, they attended lectures, entertained each other to breakfasts, tea-parties and picnics and lived in elegant new buildings occupied by, as Miller described, "the elite of the place – all men of property and influence".

Because he was a writer and because he was genuinely admired, Hugh Miller moved freely between the classes. In his own words he "found his circle of friends very considerably enlarged by the publication of my Verses and Letters".

Fresh from the Surrey drawing rooms where class was much more rigidly segregated, Lydia at first found Hugh's presence in Cromarty society so baffling that she sought advice. Hugh tells us: "In order to make assurance doubly sure respecting the perfect propriety of such a proceeding on her part, she took the laudable precaution of stating the case to her mother's landlord...and he at once certified that there was not a lady of the place who might not converse, without remark, as often and as long as she pleased with me".¹

Lydia herself tells us about some of these women in her fragment of memoir, a part of which was published as *Mrs Hugh Miller's Journal* edited by her granddaughter, Lydia Miller Mackay, and printed in *Chambers Journal* in 1902.² This *Journal* was written after Hugh's death so she is looking back at her youth from a long perspective. However her memories of her Cromarty friends are fresh, humorous and insightful, reminding us that she too was an author of some account.

"There were two delightful old ladies – aunts of Sir Henry Barkley – thoroughly of the old school who possessed a liberal income and spent it most generously. Their house was like a dispensary – not of medicine. Their table groaned with good things; and in those days it was no easy matter to rise from the table of old-school folks without something very like physical suffering".

Then there was Mrs Allardyce, descended from George Urquhart of Greenhill, now known as Rose Farm. Lydia tells us: "She had a peculiar

elegance of mind derived from long familiarity with the poets and writers, especially of the reign of Queen Anne...Her daughter had a passion for natural science and kept aquariums before these things were common, and educated herself without being indebted to any schoolmasters”.

There was the formidable Mrs Mackenzie, wife of Captain Mackenzie of Scatwell, and daughter of the late distinguished William Forsyth whose *Memoir* Hugh was to publish in 1839. Lydia tells us: “She was of a tall and commanding figure, reserved, and dignified expression. She also possessed the ability, said to be impossible to those to whom it is not hereditary, of keeping people in their place by a look or by the gentlest word. Yet she was essentially most kind, and when a friend a very true one”.

Two of the four Smith girls, daughters of a former minister of Cromarty, were unmarried and lived with their widowed mother. Lydia writes: “Of these two the elder one was what is called the most superior. She loved the deep things of Calvinism, enjoyed an argument (the more metaphysical the better), and was a devoted admirer of the minister Mr Stewart of whose sermons she took copious notes....She wished to engage me in deep discussion which I on the other hand sought to avoid. I liked a raid into the metaphysical territory, but did not care to abide there...”

The youngest Smith daughter, Lydia’s own age, was also her favourite.

“She overflowed with want of a better word, I must call human nature. She had warm sunny affections, genuine humour, and an uncommon talent for mimicry which hurt no one.... She would sit up all night with a sick child if it belonged to the most miserable creature in the town. She was my most beloved companion. How the woods used to echo with our laughter on those long sunny afternoons”.

Hugh in a letter to another woman friend, the elderly intellectual Miss Helen Dunbar of Boath, describes a particular picnic outing to Eathie with some of these young women: “We differed and disputed and agreed, and then differed and disputed and agreed again. We, of the tougher sex arrogate to ourselves the possession of minds of a larger size than we admit to have fallen to the share of the members of yours... But,” he concluded, “By far the greater half of the collective intellect of the town is vested in the ladies”.³

There were also the three Ross girls, daughters of the widower Robert Ross, who gave Hugh his first desk job, and who were all in turn to become Lydia’s pupils. The eldest of these, Harriet Ross (later Taylor), in her unpublished and incomplete *Recollections of Hugh Miller*⁴ gives a valuable portrait both of Hugh and of Lydia before and during the early years of their marriage.

So these were some of Hugh’s female acquaintances. There were also his relatives and no account of the women of Cromarty would be complete without a description of his mother.

Harriet Wright was Hugh Miller senior’s second wife. She and her older sister Jenny were born the youngest children of a Cromarty shoemaker and educated by the skipper’s mother-in-law whom he had brought

to live in his cottage during his first marriage and where she was to remain after her daughter's death. From early girlhood, Harriet had learned to love the dashing ship's master, and they married when he was 44 and she only 18 years old.

It seems to have been a happy marriage with the young wife, Harriet, described by Hugh in *My Schools and Schoolmasters* as "simple, confiding and affectionate". Seven years later, the ship's master was drowned leaving behind him a widow and vulnerable little family of three, Hugh aged five and two little girls, who were sadly to die young. As no insurance was to be forthcoming for many years they were almost penniless so Harriet had to earn what money she could, supplemented, Hugh tells us, "in making pieces of dress", including shrouds, "for such of the neighbours as chose to employ her".

When Hugh was still a young man, Harriet married again, a Cromarty tailor called Andrew Williamson, and had three more children, two girls and a son Andrew who was later to work for Hugh in Edinburgh as a printer on *The Witness*. Andrew's son, Hugh Miller Williamson, in his unpublished *Essay on Hugh Miller*⁵ remembers Harriet, his grandmother, thus:

"She was very tall, only lacking a couple of inches of six feet, handsome in figure and of an intellectual cast of countenance. Her whole appearance commanded respect.... Well do I remember the old lady with her long long hair which even in her 82nd year was without the slightest sprinkling of grey. She was very intelligent and took a great interest in all passing events. Her memory was truly wonderful and stored with treasures of fact and fiction".

Lydia, however, in her contribution to Bayne's *Life and Letters of Hugh Miller* described Harriet as "not remarkable for her mental powers or for strength of character". However she too acknowledged: "It is fair to add that her power of enchaining the attention of listeners, while she told her tales, was quite extraordinary, and that her son assuredly owed to her, in part at least, his genius for narrative".

A more objective view of Harriet was recorded by Harriet Ross Taylor who remembered her from her childhood days:

"She had a refined face and a superior cast about her, as all the Wrights had. She was most helpful to those around her in times of sickness or trial and kind to poor people near her house... How my sisters and I did enjoy an evening spent with Hugh in his study as I may call it, in his mother's house! The good woman had laid out the tea-table and waited on us but did not partake of the meal. Hugh treated her with the utmost respect and tenderness and he was a prince in her eyes".⁶

Harriet was a true Celt, descended from Mackenzies, and fiercely proud of her ancestry. She combined in her make-up a strong religious zeal with a profound respect for – and belief in – the supernatural. It has

been said that she belonged to “a fairy-tale world”.⁷ Not at all. She matured from a vulnerable young widow into a strong personality well respected in Cromarty for her humanity, her knowledge of local affairs past and present and her mesmerising ability to tell a good story.

Two doors away from Harriet’s cottage in Church Street lived the two women who were to become Hugh’s wife and mother-in-law, Lydia and Elizabeth Fraser.

According to her great-granddaughter, Mrs Fraser was “a lady of strong will and an unusual force of character, who ruled her children and her grandchildren after them both by love and fear”.⁸ She was an Invernesian, the granddaughter of the Revd Murdoch Mackenzie the Younger of Redcastle and was as proud of her Mackenzie descent as Harriet Miller was of hers. Little is known of her father, and not much more about her husband, William Fraser, who according to Bayne was “a notably handsome young stalker unsurpassed on the hillside” but incapable as a businessman for it seems that he had a shop that sold wines, spirits, snuff and leather in Inverness which failed. He and Elizabeth were married in 1809 and had two children, Lydia Falconer Fraser, baptised on 25 January 1812, and Thomas born ten years later.

Not long after William died penniless aged 39 in 1828, Elizabeth removed to Braefoot next to the Courthouse in Cromarty to live off a legacy of £2000 capital left to her by a Mackenzie uncle.⁹ Bayne tells us that she came to Cromarty to sit at the foot of the charismatic preacher, Alexander Stewart. No doubt too she wanted to get away from unhappy associations in Inverness. Cromarty seemed a good place to start life afresh. She had some old friends in the neighbourhood and soon made new ones. Also, but not unimportantly, the cost of living was less.

Her objections to Hugh as a son-in-law were for the obvious reasons, lack of money, a respectable job and position in the world, and her knowledge of her daughter whom rightly she knew would not survive as a labourer’s wife. She must have had high hopes that Lydia so pretty and well-educated would marry well and therefore she did all she could she could to separate them. She was sensible enough, however, to like and admire Hugh for himself, and to know when to yield to her daughter and allow them to become engaged, provided they waited for three years before marrying. Indeed she went so far as to promise them £200 out of her meagre capital to start a new life together in America. This offer must have tested her generosity to the limit, for it was money she could ill afford and to lose her beloved daughter to America cannot have been a happy prospect. Although I doubt if she was on calling terms with Hugh’s family, she was always a loving, supportive mother and mother-in-law and a particularly devoted grandmother. Hugh was right to describe her as “an excellent and sensible woman”.

And so to her daughter, “my Lydia”, as Hugh in his correspondence always referred to his wife.

Lydia’s life divides neatly into three portions. Her girlhood of some twenty-five years, her marriage of nearly twenty years, and her widowhood of a further twenty years before her death in 1876. I propose there-

fore only to look at the girl Hugh fell in love with, that decade of courtship and early marriage in Cromarty between 1830 and 1840 which was probably the happiest period of her life.

Briefly then, for her childhood and adolescence were covered in a previous conference, Lydia was educated at Inverness Academy where she excelled in her studies and at music. At the age of fifteen, she was sent to Edinburgh, to complete her education at the home of the elderly Mr George Thomson,¹⁰ a passionate musician, who eked out his income by taking in boarding pupils. There she met many of the brightest artists, musicians and writers on the Edinburgh scene and seems to have been a favourite.

After about a year she travelled south to stay with relatives, Isabella Logan Dobinson and her husband Joseph Dobinson, a solicitor and JP who lived at Egham Lodge overlooking Windsor Great Park in Surrey. There she experienced many social advantages, and though she mentions nothing about Egham in her *Journal*, it was obviously a happy time. In her adult novel¹¹ written some years later it would appear to be the idealised home of her heroine. Indeed she and Hugh were to name their first child Elizabeth Logan after her mother and her kindly English relative.

Lydia left Egham in 1830 at the age of eighteen to join her mother in Cromarty. As Peter Bayne put it: "A young lady of great natural ability, accustomed to polite society in Surrey and advantageously educated and introduced in Edinburgh would be likely to shine in the intellectual society of Cromarty", and shine she undoubtedly did for she was both lively and attractive.

Her portrait painted five years later shows her to have been small, pretty and vivacious with dark hair arranged in the fashion of the day with a knot at the back of the head and corkscrew ringlets either side of an oval face. Her skin is luminous and pale, her eyes almond-shaped, dark and slightly hooded, her nose strong over a firm expressive mouth.¹²

Her first task was to set up a school for girls in her mother's cottage. Her granddaughter described her as a born teacher and Harriet Ross Taylor, one of her first pupils, also remarked in her *Recollections* on her skills as a teacher and added, "as for myself I almost worshipped her". She on her part threw herself into her work and into the life and society of the town with enthusiasm, and apparently without a regret for the more luxurious life she had left behind in Surrey.

It always strikes me as odd that Hugh and Lydia did not come across each other for over a year considering that they lived only three doors apart in the same street. As she herself wrote in her *Journal*:

"I do not know how or why it was that I never met the Cromarty Poet, as he was called, anywhere that year. Our spheres lay quite apart. I'm afraid I loved as much gaiety as I could get while he lived in his old contemplative philosophic ideal".

But she heard about him continually because Cromarty was proud of its stonemason poet and she was to notice him before he noticed her. She

and her mother had gone to visit a charity school on the Braehead.

“Soon after a man came in, in what looked like the Sunday dress of a working man, and seated himself upon a form by the door. My mother whispered to me that this was the Cromarty poet. I was greatly struck by the thoughtful look of his countenance, especially the eye which was indeed remarkable not only for expression but in form and colour. It was a sort of family eye, which I have never seen in anyone not connected with him. The chiselling was fine, the colouring a deep-blue tinged with sapphire....But what struck me most at that time was its earnest and deeply pensive cast”.

Elsewhere in her *Journal* she describes him as “essentially an aristocrat of genius. He was born so; he could not help himself”.

So those were Lydia’s first impressions of the man she was to marry. What were his of her? Before he fell in love with Lydia, Hugh had more or less given up the idea of marriage. But this did not mean that he did not think about romance. In his solitary walks he tells us that “a female companion often walked in fancy by my side, with whom I exchanged many a thought and gave expression to many a feeling”. He called this day dream, his “bachelor wife”. When a woman of taste, intellect and beauty arrived in Cromarty, Hugh was more than ready to relinquish all previous ideas of celibacy. He was as susceptible as any other man.

He wrote at length of their first meeting in *My Schools and Schoolmasters* and less blandly in his *Letter Book* in which he tells us that he was working on a sundial in his uncles’ garden when two ladies crossed the street to examine it.

“I had been ill all day long and felt listless and fatigued and when a third lady came tripping down the garden walk... I but half turned my head to catch a glimpse of her. I saw that she was very young and pretty and very much flurried and that she deemed neither me nor my dial worth looking at”.

He noted her light and somewhat petite figure, and the waxen clearness of her complexion which resembled rather that of a fair child than of a grown woman, made her look from three to four years younger. She was nineteen to his twenty-nine. He also noted that she was “light-hearted and amiable, but somewhat foolish and affected, and her friends who are much attached to her, love her less as an interesting young woman than as an agreeable and promising child”.¹³

But that first impression was jolted a little later when he saw her wandering through the woods engaged in reading what he took to be a novel. To his surprise the book turned out to be an “elaborate Essay on Causation. That and her beauty and the beauty of the setting “haunted me for several days after”.¹⁴ Though they did not speak at the time, thereafter he was to meet her continually at what he called “the charming tea-parties of the place”.

No doubt it was at Lydia's instigation that Mrs Fraser invited him to her home where there was one other guest, a handsome young naval surgeon with whom Lydia flirted and of whom Hugh deeply disapproved as "dissipated and a rake, though a great favourite with the Cromarty ladies".

After that tea-party he wrote:

"My previous estimate of Miss Fraser I set aside altogether and took in a new one. I found she was highly accomplished and no fool, that she drew finely, sang beautifully and possessed at least the endowments of a just taste in poetry and belles lettres. She seemed too open, and unguarded and too desirous of being admired".¹⁵

This eagerness to please is further described by Hugh in a long and frank sketch of her character which is copied into his *Letter Book* and only a small part of which can be recorded here:

"I deemed her one of those who sometimes fail of pleasing through an over-anxiety to please from her want of confidence in herself...and something in her manner which at times approached to affectation, and yet so much was she the reverse of being thoroughly affected that she was in general too open and too natural".¹⁶

Here Hugh is describing the archetypical adolescent, newly emerged from the schoolroom, crammed with undigested facts, influenced by Surrey society where affectation was confused with sophistication, and deeply unsure of herself. But the more Hugh saw of her, the more fascinated he became. He records that he saw her

"when in her solitary walks start off at once half-running, half flying for some thirty or forty yards as if striving to give vent in bodily exertion to the fullness of the spirits within. Could I have been the only spectator, I would have suffered her to leap and run as often as she felt inclined....As it was I dreaded lest she should expose herself to the scorn of the fool, and so availed myself of the friend's privilege in giving her a hearty scold".¹⁷

Different days indeed when women were not supposed to display their feelings! To the present generation, the incident tells us that Lydia had moments of ecstatic happiness and when we remember how her later years were to be chained by ill-health and broken nerves we can only be glad that she was capable in her youth of those literal flights of freedom.

Hugh also summed up her intellectual faculties "as near on the first place. Her reasoning is alike powerful and acute, her observative powers always active and her imagination light, elegant, lively and consonant with all the more beautiful images of the material world".¹⁸ That imagination and her powers of observation were later to be amply demonstrated both in her novel and in her children's books.

The Lydia who emerges from Hugh's character sketch is not perfect

but she is real, and like most of humankind, a collection of contradictions. Accomplished and well-educated yet extraordinarily naive and lacking in self-confidence; flirtatious and eager to please yet often obstinate in her opinions and behaviour; wildly enthusiastic yet prone to depression, sometimes affected and foolish yet gifted with a formidable mind. Half-child, half-woman, pretty as paint. No wonder Hugh fell in love with her.

Her mother was quick to see what was happening and forbade Lydia to see him alone. She was stunned. In her *Journal* she tells us “I wept much, which confirmed my mother in her suspicions”. But, she assures us, “in secret, I was amused because I had not yet made up my mind to be Hugh’s wife under any circumstance”.

But the seed was planted and soon afterwards there came that magical hot Sunday evening in the summer of 1833. Wandering out in search of a cooling breeze she found herself at the ancient chapel of St Regulus, when suddenly Hugh was beside her. He didn’t stay long, as Lydia recalled, but, mindful of Mrs Fraser’s command, left her standing where he had found her. She wrote, “I knelt at a cold gravestone and registered over the dead a vow, rash and foolish perhaps, but it was kept”.

One cannot help speculating on the reasons why this pretty intelligent middle-class young lady should fall so determinedly in love with a labourer, poet though he was. It is perhaps too simplistic to say that she saw in him a father figure, a strong man in her life to take the place of the father who had failed. She was later to write that he had for her “the strength of the oak, while to him she had the delicacy of the myrtle”.

The analogy seems to have been taken from a poem by Samuel Johnson entitled *Verses written at the request of a gentleman to whom a lady has given a sprig of myrtle*. Two hundred years later Hugh’s personal copy of Johnson’s *Poetical Works* fell open at this page indicating perhaps that the poem was a favourite of his. This may have been why she used the pen name Mrs Myrtle for her children’s books. But of course her love for Hugh was more than that. In him, she found someone reliable whom she believed she could trust in all circumstances, an intelligence stronger than her own that she could respect, and a gentle, unselfish lover.

Hugh’s problem was not just the need to make enough money to support a wife but also for Lydia’s sake to improve his social status. As Harriet Ross Taylor wrote:

“I do not think that he had any desire to occupy a different social position than that in which he was born. He had indeed ambition, but it was to be recognised as a man of intellect in the scientific and literary world. I think he was happy in those days...but having become engaged to our highly gifted teacher, Miss Fraser, he was now anxious to be in a position to enable him to marry”.¹⁹

Time passed happily enough, and, as a series of revealing letters from this period record, they were able to discuss all subjects of interest on an equal footing. He wrote to her: “It has been said, my own Lydia, that a philosopher in petticoats is a loveless thing;... But surely there is very lit-

tle truth in that remark for never yet was there woman more warmly or tenderly beloved”.

There were also misunderstandings in which Hugh recognises that Lydia’s background, education and sex had given her an outlook necessarily different from his own. He points out that these differences were superficial so long as both agreed on one matter of fundamental importance, their Christian faith, and in this, Lydia and Hugh were to remain alike and supportive of each other throughout their life together.

The years were passing and Hugh still only an operative mason. It looked as if the dreaded America were to become a reality as soon as *Scenes and Legends* was published.²⁰ Then one morning Robert Ross, first agent of the Commercial Bank in Cromarty, invited him to breakfast. They had been friends since Hugh carved his young wife’s gravestone in 1830, and Lydia was his daughters’ teacher. Knowing their position, he offered Hugh the job of accountant to the newly formed bank.

From the point of view of hindsight Lydia fully understood the sacrifice he was about to make to enable them to marry. She wrote in her *Journal*: “The leaving of his chosen mode of life and betaking himself to a profession altogether sedentary was the grand disruption of his life.” But at the time, being in love, they both saw this as divine intervention, so in late November 1834 he set off to begin his training at Linlithgow.

Lydia’s letters give a fascinating picture of Cromarty life which included a series of lectures on Gas, Galvanism and Electricity in which she not only engaged in some banter with the lecturer but also allowed herself to be given an electric shock which upset her nervous system and made her physically ill.

Hugh was as ever concerned. He wrote: “Your temperament is a highly nervous one, your delicate tenement is o’erinform’d by spirit; tis a hard-working system, and the slightest addition to the moving power deranges the whole machine. Try and get yourself amused, my Lydia, and do not suffer your spirits to droop”.²¹

Her solution was to keep herself active and cheerful by writing for the annuals – she asks, “Say whether you approve of the plan...?” and Hugh replied that he was much gratified by her decision. “We must encourage each other, my Lydia, and should you be unsuccessful at first in forcing your way to the publisher’s shop, you must just remember that there are few writers who have not failed in their earlier efforts”.²²

His training finished, and their new home at Miller House spartanly furnished, they married at Braefoot on the 7th January 1837. It may have been her twenty-fifth birthday. The couple drove off in Mrs Mackenzie’s carriage to spend a brief honeymoon in Elgin. Thereafter in Miller House there followed, as Hugh put it, “times of very bright enjoyment” entertaining, going on fishing expeditions and learning to live together.

It can’t have been easy for the not particularly domesticated bride, pregnant, and still teaching, to be living next door to her mother-in-law and two doors away from her mother. Harriet Ross records:

“Mr Miller generally returned from the bank before we [pupils] left.

And yet he had eaten nothing since breakfast time, but in truth dinner was not always in such a state of preparedness as might be desirable, for Mrs Miller had been occupied with her school and the servant careless. Most men would have been a little cross, but he most good-humouredly make jokes over failures and mistakes”.²³

Ten months after their marriage, their baby was born. Lydia tells us that little Eliza was “a delight and wonder to Hugh above all wonders. Her little smiles and caresses sent him always away to his daily toil with a lighter heart”. Tragically Eliza contracted a long illness from which she died at the age of seventeen months. Both Hugh and Lydia were devastated. Lydia expressed her feelings in a long sad poem about her baby in heaven, while Hugh himself carved her headstone in St Regulus churchyard. Lydia recalled that “It was the last time he ever put chisel on stone”.

That year 1839 was to bring not only another daughter, but other challenges which neither of them could have envisaged, but which led to their removal to Edinburgh in 1840 and an altogether different way of life. The halcyon decade in Cromarty surrounded by relatives and that warm circle of women friends and acquaintances was over.

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- 1 *My Schools and Schoolmasters or The Story of my Education*. Edinburgh 1854. p 501
- 2 *Mrs Hugh Miller's Journal* edited and published by her granddaughter Lydia Miller Mackay in *Chamber's Journal*, VIth series, April - July 1902. p 370
- 3 Hugh Miller's *Letter Book*. No 60. 21st May 1833
- 4 *Lydia, Wife of Hugh Miller of Cromarty*. Elizabeth Sutherland. Tuckwell. 2002. Appendix.
- 5 Hugh Miller Williamson's *Essay on the Life of Hugh Miller* won a prize of £8 awarded by the Free Church of Scotland Welfare of Youth Committee in 1881 but it was never published. It was deposited in the National Library by the National Trust for Scotland in 1953. National Library of Scotland MS 7527,
- 6 *Lydia, Wife of Hugh Miller of Cromarty*. Appendix p 165
- 7 *Hugh Miller's Memoir: From Stonemason to Geologist*. Michael Shortland. EUP. 1995. p 23.
- 8 *Chamber's Journal*, VIth series p 369
- 9 Thomas Mackenzie made his money in Jamaica. His legacy of £2000 was left in trust for Elizabeth Fraser's children from which she was to enjoy the income with the proviso that it should 'not be in any way manner subject to the Interference, Debts or Engagements of her present or any future husband'.
- 10 George Thomson (1757-1851) was senior clerk to the Board of Trustees for the Encouragement of Manufactures in Scotland. He was one of the directors of the first Edinburgh musical festival in 1815.
- 11 Lydia Miller's adult novel entitled *Passages in the Life of an English Heiress; or Recollections of Disruption Times in Scotland* was published by Richard Bentley anonymously in 1847.
- 12 The portrait was painted in 1835 by Grigor Urquhart who was born in Inverness about 1797 and died some time after 1846. He spent some nine years in Rome from 1818 after which he returned to Inverness. His main claim to fame is the copy he made of Raphael's *Transfiguration* which is now in the collection of the National Galleries of Scotland. He seems to have been a peripatetic painter of no great talent.
- 13 - 18 Hugh Miller's *Letter Book* No 69 (undated)
- 19 *Lydia, Wife of Hugh Miller of Cromarty*. Appendix p 1620
- 20 *Scenes and Legends of the North of Scotland* was published in Edinburgh by A.& C.Black in 1835.
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- 22 Hugh Miller's *Letter Book* No 128 (undated)
- 23 *Lydia, Wife of Hugh Miller of Cromarty*. Appendix p 169

Cromarty: Highland Gateway for Emigrants Sailing to British North America 1784-1855

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My paper will be describing Cromarty's role as an embarkation port for emigrants over a very brief period of just a few decades. So, I will be concentrating primarily on Cromarty, not Hugh Miller. However, my subject field strays a little into Hugh Miller's world. He was one of the principal critics of the Highland Clearances and expressed very eloquently the outrage felt at the time over the forced removal of people from their homes to make way for sheep farms. The high profile given to the Clearances has to some extent been transferred to emigration in the sense that there is a public perception that emigration was the inevitable outcome of the Clearances. The terms emigration and the Clearances are almost seen as interchangeable. It is well to remember that, overall, the exodus involved both Highlanders and Lowlanders. Peaks in emigration numbers, whether from the Highlands or Lowlands, were very much affected by a belief in the better economic prospects to be had overseas and the availability of affordable transport. Thus, while the Clearances certainly created the conditions which fostered large-scale emigration, they were not the only factor in the decision to emigrate.

Scots were prominent in British North America from the late eighteenth century both as settlers and as industrialists. Before 1816, emigration was seen as an unwelcome development and landlords and government, fearing the loss of economic and military manpower, mobilised anti-emigration campaigns and legislative measures to curb its impact. But even then some took the opposite view. Lord Selkirk argued the case for Scottish emigration and devoted a considerable proportion of his personal fortune to establishing Highland colonists in Prince Edward Island, Upper Canada and Red River, in what is now Winnipeg, Manitoba.

However, attitudes changed dramatically as a result of the worsening economic conditions which followed the conclusion of the Napoleonic Wars in 1816. Rather than being viewed as a threat, emigration was seen as offering the means to alleviate the dire consequences of destitution and, in this changed political climate, emigration levels rose to new heights, especially during periods of economic depression. But, while poverty and poor prospects were major factors, emigrants were also influenced by the

expanding farming and industrial opportunities to be had in British America once the timber trade became established.

The arrival of the timber trade was a major turning point. It rapidly transformed British America's economic prospects and created the conditions which led to large-scale British emigration. The combined effect of the increasing shortage of naval timber, Napoleon's closure of the Baltic in 1807 and the introduction of preferential tariffs on North American timber in 1811, dealt a hammer blow to Britain's traditional timber suppliers in the Baltic. In spite of the extra cost of travelling far greater distances across the Atlantic, the tariffs meant that North American timber could be purchased more cheaply than Baltic timber. These tariffs were to remain in force until 1860.¹

Scots had demonstrated considerable success as pioneer settlers, having come in large numbers to North America from the late eighteenth century. The arrival of the timber trade thus brought affordable transatlantic transport to a country with long-established settlement footholds overseas. Emigrants with access to major Scottish ports could now readily get passages to British America on one of the many timber ships which regularly crossed the Atlantic. But why Cromarty?

The explanation lies in the nature of the new transatlantic shipping routes being created as a consequence of the timber trade. The massive rise in duties on Baltic timber forced east coast ports like Aberdeen and Leith to establish new transatlantic trade links. In the early 1800's Aberdeen did little trade with British America. But by 1816 it had become Aberdeen's major timber supplier, and Aberdeen ranked second to the Clyde in terms of ship arrivals from British America.² However, unlike their west coast counterparts, east coast shippers had the considerable disadvantage of having to circumnavigate Scotland before they even got to the Atlantic Ocean. This made Aberdeen and Leith shippers especially keen to capture the market in passengers. The North East Highlands was an obvious area to target and this is where Cromarty comes into the picture.

To keep their costs as low as possible, shippers had to minimise their journey times. When it came to collecting passengers they used a single collecting point which drew people from a large catchment area. Cromarty, situated midway between the Dornoch and Moray Firths, was the obvious choice. Emigrants from Sutherland down to the Morayshire coastline could get to Cromarty relatively easily by coastal steamers, and Cromarty had the added advantage of having a particularly good harbour. Thus with only a minor deviation to their routes, ships from Aberdeen, Leith, Dundee and other eastern ports could call at Cromarty for passengers.

Cromarty first started being used as an emigrant port by Aberdeen shippers from as early as 1784.³ Fares were high and the service was irregular, but it marked the beginning of a trade which was to blossom into a major industry and last for some sixty years. The numbers of people who sailed from Cromarty remained low until the 1820's when, as a result of

advancing sheep farms, large numbers from the Sutherland estate headed for Nova Scotia. But it actually took the depression years of the early 1830's and the opening up of the south western regions of Upper Canada to stimulate emigration in any numbers from the north-east of Scotland. And it was from this time that Cromarty's role as a major embarkation port became firmly established.

Lewis Rose could see large numbers of ocean-going ships arriving in Cromarty Harbour in June 1831 from his manse in Nigg.⁴ There are, he said, "three vessels just now in the Bay of Cromarty, within three or four miles of this house, taking away at an average 250 passengers of all ages each vessel, and a fourth sailed three weeks ago with about 300".⁵ And, his thoughts were with the many who he knew desperately wanted to emigrate but lacked the funds to pay their fares:

"Such is the high level of poverty, multitudes are emigrating to Canada ... The passage money for each adult to Quebec is 2 guineas and three children under seven will be carried for the same amount; the people provide their own victuals – the shipowners do not furnish them with anything but fuel and water. The emigrants in general are of the poorest class although some can be found in comfortably affluent circumstances".⁶

Hundreds of people were now leaving the North East Highlands spurred on by low fares, the worsening economic situation at home and the prospect of a better life abroad.

While the high emigration numbers could be attributed to the economic slump experienced at the time, there were other factors. Initially, the Maritime colonies were the preferred choice of most emigrant Scots but from 1830 they increasingly opted for Upper Canada, present-day Ontario. The combined effects of its excellent land and employment prospects, together with improving inland communications, made it an increasingly desirable destination for people, irrespective of any pressures they felt to leave. Many of those who emigrated settled in or near the Huron Tract, a vast area in Western Upper Canada being administered by the Canada Company. It was the last great frontier, with near limitless quantities of wilderness land, which could be purchased on easy terms.⁷ Favourable reports of the good wages, work opportunities and land which could be purchased led large numbers of emigrants from the North East Highlands to head west into Upper Canada, thus helping to create the large concentrations of Highlanders which eventually appeared in Perth, Huron and Middlesex Counties.⁸

The creation of new trade links between the main ports on the east coast of Scotland and ports in British North America therefore opened up emigrant transport to the North East Highlands. The operation relied upon intricate networks of agents and sub-agents who relayed information on the volume and location of intending emigrants to shippers, and the schedules and features of intending passenger ships to emigrants. As embarkation day approached, the agents organised notification and pick-

up services for their scattered clientele in time to co-ordinate with ship arrivals. It was a massive undertaking which required a keen eye and ear for locating potential customers plus a sound and reliable group of operators on the ground. This enabled agents to react quickly to the idiosyncrasies of ship timetables, such as they were, and assist emigrants in all aspects of their arrangements, including the raising of finance for their journeys.

The succession of ships, which agents advertised through local newspapers, had the appearance of a purpose-built shipping fleet, but of course the ships had no common owner and rarely did the same journey more than once. By setting up contracts with separate shipowners, the agents effectively could offer the equivalent of a modern-day shuttle service from Cromarty to popular ports of call in North America. Although there were enormous yearly variations in emigration numbers, it was quite common for three to four ships to call at Cromarty during the Spring and Summer of most years up to 1850.⁹

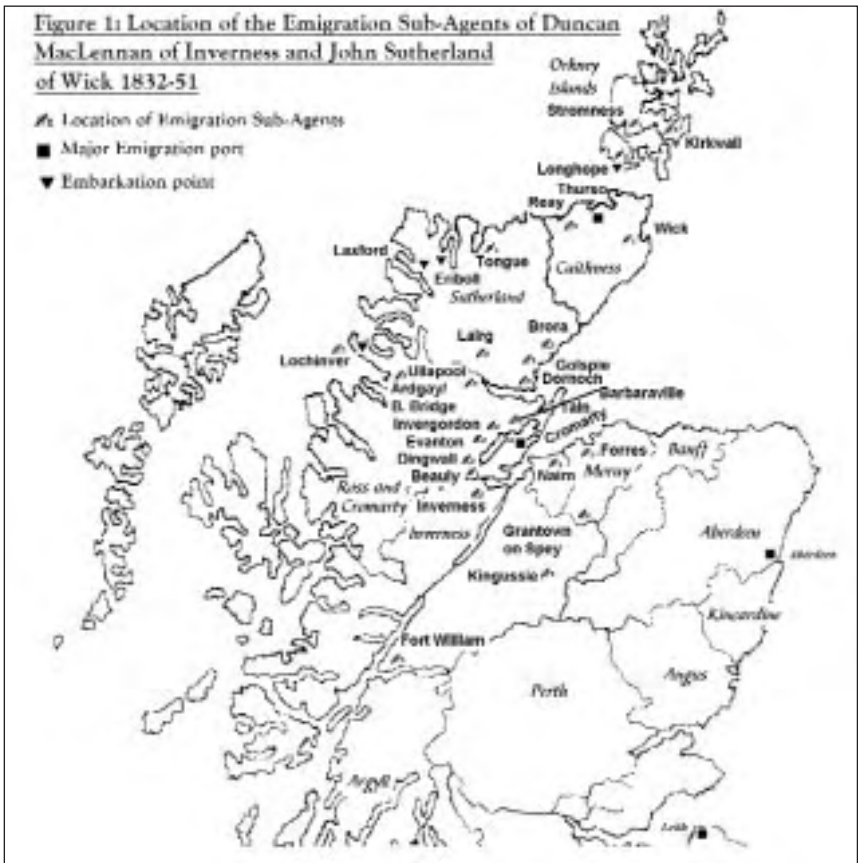
William Allan, a Leith ship broker was the dominant agent in the 1820's and early 1830's. MacLennan's period as an agent began in February, 1832 when he announced in the *Inverness Journal* that "D. MacLennan late of the Glasgow Warehouse, Inverness has entered into an arrangement with a major shipping establishment of Liverpool for the transport of passengers to Quebec, Pictou and New York".¹⁰ The *Canada* duly arrived at Kessock Road to collect passengers before proceeding on to Cromarty and newspaper reports on the other side of the Atlantic indicated that the *Canada* had taken 130 passengers who left at Pictou and a further 111 who left at Quebec.¹¹ This marked the start of an emigration agency which came to have a near monopoly on emigrant travel from the Highlands.

It was pretty clear that the "Duncan MacLennan who accompanies his passengers" and had 18,000 acres of partially cultivated land in western Upper Canada to sell on to emigrants, was going to attract much business.¹² But it was when he formed a partnership in 1839 with John Sutherland, a man who, having been born in Wick, had just returned from Nova Scotia after spending 20 years there, that the agency achieved its really dominant position. With Sutherland managing Sutherland and Caithness, the partners covered the whole of the Highlands and controlled most of the passenger services made available to emigrants between the Orkneys and Fort William. And with the rising levels of emigration from Caithness and northwest Sutherland John Sutherland established an emigration agency at Wick in 1840 and after this Thurso came into its own as a major emigrant embarkation port (Figure 1).¹³

MacLennan and Sutherland's operation had to deal with large numbers from the Sutherland estate, as well as people from small scattered communities in Inverness-shire, Ross-shire and Morayshire. The Sutherland Clearances, which had begun in 1811, were observed by Hugh Miller. He wrote that in 1823, some 15,000 individuals had been removed "from the interior of Sutherland to its sea coasts or had emi-

grated to America”.¹⁴ And even more were to follow as a result of the worsening economic situation and the introduction of the Poor Law Amendment Act of 1845 which, for the first time, made Scottish lairds legally responsible for the destitute on their estates. Observing their plight Miller wrote: “When the fishing and the crops are comparatively abundant they [the Sutherland tenants] live on the bleak edge of want; while failure in either plunges them into a state of intense suffering”.¹⁵ So they went to the western peninsula of Upper Canada in ever increasing numbers, particularly during the Highland Famine years from 1846 to 1855. By then many of them were receiving financial assistance from the Duke of Sutherland to cover the cost of their sea crossings and inland travel.

The sea crossing was not without its perils or discomforts and disease was always a problem but the service offered by MacLennan and



Sutherland was on the whole reliable and well managed. Travelling as an ordinary steerage passenger was no picnic. It meant that you were accom-

modated below deck in the hold of the ship. Temporary wooden planking was simply placed over cross beams and berths were constructed along the sides. During periods of bad weather, conditions were particularly grim:

“We had one night on the north of Scotland a terrible storm so that the hatches had to be covered with tar cloth like to suffocate us and our helmsman had to be tied to his seat and most of the passengers fell to crying and praying, so that I thought prayer was a new exercise to them. It was only by fear. However, the Lord spared us and gave us a cheerful morning, only the waves were incredibly high like mountains; and no man can understand the glory of this sight but them that saw the same and understand the 107th Psalm aright”.¹⁶

Crucial to the emigrant’s choice of ship was the good name of the captain. It was on his sailing and management skills that the safety of the passengers depended. The captain and his crew had to be able to sail their ship “close to the wind”, against prevailing westerly winds, to achieve maximum speeds. Another key factor was the floor to ceiling space available in a ship’s hold. Before 1842 the legal minimum was only 5’6”. Thus ships like the *Triton* and the *Robert and Margaret*, which offered head room above the legal limit, were particularly in demand (Table 1). As ships became longer and slimmer they achieved greater speeds. And a key development for passengers was the arrival of the “Packet Ships” which could provide space for up to 60 people in above-deck cabin accommodation.

But what about the ships themselves? Here we are fortunate in having objective evidence at our disposal. Lloyd’s of London insured vessels and cargoes. Starting in the late eighteenth century they established the *Lloyd’s Register*, which rated ships according to the quality of their construction and maintenance.¹⁷ The Lloyd’s survey results tell us that most emigrants actually went on good quality ships.¹⁸ The popular image of leaky vessels and inhumane Captains is simply not borne out by the evidence.

How many emigrants left Cromarty? We do not know the exact answer. The official statistics lump together Cromarty, Thurso and Kirkwall. They show that, over the period 1825 to 1854, a total of 12,521 passengers left these ports for Canada. Cromarty’s share of this total is impossible to guess but it must have been several thousands. Cromarty’s time as a gateway to British America ended in 1855. By then people from the north of Scotland wishing to travel to British America left from either Glasgow or Liverpool on a steamship. But during the first half of the nineteenth century Cromarty ranked as a major embarkation port for emigrants. All the sailing ships which are known to have called at Cromarty and Thurso to collect passengers reached their destinations and most of the passengers arrived in good health. Judged by the standards of the day, emigrants had been well served by the Cromarty Gateway to Canada.

But Cromarty’s participation in the emigration process also demon-

TABLE 1 - EXAMPLES OF EMIGRANT CROSSINGS TO PICTOU AND QUEBEC FROM CROMARTY AND THURSO

[Sources: Quebec Mercury, Inverness Courier, Inverness Journal, Moray Nairn and Banff Courant, Parliamentary Papers, Martell, J.S., Immigration to and Emigration from Nova Scotia, 1815-38 (Halifax: Public Archives of Nova Scotia, 1942)]

Vessel	Master	Year	Psgrs	Tons	Type	Year Built	Lloyd's Code	Comments
<i>Hedleys of Newcastle</i>	Morris, John	1833	138	279	Barque	1823	E1	Agent: William Allan of Leith
<i>Robert & Margaret</i>	n/k	1833	68	420	Ship	n/k	n/k	“Upwards of 6 feet between decks”
<i>Triton</i>	McClellan	1833	71	405	Ship	1815	E1	“She is 100 ft long in the twixt decks, 30ft broad and 7 feet high”
<i>Albion of Scarborough</i>	Hicks, Michael	1836	103	287	Snow	1836	A1	Also called at Loch Eriboll for passengers
<i>Swift of Sunderland</i>	Beveridge	1837	215	280	Snow	1837	A1	First Cabin fare 80s. 2nd Cabin fare 60s. Steerage 52s.
<i>Osprey of Leith</i>	Kirk	1840	150	382	Ship	1819	AE1	Sailed in 1840 with the British King and Quebec Packet. Together they took 403 people, of whom 248 originated from Caithness.
<i>Fairy of Dundee</i>	Peters, George	1841	123	248	Ship	1801	E1	Former whaling ship
<i>Lady Grey of North Shields</i>	Grey, William	1841	240	285	Snow	1841	A1	Typhoid broke out, causing 6 deaths on the crossing.
<i>Joseph Green of Peterhead</i>	Volum, James	1842	239	353	Ship	1819	AE1	Also called at Lochinver
<i>Kate of Newcastle</i>	Taylor	1846	43	478	Barque	1846	A1	Steamers took passengers from Nairnshire, Morayshire and Clachnaharry to Cromarty.
<i>Lord Seaton of Aberdeen</i>	Talbot, William	1849	23	440	Ship	1840	A1	Also called at Longhope (Orkney) for passengers.
<i>Empress of Banff</i>	Leslie, A	1851	n/k	359	Barque	1845	AE1	Passenges boarded ship at Banff and Thurso.

strates that opportunism was an important factor in the decision to emigrate. However intolerable their economic circumstances were or however pressing Canada may have seemed without the facility to hop on a passing timber ship this exodus could not have happened.

References

- 1 The punitive tariffs against Baltic timber never completely eliminated it from British markets. In the early 1840's it accounted for almost 20% of timber imported into Britain. Eric Sager, with G. E. Panting, *Maritime Capital: The Shipping Industry in Atlantic Canada 1820-1914* (Montreal, McGill-Queen's University Press, 1990) pp. 38-46; Gerald S. Graham, *Sea Power and British North America 1785-1820: A Study in British Colonial Policy* (Cambridge, Mass., Harvard University Press, 1941) Appendix C.
- 2 By 1816 only around 60 % of the vessel crossings from Scotland to British America had originated from Clyde ports.
- 3 *Aberdeen Journal* July 19, 1784. The *Mercury* would call at Cromarty to collect passengers for Nova Scotia and Philadelphia "if encouragement shall offer".
- 4 In fact, six vessels called at Cromarty in 1831 to collect emigrants. They were the: *Baronet, Corsair, Rover, Cleopatra, Industry* and *Lord Brougham*. These are among the 40 vessels to be found in Lucille H. Campey, *'Fast Sailing and Copper-Bottomed' Aberdeen Sailing Ships and the Emigrant Scots they carried to Canada* (Toronto, Natural History/Natural Heritage Inc. 2002) pp. 59 - 79. The ships are recorded on the Cromarty Emigration Stone recently erected by the Cromarty Arts Trust. On the stone also, is Hugh Miller's description of the departure of the *Cleopatra* in 1831: "The *Cleopatra*, as she swept past the town of Cromarty was greeted with three cheers by crowds of the inhabitants and the emigrants returned the salute but mingled with the dash of the waves and the murmers of the breeze their faint huzzas seemed rather sounds of lamentation and wailing than of a congratulatory farewell".
- 5 PRO CO 384/28 pp. 517-18: Letter from Lewis Rose, Manse of Nigg by Parkhill, to the Colonial Office, 18 June 1831. In his letter, Rose requested that public funds be made available to help 1000 poor families emigrate to Upper Canada.
- 6 *Ibid.*
- 7 The Canada Company had been established in 1826 to encourage settlement by settlers able to fund their own emigration costs. The Huron Tract was a vast triangular-shaped area consisting of 1.1 million acres. Encompassing twenty two townships, Goderich, on Lake Huron, was the main population centre.
- 8 John Sutherland's *Inverness Journal* advertisement stated that he "was authorised to dispose of 225,000 acres of uncleared land at a cost from 7 s. to 15 s. per acre". *Inverness Journal* April 5, 1844. The Huron Tract attracted its Scots from both the north west and north east Highlands, the Western Isles and from the Lowlands. J. M. Cameron, "A Study of the factors that assisted and directed Scottish Emigration to Upper Canada 1815-55"(Glasgow, unpublished Ph. D. 1970) pp. 439-43.
- 9 Campey, *'Fast Sailing and Copper-Bottomed'* pp. 59 - 79.
- 10 *Inverness Journal* 17 Feb., 18 May, 1832.
- 11 *Quebec Mercury* 22 August, 1832
- 12 *Inverness Journal* 15 Feb., 1833.
- 13 John Sutherland was no ordinary businessman. He claimed that he had been so moved by the "wretched state of the poor tenantry" when he visited the Highlands in 1839 that he decided to move back to Scotland. (*John O'Groat Journal*, Sept. 25, 1840). His decision to work as the Wick agent for the British Fisheries Society, a body promoting employment opportunities in fishing, and his many letters to the press requesting financial help for poor people wishing to emigrate, certainly suggest altruistic tendencies. (Frank Foden, *Wick of the North, The Story of a Scottish Royal Burgh* (Wick, 1996) pp. 16, 458-9, 466-8.)

14 Hugh Miller, *Sutherland as it was and is: How a country may be ruined* (Edinburgh, John Johnstone 1843) p. 21.

15 *Ibid*, p. 16.

16 Highland Council Archives D207, James Fraser's reminiscences 10th July, 1867, London, Ontario. He describes the crossing of the *Diligence* in 1820 from Cromarty to Pictou with 130 passengers. The 107th Psalm contains the verses: "Others there are who go to sea in ships and make their living on the wide waters. These men have seen the acts of the Lord and his marvellous doings in the deep. At his command the storm-wind rose and lifted the waves high...So they cried to the Lord in their trouble and he brought them out of their distress".

17 Still in use today and run by a Classification Society with a world-wide network of offices and administrative staff, the *Lloyd's Register* continues to provide standard classifications of quality for ship building and maintenance.

18 **A** - first class condition, kept in the highest state of repair and efficiency and within a prescribed age limit at the time of sailing; **AE** - "the second description of the first class", fit, no defects but may be over a prescribed age limit; **E** - second class, although unfit for carrying dry cargoes were suitable for long distance sea voyages; **I** - third class, only suitable for short voyages (ie. not out of Europe). These letters were followed by the number **1** or **2** which signified the condition of the vessel's equipment (anchors, cables and stores). Where satisfactory, the number 1 was used, and where not, 2 was used. George Blake, *Lloyd's Register of Shipping 1760-1960* (London, 1960) pp. 12-13, 26-27.

“Altogether a Delightful Country”: the Free Church Settlement of Otago (South Island, New Zealand)

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The origins of the settlement

It should come as no surprise to us that the Free Kirk of Hugh Miller would be quick to develop an international dimension from its inception at the Disruption in 1843. Indeed the new Free Kirk had been given the competitive advantage as all the former Church of Scotland missionaries sided with the Free Kirk. Thus from the very outset the Free Kirk had the means to fulfil their great commission “to go out to all lands and proclaim the Gospel”.¹

The close connection between Scottish emigration to New Zealand and Presbyterianism was established at the very outset in the history of British colonisation of these islands.² The first organised emigration from Scotland to the land of the “long white cloud” included the first Presbyterian minister to New Zealand, the Rev John Macfarlane, a Gaelic speaker, who accompanied and ministered to his pioneer emigrant community. This latter group had left Greenock on 12 February 1840 to sail on the *Bengal Merchant* for Port Nicholson (better known today as Wellington, New Zealand’s capital). Indeed a number of classic Scotch myths grew up around this incipient settlement. One of these tales claimed that as a “patriotic gesture” on St Andrew’s day in 1840, thistle seeds were planted at Petone, this being the place to which the pioneer settlers had relocated towards the end of their first few months in their new home.

The genesis of the Otago settlement lay in the years immediately prior to the Disruption, and indeed, had been a proposal which had originated in the courts of the Established Kirk. The new church vigorously took up the case of establishing a colony in New Zealand. In effect this was just another side to the Free Kirk’s “parallel state” which was to run beside the educational and missionary agencies of the rival Established Kirk.

The scheme’s originator was George Rennie, who outlined his proposal for a “New Edinburgh” in the Southern Hemisphere, in an article in the *Colonial Gazette* on 17 August 1842. Rennie was the Liberal MP for Ipswich, although he only dabbled in farming and sculpting, he was known as being quite accomplished in both of these activities.

Rennie’s vision was for a colony which would seek to establish and then

to maintain a distinct Scottish character. This would be achieved through a bond of union between Presbyterian Church government and the Scottish belief in the centrality of education. These were two of the three great cultural custodians of Scottish identity, which survived the Treaty of Union in 1707, and whose survival had guaranteed a certain degree of Scottish distinctiveness in the British State.

In an era beset with religious schism and denominational bitterness Rennie was quite anti-sectarian in his views. Even when his plans for the colony ultimately coincided with the Disruption, he saw this as an opportunity to place a Free Kirk minister in Otago’s first pulpit, while reserving the role of dominie to an Auld Kirker.

The Free Kirk was anxious to capture at least part of the haemorrhage of Scottish emigrants in the years in the immediate aftermath of the Disruption. In 1843 6,800 people left from Scottish ports alone, but even this is a partial total, as it excludes all those emigrants for whom Liverpool would have been their port of embarkation.³ The response of these Free Kirk people to this dislocation in Scottish demography also neatly dovetailed with contemporaneous notions of dealing with the problem of emigration. It was the philosophy of one man who came to dominate the development colonisation of New Zealand by Great Britain – Edward Gibbon Wakefield.

Wakefield’s vision was that colonisation would act to ameliorate the low wages, unemployment and harsh living conditions experienced by the labouring classes of Victorian Britain.⁴ In New Zealand he hoped to strike a balance between the competing claims of land, labour and capital by granting assisted passage to selected emigrants from the labouring classes. They would in turn take full advantage of the investment that would flow naturally from the availability of an assured labour supply. Rather optimistically Wakefield believed that the colony should exhibit all the same mores, social and economic structures as the Mother Country, but where practicable exclude all of its ills. Although the members of the new Free Kirk were conservative in religion this radical thinking did strike a chord with the politically Liberal members of the Free Kirk who would ultimately back the Otago scheme.

However, social, and indeed ethnic tensions crept into the venture from the outset, as most of the Scottish emigrants were labourers, while the wealthier settlers who had invested in the colony were, in the main, English. Once sown, these seeds would flourish in the portrayal of the English emigrants by the Scots as the “Little Enemy”.

New Edinburgh: the Free Church Colony

In 1845 a “Lay Association of the Free Church of Scotland for promoting the settlement of a Scotch colony at Otago”, was established to capitalise on, and develop the scheme as first mooted by George Rennie some three years previously. Around fifty leading members of the Free Kirk came together to found this association to enable them to negotiate

suitable terms with the New Zealand Company. The latter body was the Government sponsored joint-stock company charged with overseeing the successful settlement of New Zealand as a loyal British colony.

The practice that particularly appealed to the Free Church Lay Association,⁵ was the fact that the New Zealand Company was explicitly founding colonies composed of people belonging to the same religious denomination. The other prime example being the Church of England sponsored settlement of the city of Christchurch and adjoining province of Canterbury.⁶

The Witness developed this principle; the barque *Philip Laing* awaiting embarkation at Greenock might contain emigrants in “various stages and conditions of life”; however, unlike other colonies which had

“been peopled by all sects and denominations, and so by people of different and opposite characters ... the consequence, was that some of these colonies instead of prospering, were filled with people who were a disgrace to Great Britain.”⁷

Indeed his article in *The Witness* displays a certain ill-concealed pride in the fact that the Free Church settlers would be the first to undertake this experiment.

The Rev Thomas Burns (who in a wonderful irony, given his attachment to the very strictest precepts of Scottish Calvinism, was a nephew of the poet) was called as the settlement’s first minister. Burns dominated the early years of the Otago settlement, and although in modern parlance this might sound somewhat patriarchal – he was in every sense a “founding father” of the nascent colony. His devotion to the Free Kirk cause was without question. During the first few months after the Disruption at his previous charge of Monkton in Ayrshire, Burns, in the true Free Kirk tradition, had been forced to preach to his flock in the open-air in the middle of local farmer’s stackyard.⁸

Captain William Cargill, Burns’s co-founder was a more difficult figure to characterise.⁹ A distinguished veteran of the Peninsular Wars, a recruiting officer, a failed wine merchant and a relatively successful bank manager, Cargill’s career could be described as somewhat “chequered” – indeed this was even the view held by his wife, Mary Ann Yates. Cargill’s family was steeped in Covenanting traditions; he was putatively descended from Donald Cargill, the great Covenanting hero of the “Killing Times”. Cargill’s great trademark was a distinctive blue bonnet, worn as a symbol of his Lowland Covenanting roots.¹⁰ Although it was widely known that Donald Cargill did not father any children.

At the time of the Disruption, Cargill had been in London for three years as a board member of the Oriental Bank Corporation, and a leading figure in Free Kirk affairs in the imperial capital. In the years immediately prior to his appointment as the resident agent of the New Zealand Company, Cargill’s finances seem to have taken a turn for the worse. These personal problems coincided with growing movement in support of

Wakefield’s promotion of “systematic colonisation” – Cargill was now presented with a solution to his present straits.

Cargill had long been an admirer of the writings of Thomas Chalmers, being attracted to Chalmers’s paternalistic vision of social reform for the burgeoning urban masses. Cargill’s own correspondence and speeches were liberally peppered with references to Chalmers’s theology and political philosophy.

William Cargill’s retiral as provincial superintendent in 1859 became noted as something of a political and cultural watershed in the public life of the settlement. For it became increasingly evident that the Presbyterian caucus would not be able to retain their exclusively Free Kirk character on their fellow settlers, who with the regular arrival of emigrant ships at Port Chalmers grew in number each year. More to the point their previous ability to impose a narrowly defined Presbyterianism on the province had severely diminished by the end of the 1850s. The Rev Donald Stuart, who was called to a new extension charge in Dunedin in 1860, made much of the decline in the founding principles of the settlement. In 1857 he estimated that the amount spent on alcohol per head of population in Dunedin was 19 times that of monies spent on the support of religious activities or reading matter of an improving character.

However, these founding fathers must have achieved some success in imprinting the particular character of Scottish Presbyterianism on Otago. Even in 1904 when Andre Sirgfied, a French commentator visited the Province, he noted that “Today, after 50 years, Dunedin is more than ever the Scottish town of New Zealand, the New Edinburgh, as some enthusiasts love to call it”.

In common with Miller, the social dislocation caused by the process of clearance in the Highlands had touched the leading lights supporting the Otago scheme. Indeed this link between Highland Scots and the settlement of Otago has often been made. Even today the provincial rugby team is known as the “Highlanders”. In fact more than half of the original emigrants to Otago were from the Lowlands, with a marked concentration coming from Midlothian. Given the foundation and active promotion of the scheme in Edinburgh and environs this fact should not be surprising.

However, whether the new arrivals were either Highland or Lowland, at the heart of the matter in Otago was the continuing Scottish nature of the colony. The latter was true even when other nationalities chose Otago as their destination. Demographic historians¹¹ have suggested that as much as 80% of the population in the dozen or so years after the European settlement were from Scotland. Apart from some of the early emigration to Atlantic Canada this represents the highest concentration of the Scottish diaspora in one community.

Concerns would be further compounded in 1861 about the moral fabric of Otago in general and in particular the urban situation of Dunedin as the city emerged as the dynamic force in New Zealand’s burgeoning export economy. For a discovery was to be made which would irrevocably change the character of both the province and Dunedin its main city.

Gabriel’s Gully was the scene of the first gold find in Otago. In the months following this event Dunedin was to metamorphose into something of a frontier town, with its concomitant vices. Drunkenness, prostitution, and a whole range of social and moral ills subverted the attempts of the founding fathers to establish a Godly Commonwealth in Otago.

Certainly the historiography of the Disruption has accorded Otago the position of a “New Geneva”. Writing in the *Annals of the Disruption*, the Rev. Tomas Brown¹² summed up the achievements thus: “As the population of Dunedin increased, strangers had come in, yet the stillness of the Sabbath, and their churches filled with earnest hearers, were the subject of remark by visitors from neighbouring colonies”. Brown ascribed this success to the simple fact that Burns, Cargill and the early settlers had “Never relaxed in the higher task of making provision for the ordinances of religion and the education of the young.”

Postscript: Sir John McKenzie, New Zealand’s Highland legacy of land reform¹³

By jumping ahead a number of decades it is possible to address the life and work of John McKenzie, whose political work as Minister of Lands in New Zealand was greatly influenced by his personal experience of growing up in Ross-shire, just across the Cromarty Firth from Miller’s home town. For there are a number of interesting parallels between Miller and McKenzie. The latter devoured the works of William Cobbett, Alexander Mackenzie, Professor James Stuart Blackie and, not surprisingly, Hugh Miller himself.

Like Miller, McKenzie was a Highlander who had developed a strong aversion to the landed interest and the policy of forced clearance from the land. In many respects McKenzie’s strong sense of justice echoed that of Miller. His reading of the Bible influenced McKenzie, and as with Miller, his condemnation of the Clearances was couched in moral rather than economic terms.

McKenzie was born at Roskeen, Ross-shire, on 6 October 1839, the son of a crofter, who imbued his son with a deep sense of the injustice of the seemingly arbitrary actions of some large-scale landowners. McKenzie had also witnessed in person some of the worst aspects of such actions, having been brought up in an area close to the scene of some of the more notorious episodes in the history of the Highland Clearances. Added to this his wife was a Munro, and many of her people had been personally affected by these tragic events in Ross-shire’s history. Through other local connections he also knew many of the Ross family, who had equally suffered during this time of social dislocation and upheaval.

It was, however, his experience of seeing for himself the suffering of the people of Glencalvie towards the end of May 1845, as a five-year-old lad, that sealed his view of the land question for the rest of his life. McKenzie and his father who were travelling to Strathcarron to visit relatives witnessed, the ninety or so souls camping in the graveyard of the little Kirk,

seeking refuge in the open air rather than in the sanctuary of the building. Such was the impression that this incident made on McKenzie that in the closing debate on 10 August 1892 on his Land Bill he summed up his policy in this way:

“The minister of Lands, Sir, got his ideas as a boy when he saw the poor people evicted from their houses in the most cruel manner, and unable to get a place for their feet to stand upon except when they went to the cemeteries. The poor people were not even allowed to camp upon the King’s Highway. The only place in the world where they could go and rest themselves without being put in gaol was among the dead in the cemetery. I have seen that in my days. Is it any wonder that I should have opinions of my own in connection with the land question in this country?”¹⁴

McKenzie sailed on the *Henrietta* to Otago, New Zealand, in 1860, as an assisted immigrant and began his new life as a shepherd, then rose to become manager of a farm at Puketapu near Palmerston South. In the true spirit of an exemplar from the pages of Samuel Smiles’s *Self-Help*, he eventually became something of a substantial farmer in the area around Shag Valley in Eastern Otago. In 1865 he was clerk to the local road board and school committee; in 1871 he entered the provincial council of Otago, and in December 1881 he was elected member of the House of Representatives, in which he sat until 1900, the year immediately prior to his death. He was also for some years a member of the education board and of the land board of Otago, and always showed interest in the national elementary school system. In the House of Representatives he soon established himself, becoming almost at once a recognized spokesman for the smaller type of rural settlers and a person of influence in the corridors of power.

He acted as government whip for the coalition ministry of Sir Robert Stout and Sir Julius Vogel, 1884-1887. While still an ordinary member, he scored his first success as a land reformer by carrying the “McKenzie clause” in a land act limiting the area which a state tenant might thenceforth obtain on lease. He was still, however, comparatively unknown outside his own province when, in January 1891, his party took office and he aided John Ballance in forming a ministry, in which he himself held the portfolio of lands, immigration and agriculture.

From the very outset he made his hand felt in every matter connected with land settlement and the administration of the vast public estate. Generally his aim was to break-up and subdivide the great freehold and leasehold properties which in his time covered four-sevenths of the land of the colony. In his Land Act of 1892 he consolidated, abolished or amended, fifty land acts and ordinances dealing with crown lands, and thereafter amended his original act four times. Though owning to a preference for state tenancy over freehold, he never stopped the selling of crown land, and was satisfied to give would-be settlers the option of

choosing freehold or leasehold under tempting terms as their form of tenure. As a compromise he introduced the lease in perpetuity or holding for 999 years at a quit rent fixed at 4%; theoretical objections have since led to its abolition, but for fifteen years much genuine settlement took place under its conditions.

Broadly, however, McKenzie’s exceptional success as lands minister was due rather to unflinching determination to stimulate the occupation of the soil by working farmers than to the solution of the problems of agrarian controversy. His best known experiment was in land repurchase. A voluntary law of 1892 was displaced by a compulsory act in 1894. By 1910 under the terms of this Act between £5 and 6 million had been spent in buying and subdividing estates for closer settlements, with excellent results. McKenzie also founded and expanded an efficient department of agriculture, in the functions of which inspection, grading, teaching and example are successfully combined.

It has aided the development of both dairy and poultry-farming, fruit growing, bee-keeping and flax-milling, and has accomplished a great deal in maintaining the high standard of New Zealand products. After 1897 McKenzie had to hold on to political office in the face of failing health. An operation in London in 1899 only postponed the inevitable, and he died at his farm on 6 August 1901, soon after being appointed to the legislative council. One commentator described McKenzie as “that big, angry land reformer” who had tried to set-to-rights “those Old World grievances”.¹⁵

New Zealand presented a wide range of Scottish emigrants with an opportunity for a new start in the farthest-flung destination of the Empire. The title of this paper¹⁶ is taken from the first letter home to his sister from Archibald McDonald, the newly arrived dominie at Otago. In his letter McDonald shares his hope that the country to which he had just come would “become a very rich one in time”.

This prosperity which McDonald referred to was not primarily one of economic development and improvement, although McKenzie recognised the importance of this in his shaping of New Zealand’s agricultural economy through land reform. Perhaps the last word should go to the Rev Thomas Burns who noted that this “Prosperity will be exactly as we seek principally not our own selfish temporal benefit but the cause of Christ and glory of God.”¹⁷

History has judged which of the two visions has proved best for the interests of New Zealand.

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- 2 G.L Pearce, *The Scots of New Zealand*, (Auckland, 1976), pp.47-50.
- 3 Michael Flinn, et al, *Scottish Population History from the 17th Century to the 1930s*, (Cambridge, 1977),

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- 4 For a good general introduction to the Wakefield colonisation schemes see Tony Simpson, *The Immigrants: the Great Migration from Britain to New Zealand, 1830-1890*, (Auckland, 1997).
- 5 *The Witness*, 1 December 1847.
- 6 Simpson, *The Immigrants*, p. 67.
- 7 *The Witness*, 1 December 1847.
- 8 Rev. William Brown, *Annals of the Disruption*, (Edinburgh, 1877), p. 332.
- 9 For an excellent and accessible account of Cargill’s varied career see Tom Brooking, *And Captain of their Souls*, (Dunedin, 1984).
- 10 This Kilmarnock bonnet featured in the National Museums of Scotland collaborative exhibit with the Otago Settlers Museum entitled, *Altogether a Delightful Country*. The exhibit will run to 31 August 2003 in the Museum of Scotland, Chambers Street, Edinburgh.
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- 12 Brown, *Annals of the Disruption*, pp. 332-333.
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- 14 *New Zealand Parliamentary Debate*, 1892, p. 603, quoted in Brooking, *Lands for the People?* p. 16.
- 15 Sheila Macdonald, The Member for Mount Ida, (Wellington, 1938), p.78.
- 16 Otago Settlers Museum, MS C62, Diary of Archibald McDonald, including correspondence with Catherine McDonald, Bannockburn, 23 April 1848.
- 17 Hocken Library , Dunedin, Burns/Cargill Correspondence, 31 December, 1846.



SYMPOSIUM ON GEOLOGY AND NATURAL HISTORY

Chaired by Philip Hamilton-Grierson OBE, Chairman, Inverness College,
and Cromarty Arts Trustee

Summary of Discussion

Dr Peter Tilbrook, Trustee of the John Muir Trust and Convenor of the
North Region Committee of the Scottish Wildlife Trust

In common with my two colleagues I have the unenviable task of trying to encapsulate the essence of eight stimulating papers in ten minutes. To attempt this, I shall not be referring to specific papers, but have, instead, picked out a few general headings to which all the papers contributed in one way or another. Unlike the other two session rapporteurs, I have nothing but harmony to report, as well as unanimity over the stature of Hugh Miller.

Breadth of knowledge

The papers at these sessions have focused, quite understandably, on geology, where the scope of Miller's knowledge was shown to be quite remarkable. Most obviously, there is his understanding of fossils, particularly Old Red Sandstone fish, and their value as markers for unravelling the older stratified rocks of Scotland. We also heard in beautiful detail about Miller's winged fish *Pterichthyodes milleri*. But his explanations for some of the landform and geological features on Eigg and Rum, and even at a national scale, were also demonstrated. The title of this seminar includes "natural history" and, although other elements (apart from geology) were not mentioned a great deal, we know from other writings that Miller's general observations on the plants and animals that he came into contact with, were just as acute and perceptive. He was a true naturalist.

Physical and mental capacity and energy

The combination of a powerful intellect, a very enquiring mind and abundant physical and mental energy, all driven by a Calvinist work ethic, led to Miller's many achievements in the field of geology. But the conditions under which he laboured for these make them remarkable indeed. In terms of his fossil descriptions, for example, he had very few modern aids with which to view specimens and little or no language available in which to describe them. Yet through patience, looking at many examples

before committing himself, an amazing and instinctive ability to distinguish (on often crushed fossils) between meaningful taxonomic features and cracks or blemishes in the rock, his very precise drawings and descriptions are still of major use to science today. His incredible ‘eye’ for observation, particularly in the field, and his intuitive skill were both remarked on, but the attribute that sets him apart from others is his interpretation of his observations.

Ahead of his time

There were so many references to Miller’s own recognition of his humble origins and modesty about his lack of an academic background, that I began to wonder whether he hadn’t given rise to the term ‘hugh-millerty’ (humility)!

In fact, of course, he was ahead of his time in many ways. For example, he was one of the first to emphasise the practical and economic value of geology. With his knowledge of what we now call stratigraphy, he was able to point out the waste of money involved in looking for coal deposits in quite the wrong locations. He has also not always been given credit where it was due. He was the first to describe certain features in some fossils (such as Westoll lines and inter-cranial articulation) but in many cases this has been overlooked and Miller has not been credited when these have been described later.

Communication

There were many references to Hugh Miller’s outstanding abilities as a communicator, the written word being the dominant vehicle for this. We know little of his actual performance as a lecturer although the content was clearly inspiring. Articles and books flowed from his pen right up to his death, the books being regularly published on both sides of the Atlantic. By emphasising that fact is often stranger than fiction, and with his idea of “the factual romance”, he was able to popularise what to many may have seemed “dry” science. The vogue for fossil hunting, for example, began in the 1820s, but its continuation owed much to Miller. Fossils became “magic windows” through which one could see into the past. While other communicators of the time relied on illustrations or models, with Miller it was purely language – a visual language, often employing “theatrical reconstruction” of scenes from the geological past – which caught the imagination of his public.

Religious contradictions

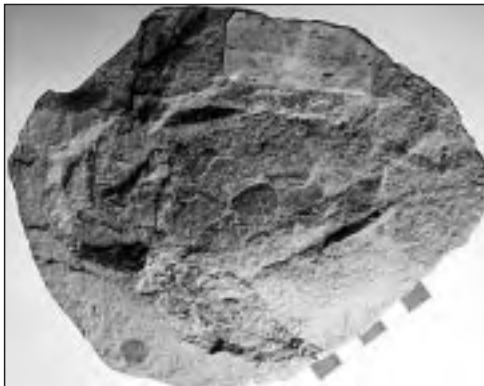
Various papers touched on the apparent contradictions between Miller’s various observations and his religious beliefs. His objectivity and commitment to fact and truth were felt to be without doubt, so there was no question of his having bent his observations to fit religious beliefs. In an attempt to square these, however, he (and indeed Agassiz) postulated

that the simpler, earlier fossils were the most “perfect” – being closest to creation – while later ones displayed “degeneracy” or “degradation”. So when Miller talked of the “highest” groups, he was in fact referring to the earliest – which is precisely the opposite of what we mean by this term today. However, in recognising and describing the modifications he could see in species from younger rocks, he did explain how certain organs or structures had become adapted through time for new and different functions. Without perhaps realising it, this is consistent with the underlying principles of Darwinian and modern evolutionary theory, and once again shows Miller’s objectivity of interpretation. Unfortunately, twentieth century palaeontologists have frequently ignored his findings, probably purely because he, and others of like thinking, were dismissed as anti-evolutionists.

Connection with other geologists

We heard speaker after speaker referring to the connections between Miller and the great geologists of his day and later: Agassiz, Murchison, Peach, Smith, Dick, Malcolmson – there are far too many to mention in full, but they represent a geological “hall of fame”. And to this list must be added the distinguished scientists and contributors to this meeting. All clearly respect and revere this humble son of Cromarty. There was also support at this meeting for trying to counter some of the prejudiced attitudes of the past, which have led to an under-estimation of Miller’s contributions to geology.

I fear that I have not done justice in this brief summary to the contents of the eight important papers that we have heard in the past two days. Certainly I haven’t captured the eloquence of their content or delivery, and I urge you to read them when they are published. What they have clearly demonstrated, however, is that Miller’s place in the science of geology is assured for all time.



Pterichthyodes milleri from the Middle Devonian,
photo courtesy of National Museums of Scotland

William Smith (1769-1839) and the search for English raw materials: some parallels with Hugh Miller and with Scotland

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Introduction

In May 1838 Miller published his “Gropings of a working man in Geology”, in which he noted how he could:

“still remember the pleasure I felt on being first brought acquainted with the geological scale, as laid down by the best authorities, and on becoming skilful enough to ascertain that there occur vast gaps in the geology of my native district - the lias resting on the old red sandstone”.¹

This was, as so often in Hugh Miller’s geological writings, a fundamental observation. Such scales were indeed vital to the advance of geology. They allowed, among many other things, the start of scientific mineral prospecting for stratified minerals like coal, ironstone, limestone and, more recently, oil. This is a subject which should have been very much in the minds of all of us at the Miller meeting, as we viewed the large number of oil platforms lying in the Cromarty Firth. It is clear from this that Miller clearly felt “the geological scale” had reached both him and the Cromarty region of Scotland before 1838.

But, despite its economic importance, the history of mineral prospecting has been largely ignored. Rob Vernon was right to claim that

“Geological exploration for a mineral deposit is now a very common occurrence... It has been with us in some form since man started to exploit mineral reserves.. However despite the wealth of historic material available about exploration, rarely does [such a geological question] feature in historic coal mining accounts”.²

This problem is clearly demonstrated in Baron Duckham’s fine book on Scottish mining. Here

“the first requirements in mining have always been to locate the mineral in question with certainty and to estimate the extent of the veins or

seams with as much precision as possible... Fortunately for the earlier development of coal extraction in both England and Scotland alike, Nature had left innumerable hints of her bounty which effectively ensured that the mining adventurer should never lack awareness of at least some of the seams awaiting exploitation”.³

But this view considered only the development of coal-seeking *in existing coal-fields*. Duckham gave no thought to the much greater problem of how to find coal, in new areas where coal was both unknown and clearly much needed, like Miller’s Cromarty. Any question of how geology might have helped – or hindered – in such cases was simply avoided. Duckham merely noted that it “was a nice question whether geology learnt more from mining or vice versa between 1700-1815”. These same questions were also asked by the late Roy Porter, but he too failed to ask the crucial questions of how, and when, geology might have helped the search for coal in areas where it was quite unknown.⁴ I hope this paper will give more definitive answers.

If the answer is felt to lie in university-based circles then a solution might seem obvious. The first occasion on which students at Oxford University, for example, were exposed to such ideas was the Michaelmas Term of 1865 when “the Professor of Geology will begin a course of lectures... on 30 October. Among the subjects to be treated of are... the discovery of Coal and valuable Minerals in new situations”.⁵ But this was John Phillips (1800-1871), who rose to his position, from having been apprenticed to his uncle William Smith, so called ‘father of English geology’.⁶ Since Smith had almost single-handedly introduced scientific mineral prospecting to Britain, Phillips clearly felt he was now duty bound to bring this horny-handed subject to academic attention. But this was 60 years after Smith had first drawn attention to the possibilities of geological prospecting.

William Smith

The subject of William Smith and mineral prospecting has been the subject of an earlier essay⁷ which need here be no more than summarised. Born in 1769 in Churchill, Oxfordshire, son of “a very ingenious mechanic”, Smith was orphaned before his eighth birthday. Smith was trained as a land surveyor by Edward Webb (1751-1828) at Stow-on-the-Wold. He was soon sent by Webb in 1791 to survey estates in the Somerset coalfield and now moved to Rugbourn Farm, High Littleton. Here he became involved in underground surveys as well, for coal owners in the area. In 1793 his first breakthrough came when he was asked to undertake preliminary surveys for a proposed Somerset Coal Canal, intended to get the land-locked coal out to wider markets.

All this land, mine and canal surveying allowed Smith to extend the geological observations he had made within the coalfield to areas outside it. He now realised that, contrary to what the local colliers then believed, both the regularity and order of the local strata were maintained outside

the coalfield. He now started to document this Order. Here he was crucially helped by the unique nature of the Coal Canal. Coal was mined here along two parallel valleys and the canal had to be surveyed, and then cut, along both in parallel. Canal excavations in fossiliferous Lias strata, above previously unfossiliferous Red Ground [Triassic] strata, started from September 1795. In November 1796 Smith moved to an address high above the city of Bath whose regularly stratified slopes lay open to him from this high vantage point.

In January 1796 Smith committed to paper his second crucial realisation: namely that those strata containing fossils in his “Order of Strata” would allow those particular beds to be identified and compared with that Order. He now started to collect fossils, many of great beauty, of which the great proportion survive, as a resource for future study, in the Natural History Museum, London. His discoveries now enabled him to separate lithologies (the materials of which each rock unit was made) which were otherwise very similar. He knew these occurred at different levels in his ‘Order of Strata’, and so were in fact merely repetitious. He thus separated an Upper (which provided Bath’s beautiful building stone) from a Lower Oolite limestone. He also now started to distinguish the frequently occurring black clays and shales with which the English stratigraphical sequence proved to be so replete. These similar lithologies had caused much confusion to those previously hunting coals, because all such black clays (or shales) were then thought to be a certain indicator of coal.

Smith also started to make geological maps on which these strata were also carefully separated. Smith was elected a member of the Bath and West Agricultural Society in 1796 and this became the first audience for his novel geological ideas. By this time he had also taken his first of several geological pupils: Thomas Bartley (1780-1819). But in mid 1799 Smith was dismissed by the Somerset Coal Canal Company and suddenly had to find his own employment. He had already been consulted as a drainage expert and now became busy as a land, water and mineral surveyor all over the country.

Smith was responsible for the first effective elucidation in England of what Miller would later call “the stratigraphic scale”. The extent of his achievement is best demonstrated by John Challinor’s chart,⁸ which shows both the extent, and its advance on previous attempts, of Smith’s “Scale” up to 1817. Miller was again absolutely right to claim that “the meridian line... from which Smith’s geological scale had been graduated on both sides”⁹ [i.e. above and below it] was “the Oolite”, which was a group name for those strata which Smith had first studied around Bath. This came from the occurrence within these strata of both Upper and Lower Oolitic limestones (as we have seen).

The problem of repetitious lithologies

Before this “Geological Scale” had been evolved the problem of repetitious lithologies was a very real one. As an example, we need only cite the

intended “Haselor Colliery”. This was an expensive attempt made to find coal between 1804 and 1806, near Evesham, in Worcestershire, in the vale long famous for its agricultural produce. Here more blue/black clays occur which again misled the local proprietor, Mrs Mary Lane Browne (1764-1838), to think that these were the same clays found elsewhere and which were commonly associated with real coal. She duly organised the sinking of a deep walled shaft which reached the enormous depth of at least 840 feet, at a cost of at least £2,300.

But these clays belonged to the Lias and, as Smith had been the first to demonstrate from their fossils, they lay way above any true Coal Measures. That this was well known to Smith (who was soon to be in touch with Mrs Browne) is clear from his earliest surviving “List of Strata” of 1797. Here Coal was listed as stratum no. 27 while the same Blue Marl, which had so confused Mrs Browne, was no. 16, and lay way above any Coal.¹⁰

The problem then was that the advice generally available to other coal-seekers was simply inadequate. Those involved at Haselor happily recorded the bland and imprecise advice by which they had justified their attempt.¹¹ Coals were then wrongly thought to be both common and regularly distributed throughout what we today call sediments. Smith’s breakthrough was to have been the first to provide new, reliable and specific advice, based on his stratigraphic Order of Strata. This proved that any search at Haselor was at an impossibly high stratigraphic level to have easily reached any coal below.

Smith continued to improve his Geological Scale and soon uncovered the accurate stratigraphic positions of more of these repetitious black clay lithologies, such as the Clunch Clay (today’s Oxford Clay) and the Oaktree Clay (which was Smith’s – easily confused – amalgam of today’s Kimmeridge and Wealden Clays). Even if confused, as they were by Smith, this had no real effect on the significance of Smith’s results to coal hunters looking at either horizon. This was because, whether separated or confused together, both lay even higher in the “Geological Scale”, and thus even farther away vertically from any Coal Measures. Thus the financial situation for those seeking coal at these levels was even worse, as the story from Bexhill, Sussex makes clear, where over £30,000 were wasted.¹²

Smith’s “Order of Strata” or what Miller called “The Geological Scale” removed the uncertainty in mineral prospecting and gave a first standard order for English rocks against which to prospect. Extending this ordering to Scotland, as we shall see, caused some problems. We should honour Smith for his role in scientific mineral surveying. In this there is even a red letter day: 24 March 1805. This was when Smith first told coal seekers that they were wasting their time. He then tried to show them that another expensive attempt they were making in the Clunch [Oxford] Clay at Brewham, Somerset was doomed. This was on the basis only of conclusive fossils thrown out of the deep shaft they had dug there.¹³

Smith’s results were by no means merely concerned with “the Oolites”. In 1811 he was involved in attempts to find coal in beds which lay far

below this, in those rocks which Hugh Miller was later to make his own, the Old Red Sandstone. There is some evidence that Smith advised against these. Certainly by 1817 he had realised that attempts at this much lower level were equally doomed to failure, as this rock lies *below* the Coal Measures.¹⁴ But soon another problem arose. The newly founded (late in 1807) Geological Society of London initially failed to realise either that Smith's results were reliable or that such prospecting was possible. This delayed the acceptance of his ideas¹⁵ and so caused a later problem for the historian, involving the extent of Smith's achievement.¹⁶

Coal seeking

From those few known examples, of what was always a highly papyro-phobic activity, we can show that during the period 1793 to 1815 war-torn England saw searches for coal and other valuable materials being made all over the country, wherever misleadingly blue/black clays were found which lithologically resembled those clays associated with true Coal Measures. As William Buckland wrote in 1836

“before we had acquired some extensive knowledge of the contents of each series of formations which the Geologist can readily identify, there was no *a priori* reason to expect the presence of Coal in any one Series of strata rather than another. Indiscriminate experiments in search of coal, in strata of every formation, were therefore desirable and proper, in any age when Geology was unknown”.¹⁷

Another of Smith's pupils, the polymath John Farey senior (1766-1826), confirmed that by 1807

“we find on inquiry in the neighbourhood, that almost every common, moor, heath, or piece of bad land, in parts where coals are scarce, have at one time or other been reported by ignorant coal-finders to contain coal... Our inquiries, and those of Mr. Smith, have brought to light hundreds of instances, where borings and sinkings for coals have been undertaken in such situations, and on such advice, in the southern and eastern parts of England, attended with heavy, and sometimes almost ruinous, expenses to the parties, though a source of profit to the pretended coal finders, who, have in many instances been able to return to the same spot or neighbourhood, and persuade a new proprietor to act again the same farce, and squander his money on an unattainable object”.¹⁸

John Farey was, as he wrote, failing in an attempt to stop one of the more ignorant attempts in Britain; that made, as noted above, in Sussex between 1805 and 1811.¹⁹ He was also afterwards soon active in Scotland, at Brora, Sutherland, north of Cromarty in 1812, but, working so far away from where Smith's Geological Scale had originated, with less scientific success,²⁰ and in Dumfriesshire in 1815.

Throughout it is clear how important Farey thought their new found

ability to prospect reliably for stratified minerals was, at least in England. In this Smith was in total agreement. In the *Memoir* which accompanied his famous *Geological Map of England and Wales and part of Scotland* (1815) he emphasised how

“the wealth of a country primarily consists in the industry of its inhabitants and in its vegetable and mineral productions; the application of the latter of which to the purposes of manufacture, within memory, has principally enabled our happy island to attain her present pre-eminence among the nations of the earth... whatever, therefore tends to facilitate the discoveries and improvements of the one or the other, may with just propriety be considered a national concern”.

Smith ended by noting “the immense sums of money imprudently expended in searching for coal and other minerals, out of the regular course of the strata which constantly attend such productions... proves the necessity of better general information on this extensive subject”.²¹

All this was before what Hugh Miller called the “Geological Scale” had become generally accepted. But as soon as it was, in England between 1815 when Smith’s *Map* was published and 1822 when W.D. Conybeare and W. Phillips’ influential book was published,²² a slow revolution could begin.

Hugh Miller’s contribution

One of those who provided “better general information on this extensive subject” was Hugh Miller. In his first book *The Old Red Sandstone* [=ORS hereafter] he wrote

“there is no science whose value can be adequately estimated by economists and utilitarians of the lower order... Geology, in a peculiar manner, supplies to the intellect an exercise of this ennobling character. But it has also its cash value. The time and money squandered in Great Britain alone in searching for coal in districts where the well-informed Geologist could have at once pronounced the search hopeless, would much more than cover the expense at which geological research has been prosecuted throughout the world”.²³

Like Smith, Miller had a relatively impoverished childhood. Both were self-made in later life. Both were fine field observers and collectors. Samuel Smiles in his best-seller *Self-Help*, who directly compared them, noted that Miller had been “a man of similar calibre [to Smith], of equally similar tastes, and observant facilities”.²⁴ These last were the critical abilities which made both their reputations. But we should not be fooled into thinking they were otherwise similar. For a start one was English, the other Scottish. Only Miller was religious, and only he enjoyed a regular income, if only latterly. Smith was an unenthusiastic writer while Miller

proved the exact opposite. While both used geology professionally, only Smith used it in his practice while Miller used it in his writings. Smith, as a geological prospector and cartographer, had to be single-minded, while Miller espoused a much more multi-talented existence. Finally Smith remained essentially a provincial, while Miller was, after 1839, firmly established within the Scottish metropolis in Edinburgh. As a result Miller became well known, while Smith, forced further as a result of his financial problems into a Yorkshire exile, could only achieve some fame in the last decade of his life.

Mineral prospecting in Scotland

The situation of mineral prospectors in Scotland seems to have been little different from that in England, that is until what Miller called the “Geological Scale” became available there. Since this had been an entirely English scale, this took some time to export north. The problem was that as the scale evolved and was improved from its southern (Bath) origins, the farther it extended northwards from its foundations and the harder such extension proved.²⁵

English coal hunters were of course active in Scotland as for example John Buddle (1773-1843) who in 1806 was hunting in Roxburgh and Berwickshire.²⁶ But the first stratigrapher to attempt to bring Smithian methods to Scotland was John Farey (and see below).

Some Scottish mining expertise

The problems of extending an English scale to a Scottish situation were difficult despite an abundance of Scottish mining expertise, as exemplified by the careers of four of its major practitioners. The first is John Grieve (?-1837), who was trained at Bo’ness before 1773 by John Roebuck, the managing partner at the Grange Colliery, West Lothian.²⁷ He was active as a mining and canal and railway engineer throughout Scotland, Wales and northern England. He was latterly of Musselburgh, East Lothian. Here he superintended Craighall Colliery, was coal manager to Sir John Hope (1781-1853), 11th baronet of Pinkie, and was involved in geological map making from the 1830s. Grieve died at Musselburgh on 24 October 1837.²⁸

The second and third were the brothers John (1766-1857) and Daniel Busby (1769-fl.1812). They had come to Scotland from Embleton in Northumberland and surveyed for Scottish coal in Lanarkshire, Linlithgowshire, at Edinburgh, and in Dumfriesshire in 1800 and in Caithness 1801-2. Their last work here was duly quoted by Hugh Miller.²⁹ John Busby was awarded prizes by the Highland Society for his devices for boring or sinking through quicksand and for sampling the strata that had been bored through.³⁰ Such skills were in such demand that John was then appointed as mineral surveyor (and soon as civil engineer) to the infant colony of New South Wales in 1824, where he died, full of years, in 1857.³¹

The fourth is perhaps the most important: Robert Bald (1776-1861), described by Duckham as “by 1815 easily the best known of Scotland’s viewers [i.e. mining engineers]”.³² He was the son of Alexander Bald (1753-1823), colliery agent of Alloa.³³ Robert published a number of books, including his *General View of the Coal Trade of Scotland* (1808 – second edition 1812). He contributed the important article “Mine” to the *Edinburgh Encyclopaedia* in 1820. He was also keenly interested in science, being elected a member of the Wernerian Society of Edinburgh in 1808, an Honorary Member of the Geological Society of London in 1810, as well as a Fellow of the Royal Society of Edinburgh in 1817.

Despite Bald’s interests in science and his memberships of these societies, his 1820 article in the *Edinburgh Encyclopaedia* shows he did not yet have any comprehension of the significance of Smith’s stratigraphic scale for Scottish mineral prospecting. This was five years after the publication of Smith’s famous 1815 *Geological Map*. Later in his career Bald, and his uncle’s more famous grandson William (?1785-1857), were much involved between 1829 and 1833 in the Highland and Agricultural Society of Scotland’s attempt to produce a first geological map for Scotland.³⁴

Part of the problem for such mining engineers was the same as that clearly in evidence in England; there was simply too great a gap between the practice of mining, which was often local, and the realisation that some knowledge of geology would be of real value to it.

Some Scottish coal trials

Some details are available of a few attempts to find Scottish coal that are known to me. The first is that organised on Bute by Lord Mount Stuart (1744-1814), son of John Stuart (1713-1792), third Earl of Bute and Prime Minister 1762-1763. They tried to find coal on the Bute estates. Here expense was no obstacle. William Casson (fl. 1782-fl. 1787), Yorkshire mining engineer, was appointed to lead the search, made between 1784 and 1787. It was made under conditions of strict secrecy and so its record is highly papyrophobic. By May 1787 one of two brother borers, George (c.1730-1787) and Thomas Rawlins (1733-1809) from the Newcastle coalfield, the best then practising in England, set out for Bute³⁵ but George was soon afterwards killed in an explosion at Long Benton colliery in November 1787³⁶ and no more is heard of this attempt. Such is the historical record of such coal attempts, which geology would later reveal were doomed to failure.

A similar situation emerges on the Isle of Skye. One might record real surprise that coal was being sought at all in such isolated, thinly-populated places as Skye and Bute but such had already been the impact of coal on Scottish, as on English, industry that it was sought in hopes of stimulating both industry and domestic comfort. This former was the stimulus on Skye. Here at Stein, on the northernmost peninsula of the island, Henry Grey Macnab (1760-1823)³⁷ recorded how

“Colonel [Norman] Macleod [1754-1831] of Macleod last summer [1792] commissioned at a very great expense a gentleman of acknowledged abilities in the coal trade, from Newcastle-upon-Tyne to explore his estate in the Isle of Skye for coal. Such public spirited conduct deserves success and I am happy to learn, that the probability is greatly on the side of a discovery of workable seams of coal on the Colonel’s estate”.³⁸

The survey and borings and sinkings here were carried out between August 1792 and October 1793 by George Johnson (died 1800). He was Macnab’s brother-in-law. His report survives³⁹ as do Macnab’s unique “Conditions of Exploring for Minerals, Ores and Metals” which Macnab printed later in this same decade and is reproduced here.⁴⁰

Conditions of Exploring for Minerals, Ores, and Metals.

FOR a General Survey of an Estate not exceeding 500 Acres exclusive of Travelling Expenses

Do.	Do.	Do.	1000 ACRES	TEN GUINEAS
Do.	Do.	Do.	1500 Do.	TWENTY DO.
Do.	Do.	Do.	2000 Do. & Upwards	THIRTY DO.

Should the distance of the Estates to be Explored exceed a Hundred Miles from the place of the Residence of the Explorer, in such Instances the Explorer to be paid Three Guineas per Day, during the necessary Extra-Time of such Journeys

Actual Trials after the General Survey to be made at the Expence and Risque of the Explorer, but in cases of productive discovery to be reimbursed all reasonable Expences, and to be entitled to a full third of the Royalty Rents during a Lease of 21 Years, or in cases where the Lessor can grant it during a Lease of 31 Years; the Explorer having the Refusal of such Leases, at the best Royalty Rents which may be bona-fide offered,

In cases where proprietors of Land wish to reserve the Royalty Rents undivided, the Actual Trials to be made at their Expences, and the Explorer to be paid three Guineas per Day and reasonable Expences, but to have no preference to become Lessee.

The Explorer will Analyse or Assay what may be discovered.

Address

Dr. Macnab, Bridgnorth, Shropshire.

Figure 1. Henry Macnab’s *Conditions of Exploring for Minerals, Ores and Metals*, circa 1798 (courtesy of the Sutro Library, San Francisco).

Stein had been chosen for these, again expensive and, as in Bute, inevitably abortive, coal trials, because Lochbay had been selected by the British Fisheries Society in 1787, although this site was not fully developed until 1795.⁴¹ The indications of ‘coal’ that misled them to search here are clearly those still visible in the Great Estuarine Series of the Middle Jurassic, in which black shales with fossil wood are again common.⁴² This mere lithological similarity seems, just as with contemporary English trials, to have been the stimulus for the “coal” prospecting here.

Nor was this the only Skye trial. Soon “in 1800 Lord Macdonald brought in miners from Fife to work a [supposed] seam at Scorr by Portree, Uig and Kilmaluig. All [of] which failed due to its poor quality and flooding of the mine”.⁴³ These may be the same trials as are referred to in an August 1810 note

“all [these fossils] from the Isle of Sky (sic) were brought me by some masons who had been at work there – the names are wrote by a Mr Whiteby – a sort of mineral surveyor sent to search for coal on Lord McDonald’s estate, who found them”.⁴⁴

An earlier visitor to Skye, Rev. Edward Daniel Clarke (1769-1822), soon to be the first professor of mineralogy at Cambridge University from 1808, had noted at Talisker in August 1797 how

“the western side of this valley opens to the sea, and on the shore may be found an infinite variety of minerals. Of the coal [there] it must be observed, that various indications of it may be seen over the whole island, which has induced many of the inhabitants to prosecute their researches after so valuable a commodity to a considerable extent... They found coal, but never in sufficient quantity and always near the surface”.⁴⁵

This repetition of attempts in a particular area is again typical of contemporary English trials, as John Farey’s quotation above makes clear.

The problem of the printed record

One of the real problems for the historian of such coal seeking attempts is that there are few printed records of such activity and few coal prospecting manuals. One of the best of the last was provided by the Scottish-based Welshman John Williams (1732-1795).⁴⁶ He had arrived in Scotland at least by 1764 when he was mining at Brora and he remained active all over the country, including Cromarty, until his departure for Italy late in 1793. In 1790 Williams published one of the most important such sources, a two volume work *The Natural History of the Mineral Kingdom*. Volume one contains a chapter on “the indications of coal, and methods of searching for it” which only shows how little any geological considerations yet entered into those indications. Yet part one of this book was translated into German in 1798 and the whole book reached a sec-

ond posthumous edition in 1810. The section on “indications of coal” was also reprinted in the USA in 1814.

Williams here helpfully separated supposedly “true and infallible” indications from others “false and doubtful”. The occurrence of coal itself was the most infallible sign while local stratification gave other, unspecified, clues. Associated rock types like black shales, ironstone and red or white freestone he thought were particularly good indications of coal. In other words the lithologies of rocks were effectively the only indications apart from the occurrence of coal itself. There is still no clue that Williams or James Millar (1762-1827), editor of his second 1810 edition, yet had any inkling that what Miller was later to call the “Geological Scale” might yet prove the most reliable of all indications in areas where coal was still unknown.

Williams’ career provides further indication of the papyrophobic nature of coal mining activity. It was something “done” rather than much written about. Apart from the above book, Williams produced a total of eleven other papers (not all of which were on coal/mining). Of these, only 4 were published normally, 2 others appeared only posthumously, 2 more were issued only as prospectuses (for works which never appeared) and the final three were papers read to the Society of Antiquaries in Scotland but never published. Clearly the problem of insufficient publication outlets has to be taken into account when considering both the past practice of geology and its practitioners. The field of mining (for both metals and combustibles) had no real publication forum in Britain until the appearance of the *Mining Journal* from 1835, when it was set up by Henry English (1803-1855).⁴⁷

Robert Bald’s mining treatise of 1820 had recorded that when

“searching for coals in a district of country where no coals are known to exist, the first point for consideration is the general aspect and outline of the country under survey... If the country is composed of hills or mountains... we have no reason to expect that strata will be found there containing coal; and excepting this very obvious and plain feature, as to aspect, we do not know any other upon which we can conclude, with any degree of certainty, whether coals will be found in a district of country or not”.⁴⁸

So, in 1820, Bald too, “easily the best known of Scotland’s viewers” [mining engineers], still had only negative and weak evidence to help him in areas where coal was unknown.

But there may have been other problems more specific to Scotland. Bald had, after all, been a founder member of the Wernerian Natural History Society of Edinburgh.

Wernerian geological imports

Miller wrote in his early “gropings” (1838) that “my imperfect acquaintance with the system of Werner had left me with

an immense heap of residual facts, which I could make no use of whatever; my still more imperfect acquaintance with the system of Hutton furnished me with employment for them all”.

This mostly refers to the powerful and often acrimonious, debate between the Plutonist followers of the Scot, James Hutton (1736-1797) (who believed in the power of heat to create rocks) and the Neptunist followers of the German, Abraham Werner (1749-1817) who thought water was more responsible.⁴⁹

Werner's system and the stratigraphic sequence he had worked out in Saxony were enthusiastically imported into Scotland by Robert Jameson (1774-1854) of Edinburgh University who had studied under Werner at Freiberg in 1800-1802. By 1821 Jameson was certainly teaching students like Charles Darwin, what the “order of the strata” (or Miller's Geological Scale) was. But this should not obscure the fact that, by then, the scale which Jameson was now using, running from the Old Red Sandstone to the Chalk, was one evolved from the work of English practical geologists. It was no longer based on that worked out in Saxony by Werner which Jameson had first used, but which was simply not applicable in Scotland.⁵⁰

Before 1821 Jameson had certainly been using, and teaching, this imported and inapplicable Wernerian stratigraphic system. This is clear from Jameson's two published attempts at coal hunting guidance. The first was published in 1800, before he went to study in Germany.⁵¹ This gave such useless advice as that “primary strata never contain coal” and then discussed only those rock lithologies which were “noted by mineralogists as indicative of coal”. No stratigraphic guidance was presented. The next source, in the first book he published after his return from Werner's teaching in Saxony, was likewise dedicated to a renewed search for coal, and other minerals, in Dumfriesshire; the earlier Busby surveys having been judged inconclusive. This book described both Werner's “Independent Coal Formation” of Dumfriesshire and how to find it, but in wholly Wernerian and thus impractical stratigraphic terms.⁵²

The problem was that there was no reliable way by which Werner's incomplete and far distant Saxon sequence could be identified in Scotland. More critically, such Saxon Steinkohle and Braunkohle were both quite different, and worse, occurred at different horizons in the “Geological Scale” to any productive Coal Measures found in Britain.⁵³ Despite this fact, many Smithian orderings of strata have been quite wrongly credited as being Wernerian in origin. Good examples are those of William Phillips 1818 and of Westgarth Forster in 1821, both entirely based on Smith's work in England.⁵⁴

Coal-seeking at Cromarty

As we have seen things had become very different by 1841 when Miller

in the *ORS* could confidently report “there has been much money lost, and a good deal won, in speculations connected with the Old Red Sandstone”.⁵⁵ The Geological Scale had reached Cromarty. Miller now discussed some of these “unfortunate undertakings” in the Cromarty area. Here the Great Glen fault is now known to have brought Upper Jurassic shales (Miller’s Lias) into faulted contact with the Old Red Sandstone, as David Oldroyd’s masterful survey of Miller’s geological work here makes clear.⁵⁶

The first coal search here was due to George Mackenzie (1630-1714), the First Earl of Cromartie from 1703, and Fellow of the Royal Society 1692. He had purchased the lands of Cromarty which included a deep wooded ravine near the site of St Regulus’s Chapel. This then exposed (what was much later to be called) the *ORS* showing abundant fossil plant impressions and bitumen. These misled Mackenzie into thinking coal might be found here. Miners brought “from the south” sank a shaft in the gorge in the 1690s when a fine chalybeate spring, impregnated with iron salts was struck.⁵⁷ This artesian well, known as the Coalheugh Well (Coal pit well) and capped with a stone dome, can still be seen.

Miller next discussed “another and more modern attempt [to find coal] in the same district on the shores of the Moray Firth, in a detached patch of Lias, where a fossilized wood would no doubt be found in considerable abundance, but no continuous vein even of lignite”.⁵⁸ This refers to the black shales still so well exposed at Eathie, south of Cromarty. But exactly which trial Miller is here referring to is a mystery. Was it the attempt made by the first Captain John Urquhart of Craigston (died 1756) in 1752? He then employed a surveyor called Wetherby (who may have come from Northern Ireland) to search for coal here.⁵⁹ Or did Miller refer to the later trials made early in his own lifetime when “two trial pits for coal were sunk in the Eathie Beds in 1810”?⁶⁰

Whichever these were, there is no evidence of any coal hunting activity in the Cromarty area in the years so critical to Miller’s geological development i.e. 1820-1837. This means that Miller would have had no chance to talk with any imported ‘expert’ who might then have cast his eye over local Cromarty geology. We must thus agree that Miller was indeed, as he claimed, here “a sort of Robinson Crusoe in Geology”.⁶¹

These trials remarkably were not the last coal-hunting attempts made at Cromarty. In some November 1854 notes for a lecture to the Royal Physical Society of Edinburgh, published only in later editions of *ORS*, Miller wrote how again

“the Lias of Eathie was the scene, only two years ago, of a disastrous coal-boring speculation, on which much good money was expended. The unlucky speculator dug a wide pit in the Liassic shales, to the depth of more than a hundred feet. The hole was made large and deep enough to prove the sepulchre of several hundred pounds; but I console myself by reflecting that the inevitable expense of the excavating operations was incurred in defiance of all that I could say”.⁶²

The precise date is confirmed by a surviving letter which Miller wrote to his mother on 3 January 1852. In this he noted a “coal boring speculation at Eathie [in fact a sinking] is still carried on”.⁶³ The exact sites of the two shafts then and later dug here, which must surely be these from the ease with which Judd could record them, are known from the work of John Wesley Judd (1840-1916). He marked them both on his map of 1874⁶⁴ and gave sections across these strata (which he now correctly diagnosed as belonging to the Upper Oolites = Upper Jurassic) exposed along the Eathie shore at both. These must be the same as those marked, as “Old Shafts” just above High Water Mark, on large scale 1868-1874 OS maps.

These attempts, from 1852 on, were made well after the arrival of what Miller had called the “Geological Scale” and should have restricted the incidence of such ill-informed attempts here. The problem was once again a late survival of the idea that mere lithologies could now ever guide coal-prospecting. These Lias (as Miller thought) or Upper Oolite (of Judd) shales here are once again black, and superficially much resemble those found with true coal.⁶⁵

Murchison’s contribution

Miller’s book *ORS* was dedicated on 1 May 1841 to Roderick Impey Murchison (1792-1871) who had been born at Tarradale House at the far south-west end of the Black Isle. Murchison had proudly told Miller in 1850 how “I consider *we* come from the same nook of land”.⁶⁶ In this dedication Miller noted that

“Smith, the father of English Geology, loved to remark that he had been born upon the Oolite, - the formation whose various deposits he was the first to distinguish and describe, and from which, as from the meridian line of the geographer, the geological scale has been graduated on both sides”.⁶⁷

In Miller’s posthumous *The Cruise of the Betsey* he paid this double tribute, to both Murchison and Smith

“in exploring our Scotch formations, I have had frequent occasion, in Ross, Sutherland, Caithness, and now once more in Skye, to pass over ground described by Sir R. Murchison; and in every instance have I found myself immensely his debtor... The work accomplished is *bona fide* work, - actual, solid, not to be done over again, work such as could be achieved in only the school of Dr. William Smith”.⁶⁸

The earliest Murchison work to which Miller was here referring was that published in 1827 on the Coal Field of Brora, Sutherland. Murchison ended this paper by pointing out that, as a result of having establishing the stratigraphic position of these “coals”,

“in the Oolitic Series we may venture to predict with certainty, that no carboniferous deposits of any great value will ever be discovered, at all events in Great Britain. A want of such knowledge has induced many persons to make trials for coal in beds subordinate to the English oolites, and even superior to them, in places where the type of formation did not offer the least warrant for such attempts. These speculations have ended, and always must end, in disappointment and ruin”.⁶⁹

It was surely this influential paper which first allowed the “Geological Scale” to be extended as far north as Brora (and Cromarty), in Scotland. Such new certainty, and the emphasis on the economic results of such speculations, could now allow Miller to observe how these anomalous “coals” at Brora in Sutherland had merely been “an unprofitable working made for many years for a sulphureous lignite of the Inferior Oolite far above true Coal Measures”.⁷⁰ In other words he was now claiming that, however useful these supposed ‘coals’ had been here, they were doomed to prove unprofitable from their ‘wrong’ geological position.

The economic significance of coal and coal prospecting

But as we have seen from the last known coal-seeking activities near Cromarty, such advice as that which Murchison and Miller could give did not stop such unfortunate speculations. In the same year as *ORS* was published, William Buckland (1784-1856) sent a copy of a letter about recent, equally uninformed and thus doomed, attempts to find coal made at Shirenewton, near Chepstow in Wales to Robert Peel (1788-1850), the Prime Minister. This was to urge him to support the work of the recently established Geological Survey of Great Britain. This letter demonstrated, said Buckland

“the practical value of the work [the Survey] was doing. It is one of the endless cases of searching for coal where it is impossible to be found. I am sure that from 5 to 10 thousand pounds a year are wasted in England alone in similar fruitless attempts which the Geological Survey will put an end to”.⁷¹

By 1851 Murchison had also long joined this debate. But he was then reported in a Canadian periodical, to have claimed, echoing Miller in 1841, that all the money wasted had been much more significant.

“The eminent geologist Sir R.J. [sic] Murchison, computes that the money expended in England alone, before geology was understood, in searching for coal where it would now be considered madness to expect it, would be sufficient to effect a correct general geological examination of the whole of the crust of the globe”.⁷²

This realisation of the economic significance and importance of strati-

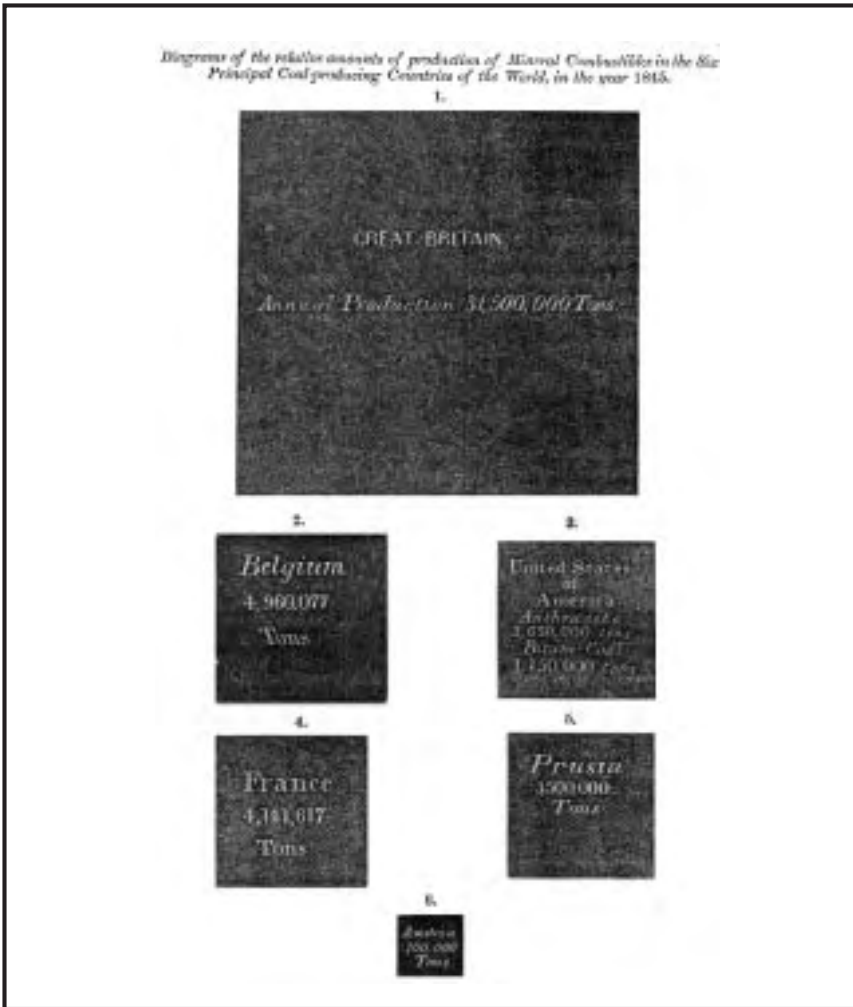


Figure 2. Richard Taylor's Chart showing the relative amounts of coal production among the six principal coal-producing countries in 1845 (author's collection).⁷³

graphical work in Britain had important consequences and Miller, by insisting on the “cash value” of such knowledge, had played a significant role in this. The extent of the British coal industry at this time is best revealed by another of Smith’s pupils. In 1848 Richard Cowling Taylor (1789-1851), who had emigrated to the United States, published this diagram (Figure 2). It demonstrates the extraordinary extent of the then coal industry in Britain.

Miller’s views on “the cash value of geology” were often quoted later on this same subject, as by Alfred Joshua Wood, surgeon to the Gloucester

Literary and Scientific Association in 1857. Wood then recorded how

“the much lamented Hugh Miller, in his justly celebrated work on the Old Red Sandstone after expatiating at some length on the ennobling influence of his favorite science, expresses himself as follows “But it (geological science) has also its cash value”... it may I think be taken for granted, that the utility of geological knowledge is now universally admitted”.⁷⁴

It had taken a long time for the message to be received. We need to be reminded that it is still an important message, as our University Departments of Geology suffer ever greater erosion in favour of supposedly more “relevant” subjects such as media studies. Miller, one feels sure, would not have approved.

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Hugh Miller, the fossil discoverer and collector

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This paper, very much work in progress, is concerned with Hugh Miller's geological collection: the fossils which he discovered, how he found them, what they meant to him and how he used them. We consider Miller's use of fossils as objects of material culture, and in so doing we explicitly include science in that culture. In the 1996 collection of studies¹ edited by Michael Shortland, this territory was explored in some depth by James Paradis,² and Miller's autobiographical mode of writing means that it also overlaps, for instance, with David Alston's and David Vincent's research into Miller's local context and self-cultivation.³ We do not discuss Miller's important contribution, partly based on his collection, to the progress of formal scientific thought, as this has been well reviewed by David Oldroyd.⁴

An obvious historiographic problem posed by Hugh Miller is the breadth of his activities brought before the public eye, which has fuelled different readings from different commentators. Many collecting contemporaries also had diverse interests,⁵ but few developed a public profile in such an array of apparently disparate fields (religion, politics, folklore, geology and journalism). Fewer still committed their views to paper and even those who were journalists rarely wrote themselves so overtly into their works. These issues pose challenges to our interpretation of Miller's intent, as does our frequent reliance upon his own portrayal of himself. This portrayal is laced with the high morality of his tales and a liberal application of his own hindsight, and infused with a dry wit and a subtle irony that modern readers sometimes miss, with the inevitable consequences. We will return to these problems at the end.

A second historiographic problem is that there is no obvious context in which to place his geological activities: one has to start from scratch. The cooperative and competitive aspects of 19th century English geology appear to have had parallels in Scotland, where middle-class collectors and provincial men of science sought to establish a position for themselves in society by taking part.⁶ Miller's social context in Cromarty was very different from that of the provincial philosopher in, say, Scarborough or Bristol; but even in Scarborough and Bristol there was great variation in how enthusiasts engaged morally and socially with their scientific activi-

ties. Miller's well-known self-cultivation, with its inevitable implications for defining his identity, suggests that he 'should' be just such a conventionally competitive collector; on the other hand, Miller's deep moral beliefs pull us into a completely different and possibly uncharted territory.

Our third historiographic problem is that, in many ways, Miller is peripheral to conventional histories of science. Like many collectors, he will have been marginalised by his social status and geographical isolation, and the fact that his *scientific* achievement was (and still largely is) counted in specimens and sites rather than formal papers. Even when he had established himself as a geological writer, his invocation of God in so many debates, his posthumous association with the losing side in the struggle for acceptance of evolutionary thought, and his failure to write science in the increasingly formalised manner being adopted as the norm, have all tended to turn Miller into something of a Victorian curiosity. Yet Miller was courted by many of the great geologists of the day, few of whom, apparently, saw anything particularly odd in his perspective. In contrast, true biblical literalists, such as the Rev. George Young of Whitby, were castigated for their views even in the 1820s, when Miller's geologising had scarcely begun. Indeed, Miller had no time for biblical literalists,⁷ and Arnold Bennett's novel *Clayhanger* recalled how

“even Hugh Miller's *The Old Red Sandstone* ..., then over thirty years old, was still being looked upon as dangerously original in the Five Towns [of the nonconformist Potteries of Staffordshire] in 1873. However, the effect of its disturbing geological evidence that the earth could scarcely have been begun and finished in a little under a week, was happily nullified by the suicide of its author; that pistol-shot had been a striking proof of the literal inspiration of the Bible”.⁸

There is plainly a serious anomaly in some – perhaps even all – modern perceptions of Miller, and although the 1996 study goes a long way towards addressing this,⁹ the issue remains open.

The development of Miller's collecting

If one imagines Hugh Miller, perhaps on the foreshore collecting his fossils, or at home preparing, sorting and storing them, one can recognise a figure fairly ubiquitous to many fossil-rich areas on Britain's coasts of his time, whether seen as labourer, self-improving artisan or middle-class “philosopher”.¹⁰ That Miller was all these things does not make him unique; many others crossed these social boundaries. His uncles James and Sandy indeed nurtured the young Miller in antiquarianism and natural history, but this nonetheless follows the cliché of the risen Victorian collector, as does Miller's entwinement of fossils and religion, then a great driving force for exploration countrywide. Miller's *published* writing is indeed distinctive for its nature, diversity and weight, yet an initial sample of his unpublished letters to his friends suggests a talented but still fairly

typical provincial philosopher.¹¹ Elsewhere in Britain, collectors were racing to establish their scientific reputations through discovery. Miller was not totally detached from this race, but he saw other ways in which to deploy geology in his self-development. Miller stands out, in fact, not so much because of what he collected or how he did it – impressive as his achievements certainly are – but for what he made of what he collected.

Any one individual's attitudes to things, in the sense of material objects, change as if by the minute. Miller was no different, and we distinguish four fairly arbitrary phases in his relationship with fossils:¹²

1802-c. 1820. The period of his formal education – such as it was – and his early self-education. Fossils entered his world with other things but had no revolutionary effect.

1820-c. 1829. Miller's interest in fossils developed, particularly – so he tells us – after his finding of “Liassic” (actually Upper Jurassic) fossils on the shores of the Moray Firth.

c. 1830-1837. Isolated from the wider culture of science/geology, in the “Robinson Crusoe of geology”¹³ phase of his geologising, Miller seriously studied the fossils of his home area, making his famous discovery of fossil fishes in the Old Red Sandstone at Cromarty in 1830, but treating fossils only briefly in *Scenes and Legends*.¹⁴ Sporadically he read or heard about current geological ideas, but could get little useful specialist help, and remained for practical purposes out of contact with other collectors such as those in the Moray Firth area.

1837-1856. In 1837, he meets Patrick Duff and the Elgin geologists, and – crucially – John Malcolmson, the East India Company doctor who had been drawn to Cromarty by mention of fossils in *Scenes and Legends*. Helped by Malcolmson, Miller progressively entered the broader cultural world of geology, learning what it was all about. His network grew at a pace accelerated by his move to Edinburgh in 1840, and such events as his recognition (in his absence) at the British Association for the Advancement of Science in Glasgow in 1840, his career as a newspaperman, and his contacts with the scientific élite. Miller could now take part actively in geology and exploit its material culture more diversely.¹⁵

What Miller collected

Miller's fossil collection started with his finds from the Upper Jurassic (to him, the Lower Jurassic “Lias”) and the Old Red Sandstone around his home town of Cromarty and neighbouring areas of the Black Isle and the Seaboard of Easter Ross on the other side of the Cromarty Firth. To this Cromarty-centred core, from 1840, Miller added material from around his new home city of Edinburgh. A growing collection of fossils was acquired from elsewhere in Scotland during his summer or autumn vacation travels of a month or more, for instance when he visited his boyhood friend the Rev. John Swanson on the “Free Church Yacht *Betsey*” and collected on Eigg.¹⁶ Over the years, Miller cumulatively traversed Scotland from Aberdeen to Mull, and from Girvan to the Orkneys, with

a book on Scottish geology in mind.¹⁷ In 1845, also, he travelled into England to extend his knowledge, particularly of the older rocks, including a week at the newly classic Silurian locality of Wrens Nest at Dudley.¹⁸ With the publication of *The Old Red Sandstone* in 1841 Miller became a literary geological celebrity, extending his network.

Miller's collection, as today preserved, strikingly reflects the truth of his writing.¹⁹ Miller was plainly not driven by the simple aesthetics that led some contemporaries to seek only perfect specimens. He collected in bulk, and took specimens which other collectors would have rejected. This was almost inevitable given the nature of the deposits open to him, most fossils being incomplete and distorted.²⁰ But far from rejecting them, he used them as complementary fragments to recreate the mental picture of some fossil animal, "every new specimen that turned up furnishing a key for some part previously unknown – until at length, after many an abortive effort, the creatures rose up before me in their strange, unwonted proportions"; at first, like others at the cutting edge of science, he had no language with which to begin to understand these finds, and simply distinguished his fossils with numbers for species.²¹

Miller's eye was acute enough to appreciate both extremes of scale, from the grand landscape to the minute detail of fossils, and to make them work together.²² But on a wider scale he recognised the need to train the eye, to construct a mental reference library of forms, a geological vocabulary of species which included a parsing in the form of the various ways in which fossils once of the same species could be preserved. Miller's trip to Dudley was for this very purpose.²³ As with other collectors, Miller's connoisseurship relied on the development of generic taxonomic and stratigraphic notions of "types" and "series" to categorise observations and discriminate species and strata. Miller's respect for detail and the value of even fragmentary fossils also typified the new breed of research-driven professional palaeontologist then emerging.²⁴

The Cromarty Stonemason as fossil collector

One might imagine that being a time-served stonemason had advantages for Miller as a collector. True, he could hew open a nodule with ease,²⁵ with the tools, skills and physique of a period of hard labour amidst rocks. But the best fossil collector need not be much of a geologist nor much of a mason. Miller did not, as far as we know, actually find fossils in the Black Isle quarries where he worked. More important was his presence on the same spot for a long time, enabling him to be opportunistic.²⁶ Like other collectors, Miller had to acquire an eye for the local strata and the signs signalling their fossils. Indeed, Miller illustrates the importance of developing what zoologists call a "search image", the ability to spot the very specific *Gestalt* of the fossils of a particular locality. His early collecting in the supposedly "Liassic" rocks of Navity and Eathie gave him a particular eye for their fossiliferous nodules. When he came to draw up a model of local geology, he realised the possible presence of the

“Lias” on the other side of the “granitic gneiss” of the South Sutor headland, and accordingly investigated the beach at Cromarty. This “research programme” led to his discovery of a stratum bearing nodules, which he promptly cracked open – no doubt prompted by his learning at Eathie to equate nodules with the fossils around which they had formed.²⁷ This serendipitous misapplication of his “search image” thus led him to the entirely different fossils of what became his classic beach site of *The Old Red Sandstone* fame, and the diversion of his “research programme” to exploit this site and locate more outcrops of fish-bearing Old Red in the area.²⁸

Being a local collector had real advantages, but, at least before 1840, Miller had no option. He would have avoided collecting fossils on Sundays, his one clear day off in the working week, certainly since his religious commitment of the mid-1820s, and probably before. Collecting was no work of necessity and mercy, the only labour permitted on the Sabbath, and, indeed, Miller disapproved of even the temperate and self-improving country pursuits of the English Sunday.²⁹ As a stonemason, he at least had the winter months, although they would have been limited by daylight and tide. As a bank clerk, he found his travels restricted by his duties: “I found myself somewhat in the circumstances of a tolerably lively beetle stuck on a pin, that, though able, with a little exertion, to spin round its centre, is yet wholly unable to quit it”.³⁰ Usually, he could only go collecting on Saturday afternoons and during long summer evenings, when sometimes he and his wife Lydia would sail along the coast in their little boat to various localities, doubtless with a picnic, and often returning with freshly caught fish for supper.³¹ It was only from 1840, at *The Witness*, that he seems to have found time for longer trips, partly for health reasons and partly to visit his Cromarty relations.

Geology becomes more than a collection

During the early 19th century, careers in geology – however precarious – were emerging in the more populous parts of Britain, but Miller had no such opportunities. To begin with, geology was his recreation. His ambitions, his career hopes, were centred on literature. His general reputation as the local literary lion, the “Cromarty Stonemason”, stemmed from his literary work, and owed little if anything to geology.³² Apart from a brief discussion, mixed with topography and local history, in just two chapters of *Scenes and Legends*,³³ Miller published no geological books till after his literary efforts had catapulted him into the editorship of *The Witness*. However, we cannot ascribe Miller’s establishment as a geological writer solely to his becoming a newspaper editor at the beginning of 1840. He had plainly already realised that his recreation could provide useful material for his journalistic repertoire: in 1838, he published a double article, “Gropings of a Geologist”, in *Chambers’s Edinburgh Journal*,³⁴ and told his friend Patrick Duff of Elgin his intentions to draw up an account of the geology of Cromarty over the summer of 1839;³⁵ so it is possible that much of *The Old Red Sandstone* was in fact written before he left his home

town. Nevertheless, up to 1840, Miller would have been regarded as no more than a minor collector in the culture of geology at that time.

His editorial post gave him new opportunities for free time for field-work and for literary development (as the editor, he decided what went into the paper). The success of *The Old Red Sandstone* (1841, but serialised in the paper in 1840) transformed matters. To his literary persona as historian and chronicler it added a new geological facet that cast him as having been a gifted “Robinson Crusoe” of geology, and now an expert in fossil fish and in the interpretation of the deep past. His mix of geology with moral and social comment became his trademark, in a form of popular geology which was often one or two steps further removed from the technicalities than the standard popular writing of Gideon Mantell or Charles Lyell.

Miller and the possession of Nature

Miller evidently took his collection seriously enough to build a “museum” for it as an annexe to his house, Shrub Mount, in Portobello, Edinburgh, protecting it with a mantrap, apparently of the kind that lacked teeth.³⁶ But what value or meaning was Miller protecting? Clearly the collection embodied a vast amount of hard work and time. Yet there was much more to it than an exercise in fossil research: it plainly had emotional value. Miller’s writings are suffused with the thrill of discovery and the wonder and beauty of fossils,³⁷ as well as rueful comments on the obsessive qualities of collecting.³⁸

Obsession, however obvious, is nevertheless an unsatisfactory explanation: it is more interesting to inquire what someone collects and why, given that collectors of even the most mundane things are inevitably also making themselves, and, whether intentionally or not, constructing some aspect of their identities. Given Miller’s reputation for invoking God (not actually that prominent in much of his writing), the obvious question is whether his collecting was motivated by a religious drive to reveal the divine plan of creation, which impelled so much effort at the time, and on which Miller wrote so eloquently, certainly in later life. However, when Miller began collecting fossils, he was wavering between religion and scepticism, for this was a few years before he established his adult commitment to Evangelical Presbyterianism around 1825.³⁹ On the whole, therefore, we believe that Miller was collecting primarily for his own personal satisfaction, for the pleasure of fresh air, discovery, and intellectual and emotional achievement. The religious benefits, real as they became, were a later bonus.

Elsewhere in Britain, how people collected fossils, and took part in scientific activity, revealed core beliefs about the ownership of fossils, the rights which this ownership was seen to confer, and the control of the associated ideas.⁴⁰ Miller’s vigorous opposition to the Game Laws⁴¹ revealed his belief that the rights of private property in the form of land ownership should not be unreasonably absolute: the fruits of Nature were there for rich and poor alike wherever they might be found. When warned

off geologising on Eigg, Miller amused himself with the idea of a “fossil preserve”, linked with a “great fossil act for the British empire, framed on the principles of the game-laws”. Nevertheless, he hit home with his pickaxe and extracted some fossil wood, “feloniously, I dare say, though the crime has not yet got into the statute-book”, jokingly hoping that the gentlemen of the Geological Society would rescue him should the case ever come to law.⁴²

Certainly, a belief in the rights of ownership of the finder of a fossil drove forward geology, at that time very dependent on the information being generated by palaeontology. After all, few would collect fossils if they could not keep them. In Britain the social advantages of discovery in geology were well recognised, and like his contemporaries, Miller would fiercely protect his discoveries, though he at least sometimes emphasised the work put into a fossil’s study and reconstruction,⁴³ possibly revealing the strength of his underlying Calvinism. Miller indeed exemplified how one can “own” both the physical fossil and the concepts abstracted from it when, in 1838, he joked with Patrick Duff of Elgin about a possible crest carrying the image of *Coccosteus* and the motto “Miller’s own reptile”, which was synonymous with “The beast that Miller found”.⁴⁴ Here he was plainly aware of the significance of possessing an invention of one’s own, in the sense of recognising a new fossil animal, or of the wider intellectual creation involved in its study and reconstruction.

Miller’s fossils as history and landscape

We know little about the various possible collections to which Miller was exposed as a child.⁴⁵ But books, then so precious, often appeared to him as discrete collections discovered in the houses of relatives and neighbours. Their unwritten equivalents, the oral tales of the neighbourhood, were another kind of collection about which he tells us a great deal. He was clearly collecting stories and drawing upon them as a resource for his writing, as Mackenzie notes: “gathering and pondering over the fossils of the mind even before those of the buried ages of the earth”.⁴⁶ Miller, perhaps with hindsight, compares the Eathie fossils to an Alexandrian library.⁴⁷ This simile is not superficial, for the fossils provided a comparable resource for writing. Like books and oral traditions, the fossils provided a means to extend the imagined past back through time. They sat within a seamless historical continuum, which merged with topography, legend, folk memory, surviving rural practices and the histories in books.⁴⁸

As Paradis shows, Miller’s historical writing mythologised the past, drawing directly from the tradition of storytelling, with its controlled emphases and dramatic effects, and its poetics and aesthetics,⁴⁹ and it also came to draw upon the theatre.⁵⁰ The autobiographical aspect of Miller’s writings⁵¹ cast him as part of the myth, not so much the hard reality of a life lived but the poetic reality of the great communicator in an equally poetic landscape.⁵² Miller was consistently true to his boyhood nickname of “Sennachie”.⁵³ Mackenzie called him “a ‘maker’⁵⁴ in geology; a recon-

structor in his own melodious and strikingly suggestive language of ideal geologic landscapes”.

Miller frequently refers to one of his idols, the poet William Cowper, in *First Impressions of England*. A visit to Cowper’s home town of Olney leads Miller to quote him:

“Now roves the eye;
And, posted on this speculative height,
Exults in its command. The sheepfold here
Pours out its fleecy tenants o’er the glebe.
At first, progressive as a stream, they seek
The middle field; but, scattered by degrees,
Each to his choice, soon whiten all the land...”⁵⁵

The poet’s eye had perceived what others do not see: imagination is replaced by perceptiveness rooted in the observation of reality that was so important to Miller’s world view.⁵⁶ Miller never really achieved such concision, and had to make a rather more substantial effort to get his sheep out of the fold, or, at least in this case, extract his saurian from the footprints and other traces on a stone slab in Warwick Museum:

“The chelonian⁵⁷ journeyed adown a moist sandy slope, furrowed by ripple-markings, apparently to a watering-place. He travelled leisurely, as became a reptile of consequence, set down his full weight each step he took, and left a deep-marked track in double line behind him. And yet, were his nerves less strong, he *might* have bestirred himself; for the southern heavens were dark with tempest at the time, and a thunderous-like shower, scarce a mile away, threatened to wet him to the skin. On it came; and the large round drops, driven aslant by a gale from the south, struck into the sand like small shot, at an angle of sixty. How the traveller fared on the occasion has not transpired; but clear and palpable it is that he must have been a firm fellow, and that the heavy globular drops made a much less marked impression on the sand consolidated by his tread than when they fell elsewhere on the incoherent surface around him.”⁵⁸

Miller is here deploying a linguistic invention that resembles Cowper’s. It succeeds because it draws upon the observed world, in things that we can see and yet fail to see until the author delivers a narrative that is all the more sublime for being rooted in reality.

A key to this interpretation of the object is the presence of Miller himself, juxtaposed with the fossil world which he is interpreting, whether as Virgil to the reader’s Dante, travelling perhaps through an imagined Palaeozoic Inferno or Paradise, or as the visitor’s guide of the kind then still common in museums. Miller’s explicit guiding, and his return sooner or later to the specimen or site where he himself is situated as observer, help the reader travel through time from deep past to present. Miller’s presence, whether he is making social comment or showing us a fossil

specimen, is more than merely autobiographical: it has powerful heuristic and literary functions, as does the presence of each specimen itself as a piece of the real.

As Miller moved from works dealing with observations on life and the past, which used fossils as real-world reference points and libraries of evidence, to wider issues of the place of God in creation and the truths of geology, so his fossils took on new roles as reifications, things which made concrete the truth of his beliefs. Indeed, when in *Footprints of the Creator* (1849)⁵⁹ Miller attempted to kill off the reheated Lamarckian evolutionism of Robert Chambers's *Vestiges of the Natural History of Creation* (1844),⁶⁰ he strikingly used his specimens like chessmen, or the specialist troops of an army: recognisably individual specimens were deployed in sequence, thumped down on the table as his assault proceeded. For instance, Miller's initial breakthrough was made with a finding of a particular example of the fossil fish "*Asterolepis*", precisely located at a specific time and place in the Orcadian landscape near Stromness.

In *Footprints* and in *Testimony of the Rocks* Miller was clearly treading yet another borderline, between the Biblical literalists and those geologists and materialists who saw no role for God. Here, again, Miller finds his own way, marrying evidence with belief. He was not engaged in compromise but in searching for a solution to the puzzle which accommodated two sets of unquestionable truths: "Between the Word and the Works of God there can be no actual discrepancies", and again, given that

"the Scriptures could not possibly have been given to us as revelations of scientific truth, seeing that a single scientific truth they never yet revealed, and ... it must be in vain to seek in science those truths which lead to salvation, seeing that in science these truths were never yet found, there would be little danger even of difference among them, and none of collision".⁶¹

This is not a man torn between science and religion, but one comfortable with both.⁶²

Miller's fossils and their importance

After his early death, Miller's widow received two offers for his collection: one of £1000 from "a Scottish Nobleman" and another of 1000 guineas [£1050] from an American college. The British government were willing to put up £500, and a committee under the direction of the Lord Provost of Edinburgh successfully organised a subscription to meet the shortfall, saving the collection "for Scotland"; the precursor of what is now the National Museums of Scotland formally took possession in 1859.⁶³ Some other Miller specimens exist elsewhere, including those in the Birthplace Cottage in Cromarty, which presumably stem from the "museum" set up by Miller's son Hugh (1850-1896), when he was mapping his father's old stamping grounds for the Geological Survey.⁶⁴

Our appraisal has revealed further depths to Hugh Miller's apprecia-

tion of geological specimens, and the significance of his surviving collection. Miller's relationship with the material world of objects showed remarkable consistencies and an unwillingness to compartmentalise. His fossils performed, and continue to perform, real scientific service, yet on top of this they also performed a role of reconciling geological and religious truths, deployed in Miller's pragmatism that drew upon both ends of the scale. The fossils provided a link in the continuum of time, a vehicle for exploring the deep past but without losing the continuity with a past of recorded folk legend and a past life lived as mason and geologist. The fossils, again, provided evidence of reality that could be explored scientifically but also poetically, without the two coming into conflict. Miller's fossils sat as subjects for his painterly prose, whether as individual portraits, or as part of landscapes, or in minute detail - there was no constraint on scale or resolution. Miller's fossils exemplify the deep continuity of his approach. Trying to analyse him is like cutting quicksilver. Whatever perspective he takes, whatever analytical criterion we use, Miller's work is unsegmented and un-compartmentalised, and so often leads us back to consider the impact of Cromarty, and of being a Lowlander and a Calvinist.

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- 2 J. G. Paradis in Shortland 1996, 122-150.
- 3 D. Alston in Shortland 1996, 206-229, and D. Vincent in Shortland 1996, 230-245.
- 4 D. R. Oldroyd in Shortland 1996, 76-121; also, for instance, S. M. Andrews 1982, *The Discovery of Fossil Fishes in Scotland up to 1845*, Royal Scottish Museum, Edinburgh; J. D. Hudson, this conference; P. Janvier, this conference; C. D. Waterston in Borley, L. (ed.) 2002, *Hugh Miller in Context*, Cromarty Arts Trust, Cromarty, 26-31 and 85-91.
- 5 S. J. Knell 2000, *The Culture of English Geology: A Science Revealed through its Collecting*, Ashgate, Aldershot. For example, Thomas Cumberland could be regarded as an artist's friend, antiquarian, or geologist amongst a range of other possibilities, while the Marquess of Northampton was politician, tourist, landowner, supporter of science, and so on. But neither made much of a literary mark.
- 6 For example, Knell 2000, Andrews 1982, Collie, this conference.
- 7 H. Miller 1857, *The Testimony of the Rocks, or, Geology in its Bearings on the Two Theologies, natural and revealed*, Constable, London (reprinted 2001, St Matthew Press, Cambridge), for instance "Lecture Tenth. The geology of the anti-geologists".
- 8 Arnold Bennett 1905, *Clayhanger*, Penguin edition, 126. We are indebted to John Burnett for this reference, also noted by Harvie, this conference.
- 9 Notably the introduction and many papers in Shortland 1996.
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- 11 Those in Elgin Museum, cited by permission. We thank Susan Bennett and The Moray Society for assistance.
- 12 Data from Andrews 1982, Oldroyd 1996, and Miller's own books.
- 13 His expression: H. Miller 1841, *The Old Red Sandstone, or New Walks in an Old Field*, Johnstone, Edinburgh, 125.
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- 15 For instance, access to libraries, and techniques such as thin sectioning: J. D. Hudson, this conference.

ence, and A. D. Morrison-Low & R. H. Nuttall, this conference.

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17 H. Miller 1859, *Sketch-book of Popular Geology*, Constable, Edinburgh; H. Miller 1869 (first published 1847), *First Impressions of England and its People*, 9th edition, Nimmo, Edinburgh; *Cruise of the Betsey*.

18 *First Impressions*.

19 We are grateful to Lyall Anderson for sharing his insights on the collection.

20 For example, N. H. Trewin, this conference, and P. Janvier, this conference.

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22 A. D. Morrison-Low & R. H. Nuttall, this conference; J. D. Hudson, this conference.

23 *First Impressions*, 84.

24 Knell 2000.

25 *Cruise of the Betsey*, 241.

26 M. A. Taylor 2000, "Mary Anning, Thomas Hawkins and Hugh Miller, and the realities of being a provincial fossil collector", *Edinburgh Geologist* 34, 28-37.

27 *Old Red Sandstone*, 115-117; we are grateful to Lyall Anderson for his insight into the likely importance of the nodules at Eathie and for his discussion of the geology of the sites.

28 *Old Red Sandstone*, 118-122; Oldroyd 1996. Space does not permit fuller discussion of the evolution of Miller's understanding of these sites: for instance, why Miller failed to recognise Old Red Sandstone fishes at Eathie, till after his Cromarty discovery. We intend to explore this more fully elsewhere.

29 *First Impressions*, 42.

30 *Schools*, 530.

31 *Schools*, 532-533; E. Sutherland 2002, *Lydia, Wife of Hugh Miller of Cromarty*, Tuckwell, East Linton, 49, 170.

32 We are grateful to David Alston for this insight. This is, of course, quite separate from his increasing reputation within the specialist geological community.

33 *Scenes and Legends*, 1st edition only.

34 "Gropings" is reprinted as an appendix in H. Miller 1995 [written 1829-1830], *Hugh Miller's Memoir* (ed. M. Shortland), Edinburgh University Press.

35 Miller to Patrick Duff, 15 December 1838, Elgin Museum Geology Letter G1/2.

36 P. Bayne 1871, *The life and letters of Hugh Miller*, Strahan, London, Vol. 2, 463. We are grateful to John Burnett for explaining mantraps of this variety, often called "humane".

37 For example, the Eathie fossils: *Schools*, 160.

38 For example, *Cruise of the Betsey*, 433.

39 *Schools*, 373-378.

40 Knell 2000.

41 H. Miller 1862, *Essays, Historical and Biographical, Political and Social, Literary and Scientific*. A. & C. Black, Edinburgh, 243-264.

42 *Cruise of the Betsey*, 36; the emphasis on asserting or expanding the rights of the landowner would, of course, be quite different from modern conservation legislation which aims to benefit the whole community.

43 For example, a dispute with a Mr Keir over the Old Red fish *Pterichthys milleri*; Andrews 1982, 27.

44 Miller to Patrick Duff, 15 December 1838, Elgin Museum Geology Letter G1/2.

45 *Schools, Memoir*.

46 W. M. Mackenzie 1905, *Hugh Miller: A Critical Study*, Hodder and Stoughton, London, 60.

47 *Schools*, 163.

48 For instance, the two chapters in the first edition of *Scenes and Legends* which include fossils – but also much else.

49 Paradis 1996.

50 R. O'Connor, this conference.

- 51 Vincent 1996.
- 52 Mackenzie 1905, 15.
- 53 In Gaelic culture, a professional recorder and reciter of family history; also more generally, and probably here, simply a teller of traditional tales.
- 54 Mackenzie 1905, 121; “maker”, *makar*, is archaic Scots for poet.
- 55 *First Impressions*, 260.
- 56 Miller wrote little fiction.
- 57 Turtles, terrapins and tortoises.
- 58 *First Impressions*, 191.
- 59 H. Miller *Footprints of the Creator, or, the Asterolepis of Stromness*, 1864 (first published 1849), Black, Edinburgh, 5-8.
- 60 R. Chambers 1844, reprinted 1994 with introduction etc. by J. A. Secord, *Vestiges of the Natural History of Creation and other writings*, University of Chicago Press; J. A. Secord 2000, *Victorian sensation. The extraordinary publication, reception, and secret authorship of Vestiges of the Natural History of Creation*, University of Chicago Press.
- 61 *Testimony of the Rocks*, 2001 edn, 213 and preface by P. Foster; D. Macleod in Shortland 1996, 187-205; D. Macleod 2002, “Set in stone”, *Life and Work: the magazine of the Church of Scotland*, February 2002, 20-21; O’Connor, this symposium.
- 62 There is little if any evidence that Miller’s contemporaries found him far out of line. Many contemporary geologists were in the same position of accommodating their Christianity with their geology: conversely, the Free Church, at least, felt the need to provide for geological courses at its College for trainee ministers: Andrews 1982.
- 63 *Proposal to purchase the museum of the late Hugh Miller*, 4pp, British Geological Survey, Keyworth, Library Archives 1/669. We are grateful to Graham McKenna for locating this so far unique copy. 1859 formal accession date from NMS registers, also M. A. Taylor and M. Gostwick 2003, “Hugh Miller’s Collection – a memorial to a great geological Scot”, *Edinburgh Geologist* 40, 24-29.
- 64 Apparently sometime during the period when he based himself in Cromarty, starting in 1884: W. Gunn 1897, “Obituary notice of Hugh Miller, FRSE, FGS, etc., of H. M. Geological Survey of Scotland”, *History of the Berwickshire Naturalists’ Club* 15, 322-324; J. Horne [1899], “Obituary notice of Hugh Miller”, *Transactions of the Edinburgh Geological Society*, 7, 132-138.



Eathie Foreshore, near Cromarty, photo Lester Borley

Hugh Miller's fish; "the winged *Pterichthys*"

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Of all the fossil fishes of the Old Red Sandstone of Scotland, it is *Pterichthyodes milleri* that is most closely associated with Hugh Miller. The bizarre form of the fish, giving rise to initial doubts in the mind of Miller that it was even a fish, excited his curiosity, and fascinated those interested and educated amateurs that formed the backbone of field science at the time. This fossil is found in the fish beds of the Old Red Sandstone of the Orcadian Basin area. In the broadest sense this large Devonian sedimentary basin extended from the present position of the southern shores of the Moray Firth northwards through Caithness and Orkney to Shetland.

The rocks in which this fish is found form part of the Middle Old Red Sandstone fill of the basin, which in Mid-Devonian times was an area of large inland lakes fed by rivers from the surrounding highlands. These highlands were the eroding remnants of the Caledonian mountain chain that still forms the backbone of Scotland, providing the scenery in much of the Highland and Grampian mountain areas.

The fish beds that contain *Pterichthyodes* are all of about the same age (c. 380 Ma). They accumulated during a period when the Orcadian Lake was at its deepest and most extensive, lapping against the Grampian uplands to the south of the Moray Firth, and against the Moine schists of the Highlands to the west of the flagstone country of Caithness. Hugh Miller found most of his specimens in the nodule beds at localities such as Gamrie and Cromarty, but at the present time the most productive localities are in the flagstones of Achanarras Quarry in Caithness, and quarries in the Sandwick area of Orkney.

Cyclic climatic variations on a long (Milankovitch) time scale controlled the expansion and contraction of the lake as rainfall and temperature changed over thousands of years. The control was similar to that which caused the much more recent alternations from cold glacial to warm interglacial conditions in the past two million years. In the Devonian period Scotland lay about 25° south of the equator, and conditions were warm with a seasonal climate.

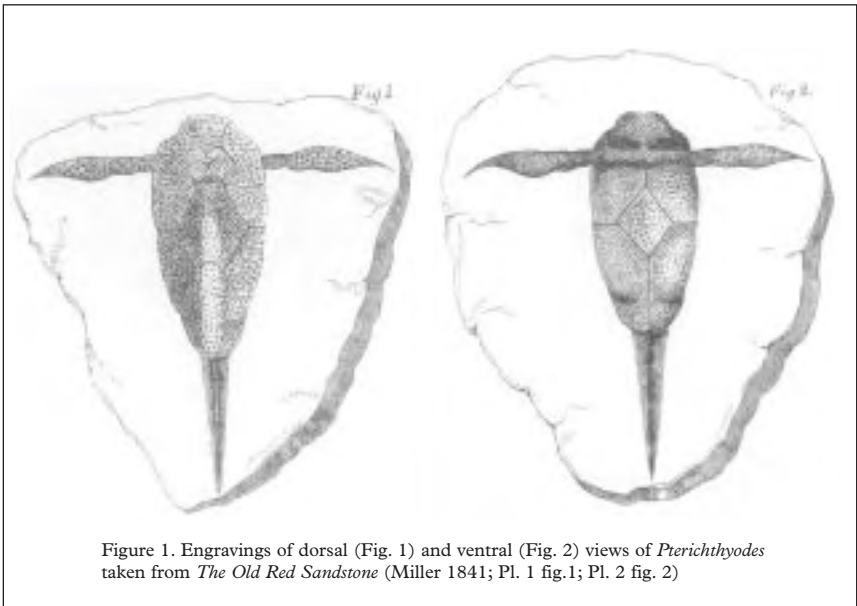
This short contribution will examine the history of discovery, the mode of life, and the fossil preservation of this fish.

History

Hugh Miller probably found his first fossils in the summer of 1820, but it was not until 1830 that he chanced upon the fossil fish of the Cromarty fish bed, virtually on his own doorstep just half a mile east of Cromarty (Waterston 2002). A broad idea of the time that he found his first *Pterichthyodes* can be gained from *The Old Red Sandstone* where he writes,

“.....the Pterichthys, or winged fish, an ichthyolite which the writer had the pleasure of introducing to the acquaintance of geologists nearly three years ago, but which he first laid open to the light about seven years earlier.” (Miller 1841, p.46)

This takes us back to 1831, virtually coincident with his first finds of fish remains from Cromarty. The actual date is unknown, and was probably unknown to Miller, because it is the nature of palaeontological collecting that until one finds a relatively complete specimen of a new fish it is not possible to interpret fragments found previously. The general appearance of the fossils taken from Plates 1 and 2 in *The Old Red Sandstone* are reproduced here as Figure 1. Hugh Miller's first reaction to



this extraordinary animal was that he had found a link “between the tortoise and the fish” (Miller 1841 p.46), but on sending specimens to Murchison who showed them to Agassiz, the animal was confirmed to be a curious armoured fish. The imagination of Miller is amusingly illustrated by his description that likens the appearance of characteristic speci-

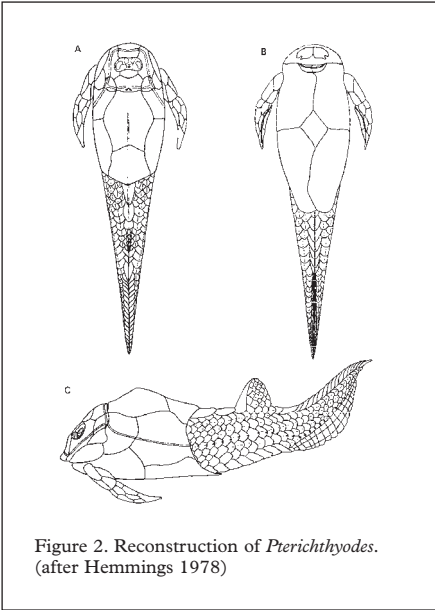


Figure 2. Reconstruction of *Pterichthyodes*.
(after Hemmings 1978)

mens to a drawing of a person, before he gives a more scientific description of the morphology.

"Imagine the figure of a man rudely drawn in black on a grey ground, the head cut off at the shoulders, the arms spread at full, as in the attitude of swimming, the body rather long than otherwise, and narrowing from the chest downwards, one of the legs cut away at the hip joint, and the other, as if to preserve the balance, placed directly under the centre of the figure, which it seems to support." (Miller 1841 p.49)

The appearance of the name *Pterichthys* appears to date from the meeting of the British

Association for the Advancement of Science on September 23rd 1840 when, with Lyell in the chair, Murchison gave an account of Hugh Miller's discoveries, and Agassiz proposed to call the new fish "*Pterichthys Milleri*". At that meeting Agassiz used specimens (presumably Miller's) to demonstrate the features of the fish. However the first valid use of the name with description and illustration is in *The Old Red Sandstone* (Miller 1841 p.49), Agassiz did not publish his description until 1844 in *Recherches sur les Poissons Fossiles* (Agassiz 1833-1844, see Hemmings 1978). The name was changed to *Pterichthyodes* in an obscure publication by Bleeker (1859) who noted that *Pterichthys* had been previously used as a synonym of a teleost fish. However the older name continued to be used in descriptions for many years (e.g. Traquair 1894-1914), until the new version of the name was adopted by Forster-Cooper (1934).

Agassiz visited Miller in Scotland (in 1840) and declared that he could distinguish six species of "*Pterichthys*" of which he found evidence for four in Miller's collection. The specific distinguishing features he used were variations in the shapes of the body and "wings" (pectoral paddles). The early enthusiasm for naming new species on minor variations seen in a few specimens has now been replaced by more detailed study of larger numbers of specimens. Hemmings and Rostron (1972) conducted a multivariate study of the fish and concluded that whilst there is considerable variation to be found in *Pterichthyodes*, there are no clearly constant specific differences. Thus all the Agassiz species are now included in *Pterichthyodes milleri*, of which two variants are recognised. One variant has a broad, and the other a narrow distal part to the pectoral paddle, a possible indicator of sexual dimorphism (Hemmings 1978).

The Animal

The reconstruction of the fish (Figure 2) shows the box-like armour encasing the anterior part of the body, and the curious pectoral paddles, articulated by ball-and-socket joints to the body. The underside is flat, the back strongly arched. The head plates are attached to the body and have an opening where the eyes were situated. The mouth was on the underside, and contained only weak jaws and no teeth. The tail region is covered with scales, and bears a small dorsal fin supported by a short stout modified scale, and there is a strongly heterocercal tail. For a detailed zoological description the reader is referred to Hemmings (1978). This box-like fish was probably a weak swimmer, using its tail as the main propulsive force, and the pectoral paddles largely for balance. When feeding or moving slowly it could have used the pectoral appendages in the manner of a rower, the stroke starting with the "oars" fully extended as in the specimen illustrated in Figure 3, and then bringing them back to the side of the body in the propulsive stroke.

The general morphology of the fish is typical of a benthonic (bottom-dwelling) fish. *Pterichthyodes* probably searched for morsels of food in the mud and sand of the lake shallows. We have no direct evidence (e.g. fossil

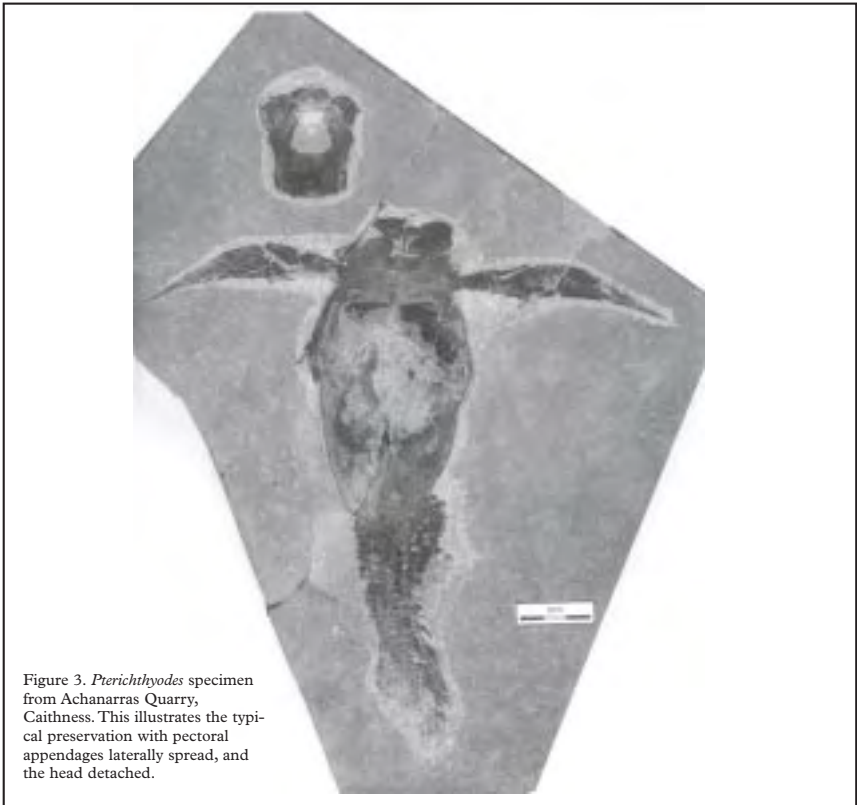
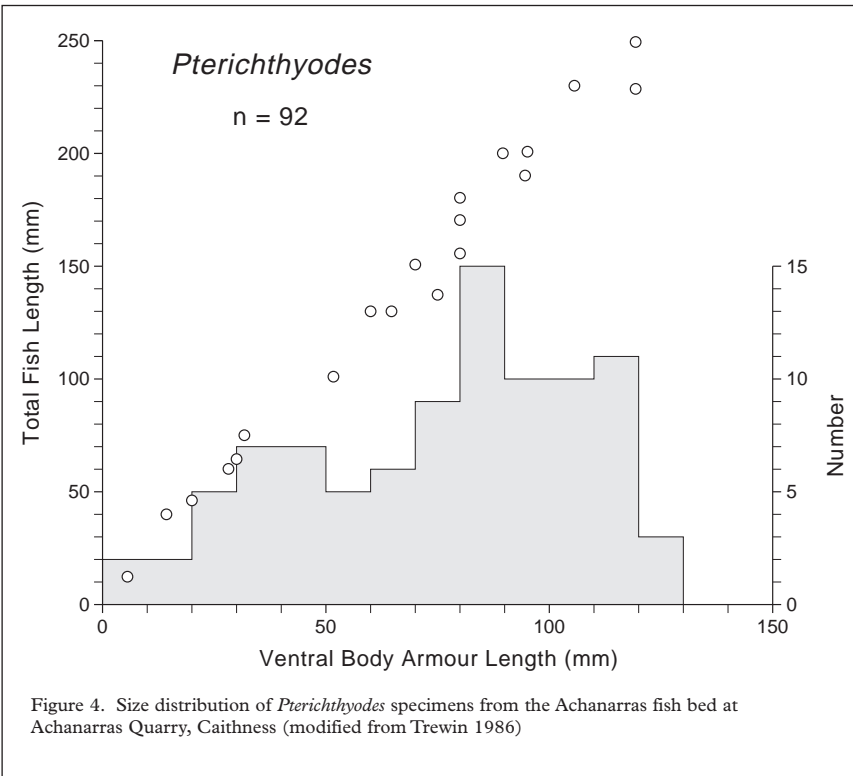


Figure 3. *Pterichthyodes* specimen from Achanarras Quarry, Caithness. This illustrates the typical preservation with pectoral appendages laterally spread, and the head detached.

stomach contents) of its diet, but it was probably omnivorous and included vegetable matter and animals such as worms and small arthropods in its menu.

There is a wide variation in the size of individuals found as fossils (Figure 4). They range from small juveniles only 20 mm long up to large adults of around 250 mm; a common size is about 150 mm. All sizes can be found in the same fish bed as in the Achanarras fish bed at Achanarras Quarry in Caithness (Trewin 1986). This size distribution strongly suggests that the fish spent their full life cycle in the lake, and that juveniles and adults occupied the same environment. In contrast, the armoured arthrodire *Coccoosteus* is represented by adults about 300 mm long, juveniles being very scarce. This suggests that *Coccoosteus* migrated into the lake in the adult state, and juveniles lived elsewhere, possibly in streams that fed the lake, or even in the sea.



Preservation

The fish fossils at Achanarras, and at the "nodule bed" localities visited by Hugh Miller, were preserved because the carcasses sank into anox-

ic waters in the deeper parts of the lake. The water in the lake was stratified with warm, photic, oxygen-rich waters near the surface, overlying colder, stagnant anoxic water in which no animals could live. Since *Pterichthyodes* was clearly a bottom dweller it could not have lived in the areas where the fossil carcasses are found. It must have lived in the oxygenated lake shallows, and following death the carcasses floated out into the lake, eventually to sink in deep water where they became preserved. Clearly all sizes of fish were affected by mortalities.

As noted above, the fossils are found in strata described as 'fish beds'. Around the Moray Firth these beds are finely laminated mud with scattered carbonate (calcite) cemented nodules as found at Gamrie and at Tynet Burn, Fochabers (Trewin and Davidson 1999). A small proportion of the nodules enclose a fish fossil, but most are barren. The action of splitting nodules to reveal the fish was one beloved of Hugh Miller:

"I fain wish I could communicate to the reader the feeling with which I contemplated my first-found specimen. It opened with a single blow of the hammer; and there, on a ground of light-coloured limestone, lay the effigy of a creature fashioned apparently out of jet, with a body covered with plates, two powerful-looking arms articulated at the shoulders, a head as entirely lost in the trunk as that of the ray or the sun-fish, and a long angular tail." (Miller 1841 p.46)

In the flagstones of Caithness and Orkney the fish beds are composed of finely laminated siltstone, the details of the lamination revealing deposition in a seasonal climate. Thus, as with counting the growth rings of a tree, this lamination can be counted and interpreted as the passing of years. The Achanarras fish bed is some 2 m thick, and was deposited in about 4,000 years at a time of high lake level. The low energy conditions on the deep lake floor were conducive to the gentle burial and preservation of any carcasses that sank into the depths, - there were no strong currents or scavengers to disrupt the carcass. However, *Pterichthyodes* is not always preserved complete, it being usual to find specimens lacking the head, or tail or dorsal plates. In other cases the skeletal elements are disarticulated and occur over a small area of a bedding plane. How did this occur?

It has been argued (Trewin 1986) that the fish found abundantly preserved, and as virtually complete carcasses, were killed in mass mortalities affecting particular areas of the Orcadian Lake. Such mortalities can be caused by a number of factors most of which result in loss of oxygen in the water, so the fish are asphyxiated. Possible mechanisms include algal blooms, storms stirring the anoxic muds, and temperature and salinity changes. At the present time pollution events such as release of pig slurry into a stream have the same devastating effect.

Following a mass mortality in which all fish including the top predators are killed, there is nothing left to eat or scavenge the resulting carcasses. Hence the carcasses begin to decay, they are buoyed up by gasses of

decomposition, and in most cases will float belly-up. *Pterichthyodes*, with bony armour at the head and front of the body, may have floated head down with the pectoral flippers hanging limply below. Surface currents, driven by the wind, drift the carcasses into the open lake area where they eventually sink to the bottom as gas is released by rupture of the body cavity. Thus the fish is partially rotted when it arrives at the site of fossilisation on the deep lake floor. Deposition on the lake floor was slow, and resulted in thicknesses of rock that we see today that accumulated at less than 1 mm per year. However muds undergo extreme compaction, and the original depositional thickness of mud might have been around 5 mm per year. This extreme compaction of sediment during burial and conversion to rock results in most fish being reduced to a thickness of a few millimetres. It would still have taken several years to cover a bulky *Pterichthyodes* carcass at a rate of 5mm deposition per year, and in this time further decay would occur, freeing the organic binding of the plates that make up the armour of the fish.

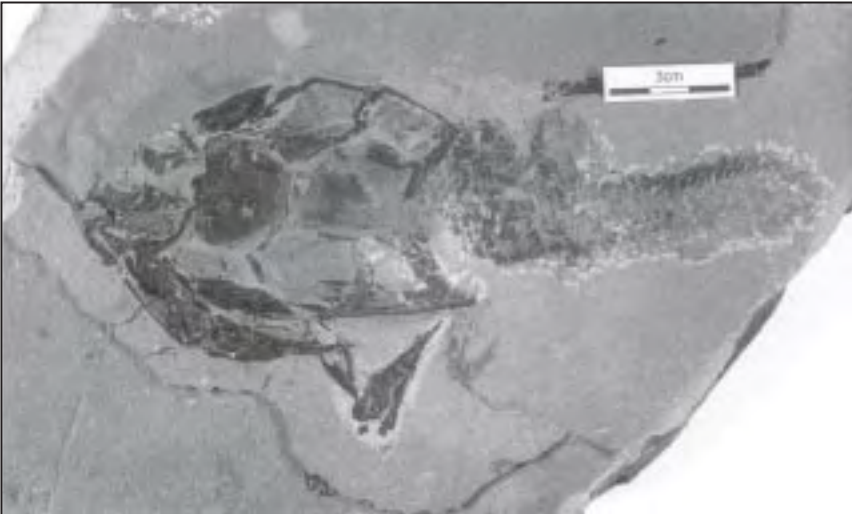


Figure 5. *Pterichthyodes* specimen from Achanarras Quarry, Caithness, showing unusual preservation in lateral view, the carcass having rested on its side on the lake floor.

Pterichthyodes provides some excellent illustrations of these processes. The fish is rarely preserved in lateral view (Figure 5) being normally seen as in the example in Figure 3, having come to rest lying flat on the surface in an upright position, virtually as it lived in life. Thus in most fossils the flat ventral surface, the pectoral paddles and the tail are found preserved at the same level. Whilst it was in this position the top of the box-like armour proceeded to disarticulate and collapse, such that these elements, particularly the head, became detached and fell to the surface up to a few centimetres from the main carcass (Figure 3).

Sometimes, it appears that the top part of the body and the tail became detached, and all that is found is the ventral body armour and the pectoral paddles. Some carcasses broke up before arriving at their final resting place. This is illustrated by the rare occurrence of marks on the sediment surface made by the dragging of carcasses by weak currents. In one case the carcass is present at the end of a drag mark, and detached plates are present along the drag mark, so showing the carcass to be rotted and disintegrating at the time of transport. Even more curious are drag marks made by carcasses that had sunk, but retained virtually neutral buoyancy. They apparently rested gently on the bottom of the lake with the tips of the pectoral appendages touching the sediment surface. Any slight current resulted in the appendages making grooves in the sediment as illustrated in Figure 6.

It must be stressed that these surface marks on the sediment are made by the dead carcass being physically dragged by a current; they are not "trace fossils" that are made by a live animal leaving a trail by its own swimming action.

Conclusions

The "winged" *Pterichthyodes* of Hugh Miller was a fish of bizarre design

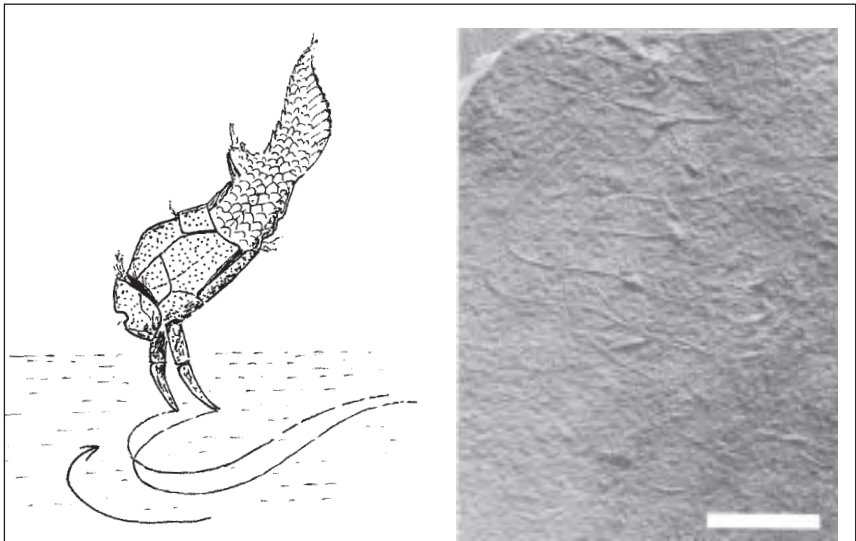


Figure 6a.

Figure 6b.

6a: Sketch of rotting *Pterichthyodes* carcass resting on lake floor with pectoral appendages touching surface. Movement of the carcass by weak currents in the direction shown by the arrow results in the markings pictured on the right.

6b: Marks made by pectoral appendages of a *Pterichthyodes* carcass dragging on the sediment surface. Specimen from Achanarras Quarry, Caithness. Scale bar 50 mm.

that excited the scientific fraternity in the late 1830s. Whilst Hugh Miller made many original palaeontological finds, the fish we now know as *Pterichthyodes milleri* was the one that caught the attention of the geological establishment of the time. It is thus no surprise that it occupies plates 1 and 2 of *The Old Red Sandstone*.

This fish is now interpreted as having had a benthonic lifestyle in the shallow margins of the Orcadian Lake, where it fed on material probably collected from the muddy or sandy substrate. The size distribution of population indicates that it passed its full life-cycle in the lake. The fossils we find today are carcasses that drifted to the deep parts of the lake following mass mortalities, and sank into the anoxic depths of the lake where they decayed and were covered and preserved by fine-grained laminated muds. These muds are now preserved in the laminated flagstones and nodule beds that comprise the fish beds of the Old Red Sandstone.

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Armoured fish from deep time: from Hugh Miller's insights to current questions of early vertebrate evolution

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Introduction: Before Hugh Miller

The scientific study of early vertebrates; that is, essentially Devonian and earlier fishes, began around 1830, when the Swiss-born palaeontologist Louis Agassiz (1807-1873), a disciple of the French palaeontologist Georges Cuvier, decided to publish over the long term a monographic description of all fossil fishes known at that time. His work appeared in the form of “livraisons”, to which many learned amateurs, notably in Scotland, subscribed.

Agassiz' *Recherches sur les Poissons Fossiles*¹ were not a mere catalogue, but also included considerations of fish classification, mainly based on scale structures, and on the distribution of fishes in time. Like Cuvier, Agassiz rejected the “development theory” (now known as the theory of evolution) but, strangely, his theory of the “three-fold parallelism” (see below) paved the way to modern views about the relationships between evolution and ontogeny (embryonic development), and methods of phylogenetic reconstruction. In 1830, at any rate, Agassiz' views of the history of life were strictly “Cuvierian”. Although these views are often referred to as “creationist”, they may rather be summed up by a somewhat agnostic statement, such as: we don't know precisely where species come from and how they have been created, but we know that they have a beginning and an end, and are immutable, unless by degeneracy. As Hugh Miller put it: “The entire evidence [...] would amount simply to this, that in the morning man *was not*, and that in the evening *it was*” (2, p.105). Most importantly, the orderliness, or hierarchy, of the characters which species share is supposed to tell us something about the plans of the Creator.

Agassiz corresponded with the famous British geologists and palaeontologists of his time, such as Lyell, Buckland, Murchison, and Traill, who informed him about the fossil fishes that began to turn up in the Palaeozoic rocks of Wales and Scotland. As early as 1828, Murchison had found fishes in the Old Red Sandstone of Scotland, and Pentland (then in Paris) compared them to fishes from the Permian of Germany. However, it was only in 1834, during his first, two-month long trip to Britain (including Scotland), that Agassiz realised the Old Red Sandstone would yield many more of these sometimes very odd and very early fishes.

Between 1830 and 1834, a lively interest in fossils arose among Scottish learned amateurs and academics, such as Robert Jameson and Samuel Hibbert, and their heated debates have been outstandingly depicted by the late Mahala Andrews.³ This interest in fossils developed notably in the Midland Valley and in the Moray Firth area, as exemplified by the formation of the Elgin and Moray Association in 1836. This small society of learned amateurs, such as Patrick Duff, George Gordon, John Allan and Alexander Robertson, progressively built up a small museum, which included many fossils from the area. Remarkably, Robertson, a wealthy farmer, subscribed to Agassiz' "livraisons" of the *Recherches sur les Poissons Fossiles*.

Hugh Miller on the scene

Thus, Miller was not a pioneer as a fossil fish collector, since his interest in this field progressively arose around 1830. Then, in 1837, he became acquainted with the members of the Elgin and Moray Association, in particular Patrick Duff, who became his close friend. Together, they tried to understand and make sense out of the bizarre anatomy of certain of the fishes they found in the Old Red Sandstone around Cromarty.⁴ In fact, all fossil fishes previously described from the Old Red Sandstone of Scotland looked like "good" fishes, with fins and scales, and now we know them as acanthodians (e.g. *Diplacanthus*), osteolepiforms (e.g. *Osteolepis*), porolepiforms (e.g. *Glyptolepis*), lungfishes (e.g. *Dipterus*), and actinopterygians (e.g. *Cheirolepis*). However, Miller was practically the first to point out the occurrence of very strange creatures, partly covered with ornamented bony plates, and which sometimes displayed strange "arms" or "wings". Now, we know them as placoderms, and they were the dominant fish group of the Devonian period, from about 400 to 365 million years ago. In the mid-1830s, nobody could imagine that such strange, armoured fishes could exist or, at any rate, that they could be so widely different from the present-day bony fishes.

A decisive event in Hugh Miller's life occurred in 1837, when he was visited by John Grant Malcolmson of Madras, an army surgeon back from India who, after having read the *Scenes and Legends*,⁵ became interested in the fossil fishes briefly mentioned in Miller's then already famous book. Through Malcolmson, Miller became introduced by correspondence to renowned geologists and palaeontologists of this time, namely Lyell and Murchison, but also Agassiz. Malcolmson is a key character in the saga of the Old Red Sandstone fishes. Since he had the means and time for travelling throughout Britain and to the Continent, he was the "messenger" of the Scottish amateurs. Through him, Miller obviously gained self-confidence and dared send to the "great" Agassiz, in Paris, some specimens and remarkably precise drawings of his strange fossils. Isolated plates of these armoured fishes had been reported much earlier by Sedgwick and Murchison who ascribed them to tortoise shells (in fact, a consequence of Cuvier's mistaken interpretation), but Agassiz then regarded them as scutes from rays. Now, Miller could show articulated specimens of these

armoured fishes. No wonder that Agassiz became perplexed by the drawings sent by Miller, showing peculiar “arms” or “wings” arising from the pectoral region of the fish. Unfortunately, Miller had mixed up the anatomy of two, widely different fishes, now known as *Coccosteus* and *Pterichthyodes* (*Pterichthys*), respectively; both are placoderms, but only *Pterichthyodes* (like all other antiarchs) develops peculiar, jointed and plate-covered pectoral fins (the “arms”). Anyhow, had Miller not made this mistake, the result would have probably been the same, in terms of Agassiz’ perplexity. Many, including Agassiz, first doubted the piscine nature of Miller’s “winged creature”, and vivid debates arose as to whether it was a fish or an arthropod (a “beetle”). In his *The Old Red Sandstone*,⁶ Miller liked to ridicule, in a talented style, the Revd. John Anderson for his interpretation of these fishes as big insects! As pointed out by Andrews,³ this harassment of Anderson may also have had its roots in Church politics.

After his second and last trip to Scotland, in 1840, Agassiz finally recognised the piscine nature of Miller’s armoured fishes, as well as the existence of two different forms, the “winged” one, *Pterichthyodes*, and the other one, *Coccosteus* (to which Duff mistakenly added paddle-shaped “wings” in 1842!⁷ These “wings” are in fact the sub-orbital plates of the cheek.)

Miller met Agassiz only once in his life, during the latter’s last visit to Scotland, in Glasgow, on October 25th, 1840.³ At that time, Agassiz had already lost interest in fossil fishes and eagerly looked forward to bringing his monograph series to an end (which he did in 1845). He had already turned to glacial geology and left for America in 1846, for ever.

The debate about the interpretation of *Pterichthyodes* and *Coccosteus* strangely recalls the present-day debates about the affinities and reconstruction of some of the odd-shaped fossils from the famous Cambrian “Konservat-Lagerstätten” (i.e. localities where fossils are perfectly preserved *in situ*, often with traces of their soft tissues, such as the Burgess in Canada and Chengjiang in China.) A few years ago, one of the most mysterious creatures from Burgess was *Hallucigenia*, featured as a worm walking by means of a paired series of long spines. Now, we know that this animal is merely a caterpillar-like lobopod, related to the living *Peripatus* (the “velvet worm”), but whose back is armed with a paired series of spines. *Hallucigenia* simply had to be turned upside down. There are numerous examples of such early and odd animals whose reconstruction evolves as new discoveries turn up. In the field of fossil fishes, current researches on the earliest vertebrates, from Ordovician and even Cambrian times, lead to interpretations that no doubt will likewise be considered with amusement in 150 years. Who knows what will be the fate of the conodonts, and many other presumed fish remains that are only known from minute carapace fragments? However, one should never blame those palaeontologists who sometimes make mistakes because they have merely been courageous enough to suggest an interpretation for odd fossils.

The saga of the Old Red Sandstone fishes between 1830 and 1845 is always repeated whenever new fields, new faunas and floras are explored by palaeontologists. The only difference is that, in the case of the Old Red Sandstone fishes, the most active and ingenious characters were local learned amateurs (in our present-day terms).

Miller and present-day vertebrate palaeontology

Why is Miller so famous among specialists of early vertebrates? Essentially because he provided outstanding descriptions of the Old Red Sandstone fishes, and before Agassiz had time to do it. In fact, in his series of papers published in *The Witness* in 1840, and which became the core of his *Old Red Sandstone*,⁶ Miller used the scientific names which Agassiz had erected in 1840¹ in a list of species to be described later (Agassiz' "tableau général"). Therefore, some of these species, such as *Cocosteus cuspidatus*, are now credited to "Miller ex Agassiz"; that is, Miller picked up the name from Agassiz and made the first formal description of the species! Doing that would be unacceptable in current palaeontological practice – all the more so because a name without a name-bearing specimen would be regarded invalid – but apparently Agassiz was just thankful to Miller for having done the work. In turn, Miller was grateful to Agassiz for providing a scientific name (and more so when the species was dedicated to him, such as in the case of *Pterichthyodes* ("*Pterichthys*") *milleri*!). Miller's illustrations and written descriptions were much more precise and informative than Agassiz', especially at a time when Agassiz' work tended to become somewhat sloppy and hastily done. Those who have experienced the study of Devonian fishes, and early vertebrates in general, know how difficult it may sometimes be to distinguish the sutures between the bones from mere cracks. The literature in this field provides many examples of erroneous reconstructions due to such confusions. Miller's ability to avoid such mistakes is remarkable indeed, because his optical equipment was relatively poor. His skill in observation and reconstruction might have stemmed from his long experience as a stonemason. He knew how rocks split, and react to percussion or weathering. In addition, he was a talented artist and could easily understand the "harmony" of bone pattern and anatomical structures; that is, structures that could be functional. This contrasts with Agassiz, who could not work without relying on an artist (such as J. Stiven or J. Dinkel) for his own illustrations.

Miller's fame in the field was also largely due to his marvellous style which sometimes sounds like Buffon's (some may find it somewhat bombastic, however!). By only reading his descriptions, and without looking at the figures, many of the fishes he described can readily be identified by a present-day palaeontologist. His frequent use of descriptive metaphors compares with the popular writings of certain modern palaeontologists, such as Stephen Jay Gould. His digressions are sometimes amusing and aimed at helping the reader to memorise anatomical details. An example is his jocular allusion to the pineal canal of an osteolepid fish (Figure 1), which, according to "ancient anatomists" (namely, the Greek physician

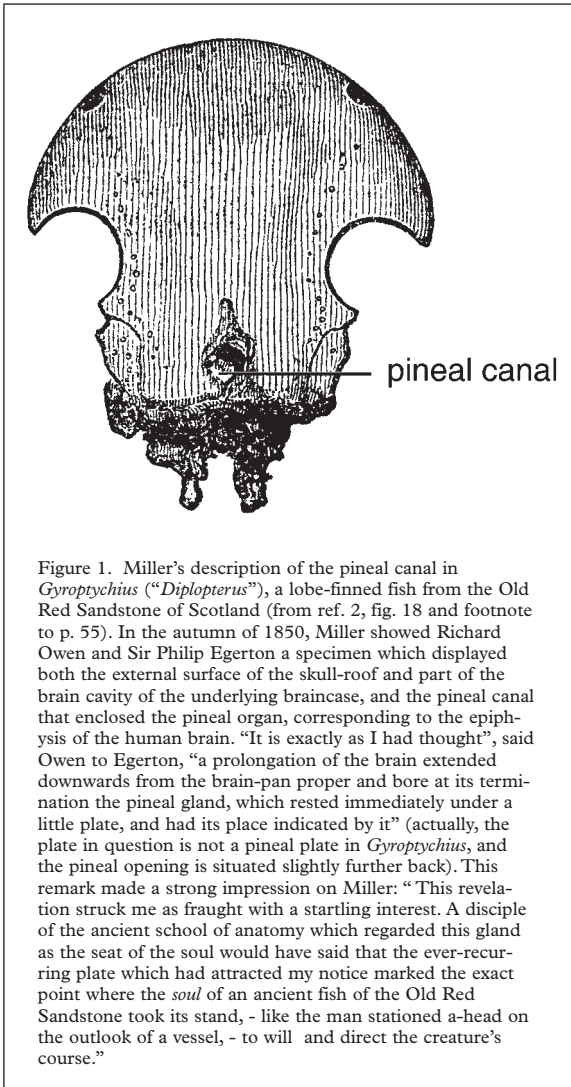


Figure 1. Miller's description of the pineal canal in *Gyropterychius* ("*Diplopterus*"), a lobe-finned fish from the Old Red Sandstone of Scotland (from ref. 2, fig. 18 and footnote to p. 55). In the autumn of 1850, Miller showed Richard Owen and Sir Philip Egerton a specimen which displayed both the external surface of the skull-roof and part of the brain cavity of the underlying braincase, and the pineal canal that enclosed the pineal organ, corresponding to the epiphysis of the human brain. "It is exactly as I had thought", said Owen to Egerton, "a prolongation of the brain extended downwards from the brain-pan proper and bore at its termination the pineal gland, which rested immediately under a little plate, and had its place indicated by it" (actually, the plate in question is not a pineal plate in *Gyropterychius*, and the pineal opening is situated slightly further back). This remark made a strong impression on Miller: "This revelation struck me as fraught with a startling interest. A disciple of the ancient school of anatomy which regarded this gland as the seat of the soul would have said that the ever-recurring plate which had attracted my notice marked the exact point where the *soul* of an ancient fish of the Old Red Sandstone took its stand, - like the man stationed a-head on the outlook of a vessel, - to will and direct the creature's course."

Herophilus and, later, the philosopher Descartes), would have been the "seat of the soul [...], like the man stationed a head on the outlook in a vessel, - to will and direct the creature's course" (2, footnote p.55). Thus, the "ever-recurring" pineal plate covered "the *soul* of an ancient fish"!

Miller's fishes nowadays

What is the present-day status of the Old Red Sandstone fishes dealt with by Miller in his books? In fact, Miller largely used the scale-based fish classification proposed by Agassiz, and which has now fallen into disuse, at any rate for the higher categories (Figure 2). Agassiz classified fishes into four major categories according to their scale structure: 1) the placoids (with minute, hollow scales; e.g., sharks);

2) the ganoids (with thick, dentine- or enamel-covered, shining scales; e.g. the living gars, catfishes and sturgeons, and, among Devonian fishes, *Cheirolepis*, *Osteolepis*, and *Dipterus*, but also the armoured placoderms *Coccosteus* and *Pterichthyodes*); 3) the ctenoids (with thin, spiny scales; e.g., perch); 4) the cycloids (with thin, rounded and smooth scales; e.g., salmon, herring, cod). Nowadays, the terms placoid, ganoid, ctenoid, and cycloid are only used as descriptive terms and no longer have any systematic significance.

Most of the fishes dealt with by Miller are thus referred to as "ganoids",

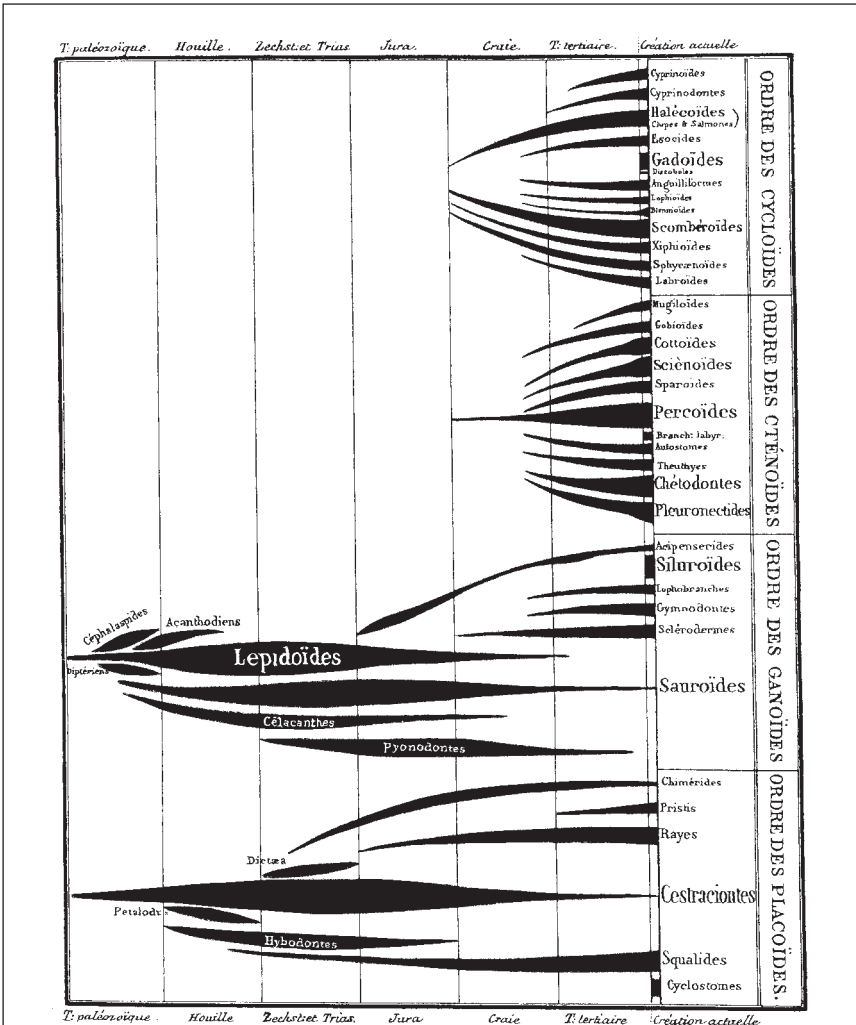


Figure 2. Agassiz's chart showing the distribution of the major fish groups through time (from ref. 1). Agassiz was the first to illustrate the relative diversity of groups through time by means of spindles, suggesting their rise and decline. This technique of representation, known as "spindle diagrams", has since been widely used by evolutionary palaeontologists, until now. Agassiz's scale-based classification of fishes into four orders (placoids, ganoids, ctenoids, and cycloids) is no longer in use, but his cycloids and ctenoids roughly correspond to the teleost fishes, yet some teleosts, such as the "siluroïdes" (catfishes) were included in the ganoids. To Agassiz, the "creation" of the teleosts dates from the beginning of the Cretaceous period ("craie"), whereas those of the ganoids (e.g., the Old Red Sandstone fish) and placoids are much earlier.

an extremely heterogeneous assemblage of both modern and Palaeozoic fishes, including placoderms and even jawless vertebrates, such as *Cephalaspis*. Among the "ganoids" were also the "sauroids"; that is, large

fishes armed with huge teeth, such as the Carboniferous *Megalichthys* and *Rhizodus*, which Agassiz regarded as having “reptilian” characters. This is why Chambers,⁸ in his *Vestiges*, regarded *Megalichthys* as a link between fishes and “reptiles” (at that time including amphibians), which turned out to be nearly true, as *Megalichthys* is an osteolepiform; that is, a remote forerunner to land vertebrates. No wonder that it is extremely difficult to find any match between Agassiz’ (and Miller’s) classification and the current ones. Here, I shall only deal with some of Miller’s Old Red Sandstone fishes, essentially those he most frequently mentions in his books.

Miller regarded the Scottish Old Red Sandstone fishes as the primaeval fish fauna, but he was aware of the fact that there was some evidence for possibly somewhat older fishes. Firstly, *Cephalaspis* was recorded from what is now called the Lower Old Red Sandstone of Scotland (Glamis) and Wales, but this was not a major problem to him, since he regarded *Cephalaspis* as a good “ganoid”, as close to catfishes and sturgeons as were, to him and Agassiz, *Coccosteus* and *Pterichthyodes* (which were both included in the “cephalaspids”). It only meant that the “primaeval” fauna could have been just a little older, as the “bulk” (an important criterion of “perfection” to him!) of these fishes was nearly the same. In contrast, he was somewhat annoyed by the discovery of fish remains in the Silurian Ludlow bone-bed, but managed to overcome the difficulty by considering

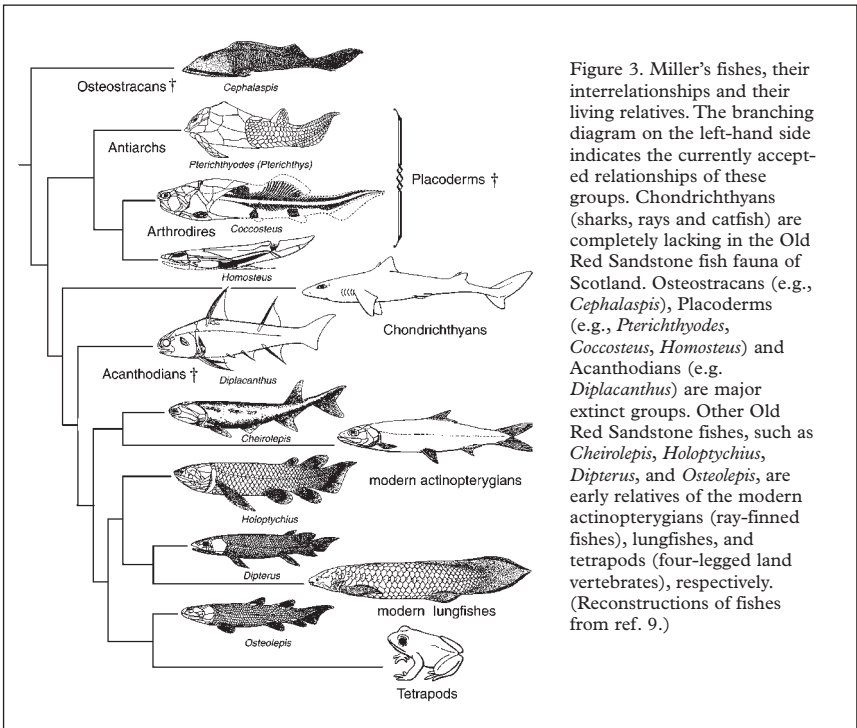


Figure 3. Miller’s fishes, their interrelationships and their living relatives. The branching diagram on the left-hand side indicates the currently accepted relationships of these groups. Chondrichthyans (sharks, rays and catfish) are completely lacking in the Old Red Sandstone fish fauna of Scotland. Osteostracans (e.g., *Cephalaspis*), Placoderms (e.g., *Pterichthyodes*, *Coccosteus*, *Homosteus*) and Acanthodians (e.g. *Diplacanthus*) are major extinct groups. Other Old Red Sandstone fishes, such as *Cheirolepis*, *Holoptychius*, *Dipterus*, and *Osteolepis*, are early relatives of the modern actinopterygians (ray-finned fishes), lungfishes, and tetrapods (four-legged land vertebrates), respectively. (Reconstructions of fishes from ref. 9.)

that these were small fishes, represented by minute scales and spines, and thus to be referred to the “placoids”. This meant that placoids (sharks) appeared first and this accorded with Agassiz’ view that the placoids were the “highest” fishes (i.e., the closest to the embryonic state, thus the most “perfect”; see below).

Cephalaspis

The genus *Cephalaspis* had been erected by Agassiz as early as 1835 for *C. lyelli* and a number of other species that later turned out to belong to a widely different group, the heterostracans. *Cephalaspis lyelli*, whose lectotype is a nearly complete specimen from Glamis, with its typical “saddler’s knife-shaped head”, as Miller describes it,² soon became a popular Devonian fish. *Cephalaspis* was recorded from the Lower Old Red Sandstone and was already known by Miller as being somewhat older than “his” fishes. Miller, following Agassiz, regarded *Cephalaspis* as a “ganoid”, closely allied to the living catostomid catfishes (the “aquarium cleaners”), thus it was not a problem with regards to his views about the early appearance of the “ganoids”. *Cephalaspis* remained regarded as a

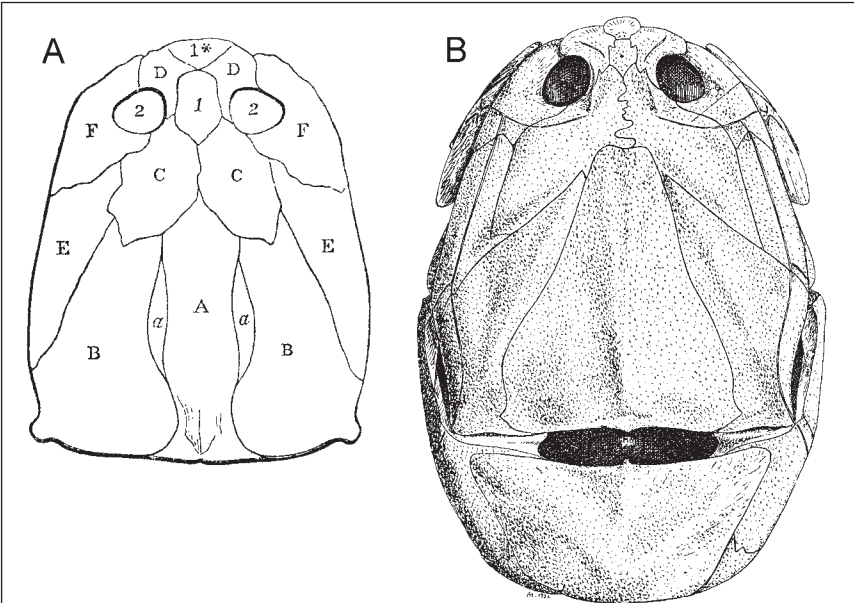


Figure 4. The cranial “buckler” of Miller’s “*Asterolepis*” (A, from ref. 2, fig. 34) in ventral view belongs in fact to a large arthrodiran placoderm, *Homosteus*, also known from the Devonian of the Baltic region. More recent reconstructions of *Homosteus* (B) show that it possessed an elongated skull-roof, with anteriorly placed orbits, and a short thoracic armour. Homosteids could grow to a very large size, and one can readily understand that the impressive “bulk” of this “primateval” fish was, to Miller, an indication of its “perfection”. (B, after Heintz, A. 1934. Revision of the Estonian Arthrodira, part 1: Family Homostiidae Jaekel. *Publications of the Geological Institution of the University of Tartu*, 38: 1-108)

bony fish for a long time, namely by two British heralds of the Darwinian evolutionary theory, Thomas Huxley and Edwin Ray Lankester, in the nineteenth century, yet it showed no evidence for jaws, until the American palaeontologist Edward D. Cope finally realised in 1889 that its jaws were not reduced, but originally lacking. Cope thus included it among the jawless fishes (Agnatha), alongside lampreys and hagfishes. This was later confirmed in 1927 by the Swedish palaeontologist Erik Stensiö in his outstanding anatomical studies on the Spitzbergen cephalaspids. The group to which *Cephalaspis* belongs is the Osteostraci (a name erected by Lankester in 1868). Since Stensiö's work, osteostracans have long been regarded as allied to lampreys, because of their single, median, dorsal nostril. Nowadays, they are better interpreted as close relatives to jawed vertebrates (Figure 3) – yet still jawless – alongside other groups of armoured jawless fishes, commonly referred to as “ostracoderms” (e.g., heterostracans (“pteraspids”), arandaspids, galeaspids, anaspids).⁹

Coccosteus, *Pterichthyodes* (“*Pterichthys*”) and “*Asterolepis*”

Coccosteus and *Pterichthyodes* belong to two major groups of the Placodermi (a group of extinct, armoured, jawed vertebrates), namely the Arthrodira and Antiarcha, respectively (Figure 3). The case of Miller's “*Asterolepis*” is problematical, as he gathered under the same name remains of at least two, widely different fishes. The skull-roof and shoulder girdle essentially belong to a large arthrodire, *Homosteus* (also referred

to as *Homostius*; Figures 3, 4A), remotely allied to *Coccosteus*, whereas the jaws, scales and various endoskeletal elements belong to *Glyptolepis*, a porolepiform sarcopterygian (lobe-finned fish; Figure 3). Moreover, he referred all these bones to “*Asterolepis*” on the basis of their somewhat similar, tuberculate ornamentation, which recalls that of *Asterolepis*, an antiarch then just described by E. Eichwald in 1840 from the Devonian of Russia (Figure 5). *Asterolepis* (*A. maxima*) was actually present in Scotland (Nairn) but referred to as *Coccosteus* by Agassiz,¹ and correctly assigned

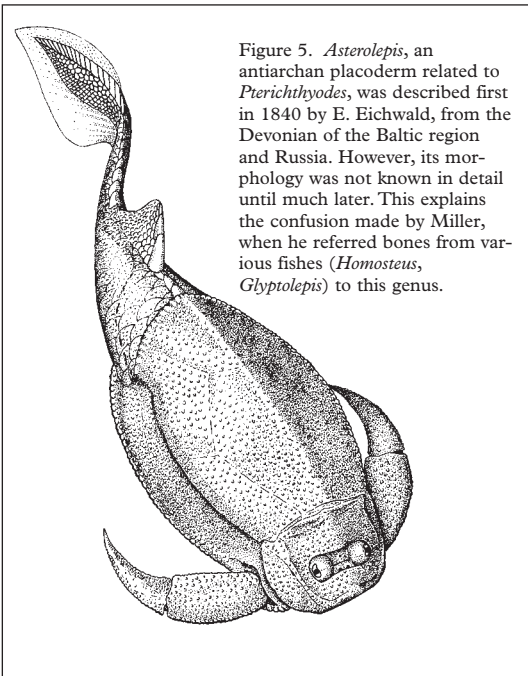


Figure 5. *Asterolepis*, an antiarchan placoderm related to *Pterichthyodes*, was described first in 1840 by E. Eichwald, from the Devonian of the Baltic region and Russia. However, its morphology was not known in detail until much later. This explains the confusion made by Miller, when he referred bones from various fishes (*Homosteus*, *Glyptolepis*) to this genus.

much later. One can easily understand that Miller was much impressed by the “bulk” of *Homosteus* (part of his “*Asterolepis*”), which is an impressive arthrodire, and he was aware of the much larger homosteid plates recorded by the Estonian palaeontologist Hermann Asmuss in the Devonian of Estonia (Figure 4B; 2, p. 103).

Placoderms are armoured, jawed vertebrates. They appeared in the Late Silurian and became extinct at the Devonian/Carboniferous boundary. They, too, were long regarded as bony fishes, allied to sturgeons and catfishes, thus “ganoids”, but in 1925 Erik Stensiö showed that their braincase was rather shark-like and they have then been regarded as either closely related, or ancestral to sharks, rays and chimeras (chondrichthyans). Nowadays, the relationships of placoderms remains debated. Some still consider them as allied to chondrichthyans, others to osteichthyans (bony fishes), but most palaeontologists now regard them as the sister-group to all other jawed vertebrates (Figure 3). In a sense they represent an important model for reconstructing the common ancestor to all jawed vertebrates.

Interestingly, the evolution of the strange, articulated appendages — in fact the plate-covered pectoral fins — of antiarchs, such as *Pterichthyodes*, is now better understood thanks to the discovery of the earliest and very primitive antiarchs in the Early Devonian and Late Silurian of China and Vietnam.⁹

***Cheiracanthus*, *Diplacanthus*, *Acanthodes*, and other “Acanths”**

Most of the fishes Miller refers to as the “Acanths” are now known as the Acanthodii, or acanthodians (Figure 3). They include several forms that are common in the Devonian of Scotland, such as *Cheiracanthus* and *Diplacanthus*. Acanthodians are characterized by the presence of long, bony spines in front of all fins, except for the tail, and minute square-shaped scales. Miller had noticed that these scales superficially looked like the shagreen of the “placoids” (sharks), but were more solid, devoid of pulp cavity, and with a shining external surface, like those of the “ganoids”. He thus regarded acanthodians as “ganoids”, yet considered the possibility that they “formed connecting links between this second order and their placoid predecessors” (2, p. 29); that is, in modern terms, intermediates between chondrichthyans (“sharks”) and bony fishes. Nowadays, acanthodians are in fact generally considered as more closely related to osteichthyans (bony fishes) than to any other vertebrate group. Yet their morphological diversity suggests that they may not be a group. Possibly, some of them are actually basal osteichthyans, whereas others are closer to chondrichthyans. Here again, Miller’s insight was not too far from current questions in vertebrate phylogeny.

Cheirolepis

Miller considered *Cheirolepis* as an “Acanth” because of the small size of its scales that recall acanthodian scales, but he was puzzled by its lack

of spines in front of the fins and its extensive “cranial buckler” (head plates), which is at odds with the morphology of the classical acanthodians. In addition, he noticed that the web of its fins was covered with larger lepidotrichs (fin rays) than in other acanthodians, thereby recalling *Osteolepis* or *Dipterus*. Currently, *Cheirolepis* is regarded as a primitive member of the Actinopterygii, or ray-finned fishes (Figure 3); that is, an osteichthyan, yet it remains at odds with all other Devonian actinopterygians, notably by its very small scales and strangely lobed pectoral fin base.

Glyptolepis* and *Holoptychius

These names were elected by Agassiz for isolated, rounded scales ornamented with sinuous ridges. Now, we know that they belong to porolepiform sarcopterygians (lobe-finned fishes), thus bony fishes (Figure 3). The scales of *Glyptolepis* were attributed by Miller to his “*Asterolepis*”, as were also its jaw and “pelvic” bone (a dorsal fin basal plate). *Glyptolepis* and *Holoptychius* are porolepiform fishes; that is, close relatives of lungfishes. They share with tetrapodomorphs (four-legged vertebrates and their immediate piscine forerunners) a strongly folded structure of the enamel and dentine of their teeth, well described by Miller (2, Figure 34), and now regarded as characteristic for a large group, the Rhipidistia, that includes the dipnomorphs (porolepiforms and lungfishes) and the tetrapodomorphs (Figure 3). In the late nineteenth century, this folded structure of the teeth was a first hint toward the discovery of the relationships between the four-legged land vertebrates, or tetrapods, and rhipidistian fishes.

Dipterus

Dipterus (Figure 3) is a lungfish (or Dipnoi), as shown by its characteristic, fan-shaped toothplates (the entopterygoid and prearticular). Although the living lungfishes (at any rate the South American one, *Lepidosiren*) were known as early as 1837, a few years after Miller began to be interested in fossil fishes, it was only in 1871 that Albert Günther realised that *Dipterus* and the many other fossil lungfishes actually belonged to the same group, probably because, apart from their characteristic toothplates, their overall morphology is rather different.

For Miller, *Dipterus* was yet another “ganoid”, as its bones and scales are shining. In fact, they are covered with pitted dentine, like those of early actinopterygians, but are also covered with a layer of enamel, a characteristic of the lobe-finned fishes. This special hard tissue of early lobe-finned fishes is called “cosmine” and has no equivalent in present-day Nature. Miller was also amazed by *Dipterus*’ skull-roof “of great beauty”, with the bones “tattooed...by delicately traced lines, waved and bent, as if upon the principle of Hogarth” (2, p. 57) . Here Miller exquisitely describes what is now known as the “Westoll-lines” (named after the famous British vertebrate palaeontologist Stanley Westoll, of Newcastle-upon-Tyne), which

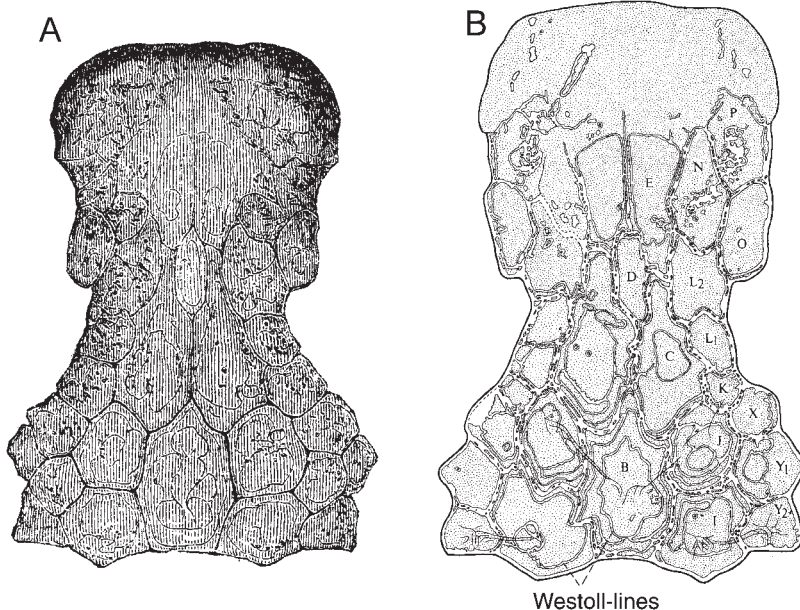


Figure 6. The reconstruction of the skull-roof of *Dipterus* by Miller (A, from ref. 2, fig. 20) is remarkably accurate and closely matches modern reconstructions, such as that made by Erik Jarvik in 1980 (B). Miller was also the first to describe the delicate concentric lines which adorn the dermal bones of *Dipterus* and other Devonian lungfishes, and are now known as “Westoll-lines”. (B, after Jarvik, E. 1980. *Basic Structure and Evolution of Vertebrates*, Academic Press, London)

are peculiar, concentric lines of cosmine resorption, unique to lungfishes (Figure 6). Further, Miller describes the pattern of the *Dipterus* “buckler” (skull-roof) as follows: “though the lateral plates are numerous and small, and defy the homologies, we may trace in those of the central line, from the snout to the nape, what seems to be representatives of the frontal, parietal, and occipital bones”. The skull-roof bone pattern of lungfishes still “defies the homologies”! During the 20th century, palaeontologists attempted to trace homologies between the skull-roof bones of lungfishes and other osteichthyans, and finally decided to use a non-committal nomenclature (bones referred to as A, B, C, etc.). Only recently, the discovery of the primitive lungfish *Diabolepis*, in the Lower Devonian of China, allowed us to homologize certain of the lungfish bones with the parietal and postparietal of other osteichthyans. Whether lungfish bone pattern is primitive for osteichthyans, or highly specialised, is still a matter of debate.

***Osteolepis* and *Gyropterygius* (“*Diplopterus*”)**

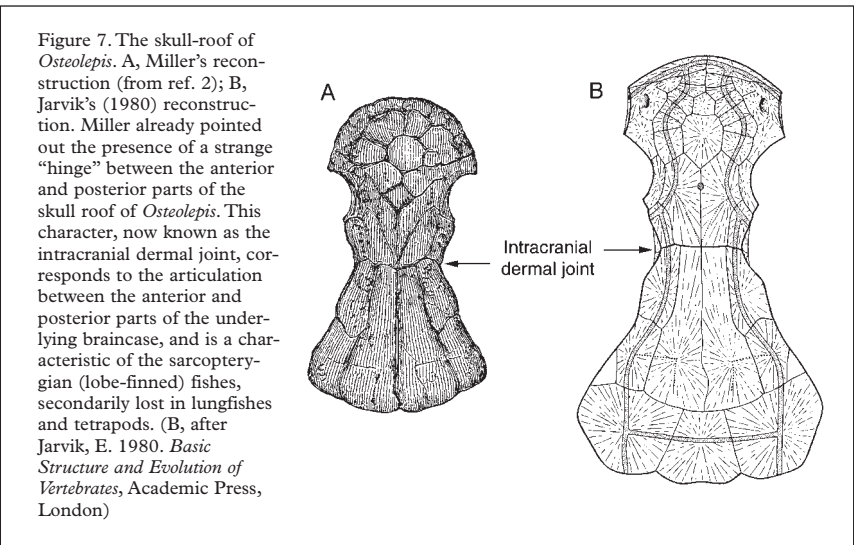
Miller also referred *Osteolepis* (Figure 3) and “*Diplopterus*” to the “ganoids”, because of their shining, cosmine-covered teeth and bones. As he puts it:

“..the dermoskeleton [i.e. the superficial bones and scales] of the *Osteolepis*, composed of solid bone, and burnished with enamel, exhibited the outline of the fish entire..., and with even its most flexible organs sheathed in enamelled bone, [it] must have very much resembled a fish carved in ivory ..., it would have appeared...that it wore all its bone outside, as naked as the human teeth” (2, p. 52).

This is a most elegant and precise description of the probable aspect of an osteolepid, entirely covered with cosmine; that is, dentine and enamel, like a tooth! Miller also pointed out for the first time the fact that the head “buckler of *Osteolepis* [and “*Diplopterus*”] was divided transversely in the middle into two main parts or segments, – an occipital part, and a frontal part” (2, p. 48). This is the first description of the dermal intracranial joint between the parietal and post-parietal divisions of the skull-roof, a characteristic of sarcopterygians (lobe-finned fishes), independently lost in lungfishes and tetrapods (Figure 7).

Nowadays, *Osteolepis* and *Gyropterygius* are regarded as a member of the “osteolepiforms”, a group that forms part of the stem of the tetrapodomorphs (the group including the four-legged land vertebrates (tetrapods) and their piscine forerunners; Figure 3). Miller wrote that *Osteolepis* had a “sinister, reptile-like aspect”, essentially because of its very sharp teeth and anteriorly-placed eyes. Agassiz also regarded these features as suggestive of “reptiles” and therefore grouped some of these “ganoids” into the “sauroid fishes”: that is, fishes with “reptilian” features.

Miller clearly followed Agassiz’ classification of living and extinct fishes in its slightest details. This classification is no longer in use, but what remains is Miller’s outstanding descriptions, which accurately depict the anatomy of the Old Red Sandstone fishes. The currently accepted rela-



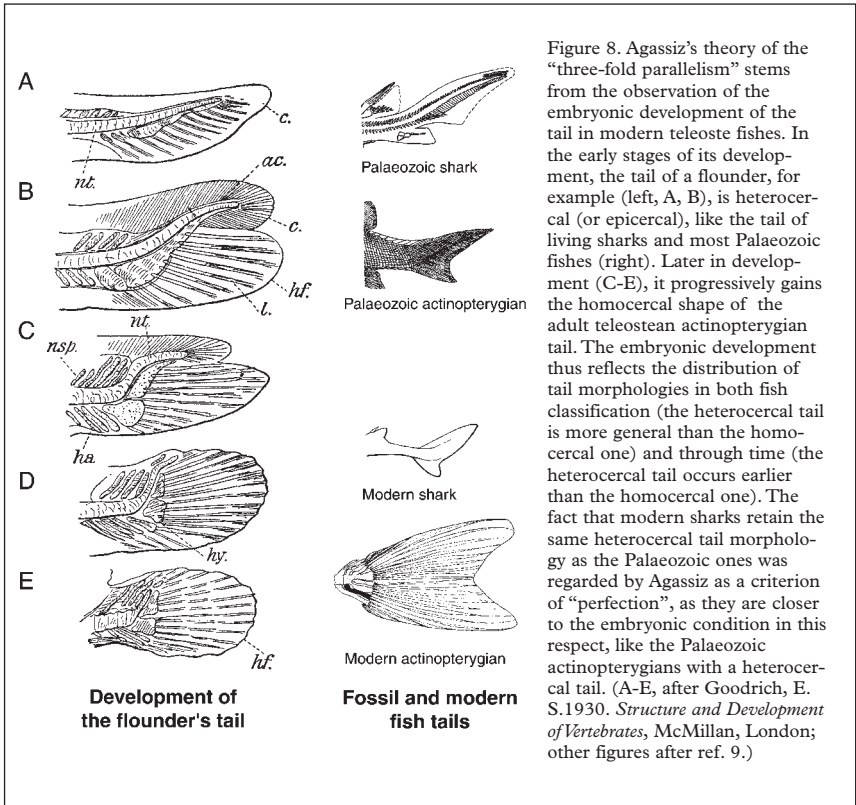
tionships of the vertebrates show that Miller's fishes belong to all the major groups of jawed vertebrates, except for the chondrichthyans (Figure 3). Actually, no chondrichthyan occurs in the Scottish Old Red Sandstone, and this has been regarded as evidence for its being a freshwater deposit. However, Early and Middle Devonian chondrichthyans occur elsewhere at the same period, generally in more obviously marine deposits, yet sometimes in similar, marginal environments (e.g. *Antarctilamna*). Miller would perhaps not be too surprised to see that, 150 years later, the position of acanthodians still oscillates between chondrichthyans and osteichthyans, and that *Osteolepis* is actually more closely allied to "reptiles" (yet remotely so) than to other "ganoids".

Nowadays, most of Miller's fishes, or closely related forms, are known in Devonian rocks almost all over the world, and generally in the same type of rock as in the Old Red Sandstone of Scotland, which were deposited in deltas, coastal lagoons and lakes. From China to Colombia, and from South Africa and Australia to Greenland, palaeontologists find antiarchs, arthrodiros, acanthodians, lungfishes and osteolepiforms, that are sometimes very close to those dealt with by Miller. In Devonian times, Scotland, like these remote areas, was situated in the tropics and enjoyed a warm climate. Cephalaspids (osteostracans), however, are only known in North America, Europe and Siberia. Many new major groups of armoured fishes have been discovered since Miller's time, in particular among jawless vertebrates: the Chinese and Vietnamese galeaspids, the Australian pituriaspids, and the anaspids. Also, armoured fishes are now known from far older periods, such as arandaspids, which are jawless fishes and occur first in the lowermost Ordovician, 470 million years ago.⁹ Recently, evidence for vertebrates, yet not armoured, has been recorded from the Early Cambrian, about 530 million years ago.

Miller and Agassiz at the dawn of evolutionary theory: The "three-fold parallelism" and the "progress of degradation"

The relation of Miller to the rising evolutionary (at any rate "transformist") ideas is quite a difficult subject, which I should like to leave to historians of science. This has been dealt with by some authors in a broader historical context.^{10 11} However, as far as the history of fishes (and vertebrates in general) is concerned, there is a number of important remarks about Miller's conceptions that are worth mentioning. Here again, Miller clearly followed Agassiz' ideas. Both are currently referred to as "creationists"¹² but this attribute deserves here some reservations. Agassiz is known for his law of the "three-fold parallelism", largely inspired from the conceptions of the early embryologists Etienne Serre¹³ and Karl Ernst von Baer,¹⁴ then "usurped" by Ernst Haeckel¹⁵ in the form of his "recapitulation theory". The bearings of Agassiz' three-fold parallelism on the rise of the modern evolutionary (Darwinian) paradigm have been briefly but masterfully dealt with by the late Colin Patterson.¹⁶

The three-fold parallelism stems from the observation, made in 1839 by Carl Vogt (Agassiz' disciple, who later became a supporter of Haeckel



and Darwin), that the tail of the trout embryo was first heterocercal (or epicercal; i.e. with a long notochordal lobe tapering postero-dorsally and a large, ventral fin web), as is the tail of the sharks, sturgeons, and gars, and that of most Palaeozoic fishes, be they "placoids" or "ganoids" (Figures 8A & B, 9). Then, it becomes homocercal (the classical, bifid "fish tail" of a herring, for example) in the adult (Figure 8C-E). Their first conclusion was thus that there is a parallelism between ontogeny and the palaeontological history of a group (i.e., features that appear early in ontogeny also appear early in the fossil record, and conversely). The second conclusion was that there is a parallelism between the fossil record and the natural system of classification (i.e. features that appear early in the ontogeny characterize groups of high rank, and conversely; Figure 9). As Patterson¹⁶ put it: "such principles... seem ready-made for evolutionists, yet Darwin steered clear of the three-fold parallelism in *The Origins*". Agassiz, in old age, once said:¹⁶

"at that time I was on the verge of anticipating the views of Darwin, but it seemed to me that the facts were contrary to the theories of evolution. We had the *highest fishes first*" (my italics).

This is echoed in Miller, when he insists on the fact that the Old Red Sandstone fishes are “highest”. Nowadays, owing to the dominant evolutionary concepts, it is extremely difficult to understand what Agassiz actually meant, but it becomes easier once one becomes conscious that, for him, “highest” did not mean “most advanced”, as it generally does for us, but “most general” and, in accordance with the three-fold parallelism, “closest to the early embryo” and “earliest in time” (yet, Miller sometimes also uses the adjectives “high” and “low” in their modern sense). Agassiz thus regarded the Devonian period as the “embryonic age of fishes”. In addition, “closer to the embryo” also meant for him “closer to the Creation”. Thus, the closer the morphology of a species was to the embryonic state of other species (as were fishes with a heterocercal tail), the most “perfect” and “higher” it was, because the embryo, and more so the egg, embodies all that may be produced from it. This also illustrates how much the words “high” and “low” have been misleading and have retarded the progress of biological taxonomy.¹⁶

If “placoids” (sharks) are “high” and “ctenoids” (e.g. perch) “low”, how does one explain this counter-intuitive (to us!), inverted natural order? To Agassiz and Miller, it was due to some kind of “degradation”, a term that echoes Buffon’s¹⁸ idea of “degeneration of species” (the only modification

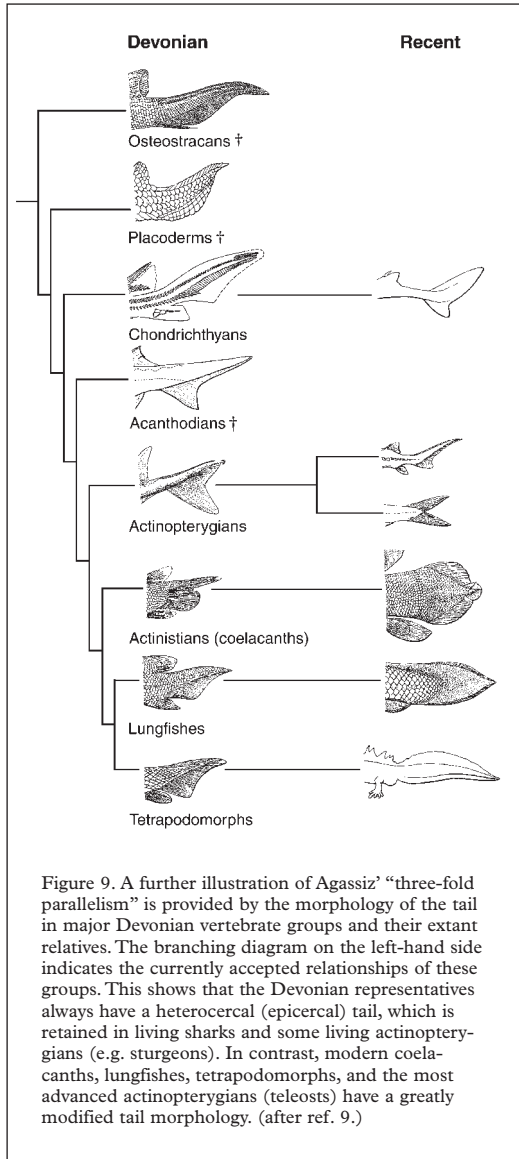
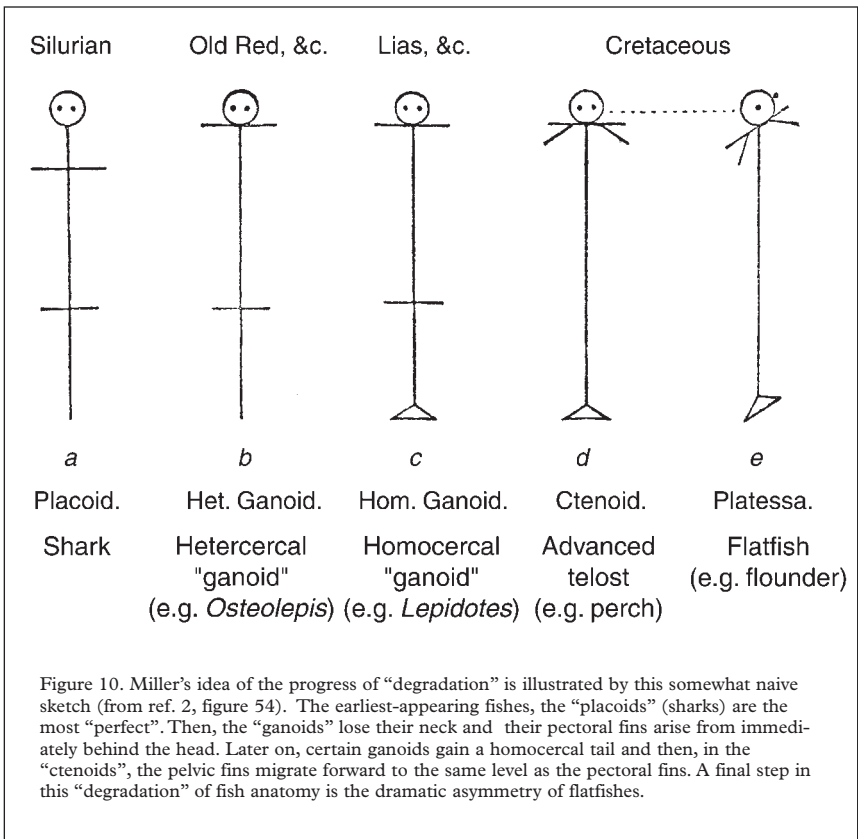


Figure 9. A further illustration of Agassiz’ “three-fold parallelism” is provided by the morphology of the tail in major Devonian vertebrate groups and their extant relatives. The branching diagram on the left-hand side indicates the currently accepted relationships of these groups. This shows that the Devonian representatives always have a heterocercal (epicercal) tail, which is retained in living sharks and some living actinopterygians (e.g. sturgeons). In contrast, modern coelacanths, lungfishes, tetrapodomorphs, and the most advanced actinopterygians (teleosts) have a greatly modified tail morphology. (after ref. 9.)

of species he could possibly accept). As noted by Desmond,¹⁰ “this principle of “degradation” appealed to scientists across a broad theological spectrum, and enjoyed a considerable vogue in the 1840s [...] Sedgwick employed it because transmutation (i.e. evolution in the modern sense) seemed to demolish personal design in nature”. God could not possibly have created imperfect forms of life that need improvement through descent with modifications. Though being also of religious derivation, this view is completely at odds with the more recent teleological views of Christian (essentially Roman Catholic) evolutionary biologists and palaeontologists, such as, Cuenot¹⁹ or Teilhard de Chardin,²⁰ for whom creation is, in a way, still in progress through evolution.²¹ The idea of “degradation” is perhaps also expressed in the way Miller (and other scientists of the nineteenth century) represents the time scale and the fossil record, in descending order (²², figure 53). Nevertheless, Miller’s naive succession of “degradations” of fishes (², figure 59; Figure 10), from the “placoids” to flatfishes is an illustration of the consequences of the three-fold parallelism in the somewhat misleading way it had been proposed by



Agassiz.

In the 1870s, Agassiz still supported his “law” of the three-fold parallelism, but had somewhat changed his mind (or the terms he used) to adapt to the new evolutionary paradigm. In fact, towards the end of his life, he considered that the embryonic development was the only process that could be adequately called “evolution”.²³ Nevertheless, he was then already regarded as a “living fossil” in science.¹⁶ My impression is that Miller had candidly made a straightforward application of Agassiz’ three-fold parallelism to his own observations. Agassiz’ terms, when dealing with this, are often ambiguous and his writings are embedded in hazy philosophical considerations, but Miller’s are not. He faithfully followed the idea of his spiritual master. Miller, who was undoubtedly an intelligent man, may have been mulling over the three-fold parallelism for years, and God knows where this had led him. One may wonder about the meaning of the strange way in which he alludes to the “progress of degradation”, in a paper “On a curious suite of fossils from the Old Red Sandstone of Scotland”, read before the British Association in 1849 (², notes, p.333). Here he deals again with the “loss” of the neck in bony fishes, in which the shoulder girdle is attached to the skull (by means of the supracleithrum), contrary to the “placoids”. In the *Footprints* (⁴, p. 170), he regarded the loss of the neck as the first step of the “degradation of fish anatomy” (Figure10). However, in the same article, he develops further his views about the consequence of “degradation” and considers that

“Nature [...] imparts the necessary solidity to the soft abdominal parts; and this, not by the introduction of a new bit of mechanism into the ichthyic skeleton, – for she [Nature] is always chary of introducing new pieces into her machine, – but by altering, adopting, and importing a new function to a previously existing piece. Such is the mode, I say, in which Nature works.”

This sounds very close to what we now call the “exaptation” concept of Gould and Vrba;²⁴ that is, the recruiting of pre-existing organs or structures for new functions. This is even clearer in a further sentence: “Now, it seems to be on this principle of adapting previously existing parts, with definite functions assigned to them, to entirely new uses”. The word “adaptation” here sounds surprising, in the writings of a reputedly anti-evolutionist author, all the more so that Gould and Vrba’s “exaptation” concept has been purposely introduced in order to eradicate the previous, supposedly finalist, concept of “pre-adaptation” of Cuenot.¹⁹ Although I am aware that one may easily misinterpret – or over-interpret – the words used by early naturalists (historians of science often criticise scientists who try to identify possible evolutionary insights in, e.g., Buffon), my impression is that Miller felt more comfortable with the facts, such as those of anatomy, than with the concepts, and that he arrived at a stage, around 1850, when, through his readings, it became clear to him that he had to get out of the conceptual trap in which he had enclosed himself.

The three-fold parallelism came back on the scene in the 1970s, with the rise of Hennig's²⁵ Phylogenetic Systematics, or "cladistics". Hennig's major criteria for defining the polarity of the characters of an organism, from the plesiomorphous (most general, or primitive) to apomorphous (most particular, or advanced) states belong to the same "dimensions" as those in the three-fold parallelism: the natural order (out-group comparison), the ontogeny (ontogenetic criterion) and the geological time (geological precedence). Like von Baer's law,¹⁴ which certainly influenced Agassiz, his three-fold parallelism is now at the core of the modern debates about phylogeny reconstruction.^{16 26}

In the same way, the principle of "degradation" strangely comes back on the scene, among modern biologists, who generally ignore the philosophical, religious and cultural context in which it arose. The reconstruction of the interrelationships of animals and plants based on molecular sequences of genes, and with no (or little) regard to anatomy, has recently yielded surprising results. One of them was the grouping of such widely different animals as the nematodes (pinworms) and the arthropods (crustaceans, spiders, scorpions, insects). Their only common morphological feature is their ability to moult, and the group in which they are included has been therefore named Ecdysozoa (from ecdyzo= moult). It is thus assumed that pinworms have lost a large number of characteristics and became very simple by comparison to arthropods. Whether this will hold or not is not the question here, but some consider this a strongly supported result. To my great surprise, I recently heard, at a major international meeting, molecular phylogeneticists claiming that evolution through loss has largely been underrated until now. If loss means here "degradation", then we are back to Agassiz' and Miller's insights, yet in an evolutionary and non-teleological context.

Acknowledgements

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- 11 Shortland, M. (ed.) 1996. *Hugh Miller and the Controversies of Victorian Science*, Oxford University Press.
- 12 The term “creationist” is currently used in a wide range of senses. Some restrict it to the literal reading of Genesis, whereas others extend it to any non-Darwinian, or not strictly materialist, view of evolution. Miller, like Agassiz, was certainly not favourable to the literal reading of Genesis and clearly admitted that the history of Earth extended over a very long time, but they could not accept evolution as conceived nowadays. Above all, they could not accept that the pattern of life arose through time by mere chance and necessity, as this would also apply to the origin of Man (thus the origin of human consciousness) and would imply the lack of individual, moral responsibility of Man before the Creator.
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- 21 Miller's view of degradation of types, or degeneration, is clearly in agreement with his Calvinist ontological world view, pervaded by the notion of Fall and Original Sin. Agassiz, too, was initially a Calvinist, and the son of a Protestant minister, but he then abandoned Calvinist orthodoxy for liberal Unitarianism.
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Hugh Miller's geological discoveries and observations on the Isle of Eigg, as recorded in *The Cruise of the Betsey* and in the light of modern knowledge

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Introduction

Hugh Miller made two brief visits to the Isle of Eigg in the Inner Hebrides in 1844 and 1845. He described his impressions in a series of articles in *The Witness* in the latter year, and the complete account was published as *The Cruise of the Betsey* after his death, in 1858 (1). The visits show Miller at the height of his powers as a descriptive writer, both as an observer of natural phenomena and in his passionate depictions of the tribulations of the poor and the arrogance of authority. The occasion for the visits was the unfortunate situation of his boyhood friend, the Rev. John Swanson, who had been Minister of the Small Isles but left his post at the Disruption, joining the new Free Church. He was denied residence or place of worship on the islands, and resorted to using an ancient yacht, the *Betsey*, to minister to his flock. So Miller's visit combined his three principal concerns: church affairs, exploration of the past and present condition of the humble people of Scotland, and geological investigation and exposition. I shall only be concerned with the last of these, but *Betsey* obtains much of its continuing appeal from Miller's characteristic interweaving of all three.

Miller's geological observations on Eigg have not been much noticed in general accounts of his scientific achievements and influence. This is probably because no generally distributed account was published in his lifetime, whereas *The Old Red Sandstone* was published in book form, and also because the issues raised do not bear greatly on his more philosophical views, on progressionism for instance, as the Old Red fishes do. Nevertheless, he made one really notable discovery, of the first Scottish Jurassic plesiosaur, he collected other fossil material, notably fossil wood, that has a value still not adequately explored, and he added much-needed life to the sketchy descriptions of the island's sedimentary rocks, nearly devoid of interpretation, that were previously available. He first described the musical (later "Singing") sands of Camas Sgiotaig that are now a tourist attraction. His work on Eigg throws light on the state of Miller's own knowledge, and of general knowledge, in various branches of

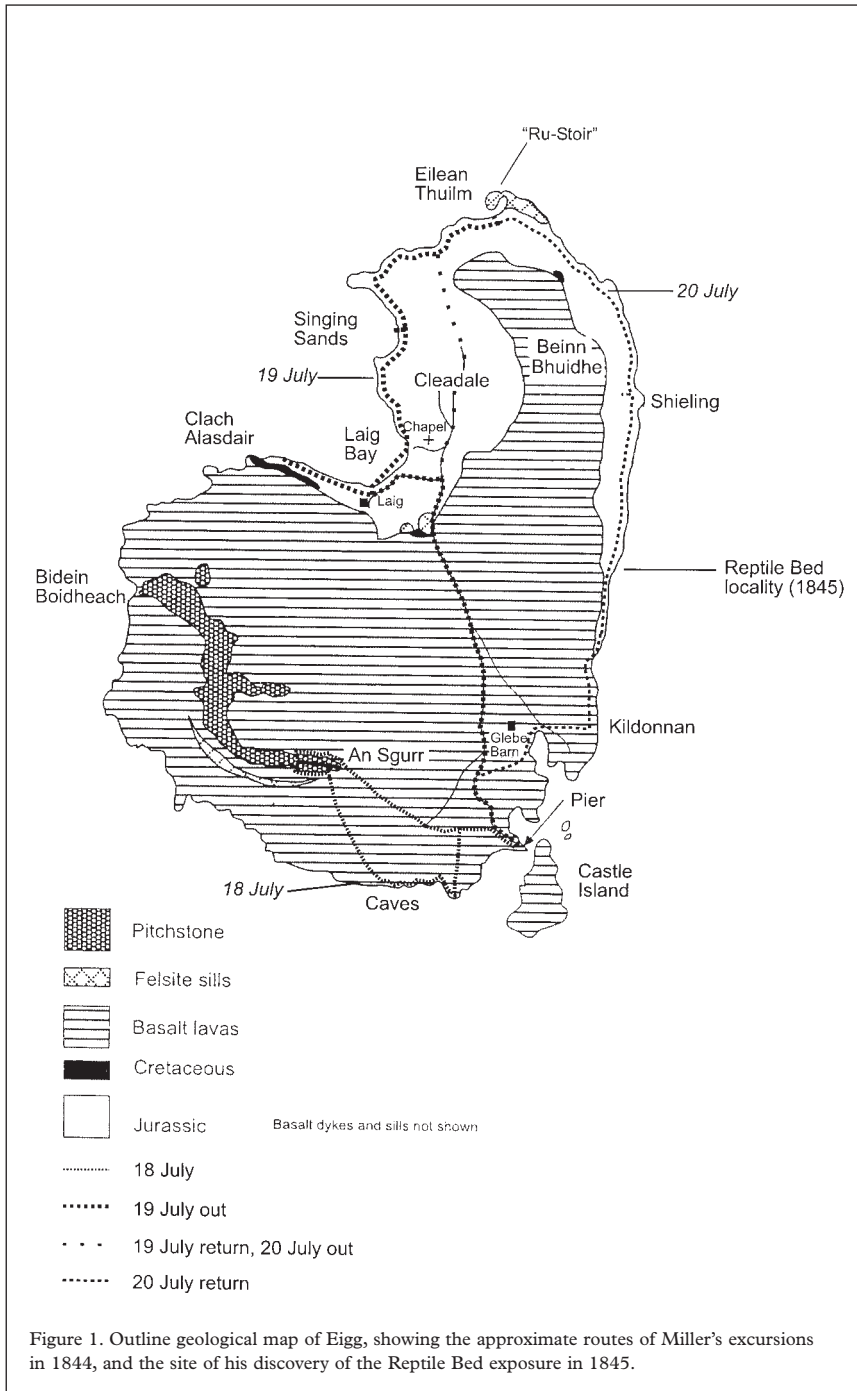


Figure 1. Outline geological map of Eigg, showing the approximate routes of Miller's excursions in 1844, and the site of his discovery of the Reptile Bed exposure in 1845.

the science in the 1840s. And it is interesting to enquire how Miller's observations and interpretations have stood the test of time.

The geology of Eigg

It is convenient to give an outline of Eigg's geology according to present-day interpretation, before considering what was known in Miller's day. There have been numerous changes in nomenclature, as well as interpretation, that make it necessary to read older accounts with care. A full account is given by Emeleus (2) and a less technical description by Hudson (3). Eigg, like several other islands in the Inner Hebrides, is dominated topographically by volcanic rocks of early Tertiary age, part of the well-known Tertiary Volcanic Province, underlain by Mesozoic sedimentary rocks. The adjacent mainland, and the Outer Isles to the west, are composed of very much older rocks, mainly of Precambrian age.

There are two main groups of rocks on Eigg (Figure 1): sedimentary rocks of Jurassic age (approximately 200 to 140 million years old), containing abundant fossils, and igneous rocks of Palaeocene (early Tertiary) age (approximately 61 to 58 million years). These latter were mostly erupted from volcanoes as lavas, but some were intruded beneath the earth's surface into pre-existing sedimentary rocks, forming sills (parallel to sedimentary bedding and generally nearly horizontal) and dykes (cutting across bedding and generally vertical). The sedimentary rocks, with igneous intrusions, occur in the low ground of the north of the island and are tilted at a gentle dip towards the south or south-west. They are overlain by basalt lavas forming Beinn Buidhe. South of a line from Laig Bay to Kildonnan the sedimentary rocks dip below sea level and volcanic rocks form the whole land surface. The basalts form a distinctive terraced topography. They are capped by the pitchstone ridge of the Sgurr, composed of a slightly younger lava, which is the island's most distinctive and most controversial feature.

Eigg's geology as known in Miller's time

Miller was writing as a journalist, not as the author of a scientific treatise, so although he alludes to his predecessors in several places he does not give formal references. It is therefore not easy to decide what prior knowledge he had, either from direct accounts of Eigg's geology or from current geological ideas and theories. His account is certainly excellent exposition, but to what extent is it original science?

By 1840, Eigg was one of the better-known islands of the Hebrides. Several British and continental geologists had visited the island and published accounts of it. This was almost entirely because of the occurrence of small "veins" (dykes) of pitchstone, a rare and attractive type of igneous rock, and of the striking formation of the Sgurr of Eigg, also made of a variety of pitchstone and impressively vertical and columnar. Fossil wood was known to occur at the base of the Sgurr.

The occurrence of sedimentary rocks on the island was known to

Miller mainly from the work of Macculloch) (4), who correctly recognised their resemblance to strata in Trotternish, Skye. Macculloch, like most of his Scottish contemporaries was no palaeontologist; he used mainly lithological similarity to make comparisons. Miller knew and praised Murchison's work (5) on the Jurassic rocks of Skye, which did employ current understanding of palaeontological data; but Murchison did not visit Eigg. So Miller had little previous information on the rock types, and even less on the fossils; at least, so far as we know.

One source of confusion for a modern reader pervades Miller's account. The familiar nomenclature of the geological systems evolved gradually from a combination of lithological and palaeontological criteria. What we now know as Jurassic strata were, in Miller's day, known as Lias or Liassic for the Lower Jurassic and as Oolites or Oolitic for the major part of the modern Middle and Upper Jurassic. Oolitic is still used as a description of a particular kind of limestone (resembling a fish roe), common in Jurassic rocks in England and Europe but by no means confined to them. It is now never used as a time term, but to Miller that was its chief connotation, so when he speaks of an Oolitic sandstone he is specifying its age, not its lithology.

The situation with regard to the igneous rocks was far more confused. The description and nomenclature of fine-grained igneous rocks was in a primitive state before the application of microscopy later in the century. The commonest igneous rocks of the region were known as "traps", a term derived from the step-like topography that they often form. The debates between neptunist and vulcanist interpretations of traps, that had convulsed the geological world in the late 18th and early 19th centuries, had been largely settled in favour of the vulcanists, but had still not fully subsided; see Hallam (6) for a modern account. Most of the "traps" are what we would now call basalts and are lavas erupted on to a land surface, with the steps indicating successive flows, but not all are so: some are not basalts but other rock types, and some are not lavas but intrusions. Basalts similar to those composing the true lavas occur apparently interstratified with sedimentary rocks. They are now regarded as intrusive but, unless cross-cutting relationships could be established, could easily be supposed to be contemporaneous with the Jurassic ("Oolitic") sediments, especially by those with neptunist sympathies. If that were the case, interstratified "traps" had to be "Oolitic" too, and so by extension were all the volcanic rocks of the region. Our present interpretation of the basalts and other igneous rocks as much younger, Tertiary, lavas and intrusions was only gradually established, starting in the 1850s. To Miller and his contemporaries the basalts were "Oolitic".

The Sgurr of Eigg was already famous for its dramatic topography, its pitchstone, and its columnar jointing. Macculloch (4) had found fossil wood beneath it, and this became well known in the 1830s through publications on its microstructure, as further discussed below. Miller knew and was impressed by these works. However, interpretations of the field relations and structure of the Sgurr by Jameson (7), Hay Cunningham (8)

and others were vague even by contemporary standards, or plain wrong.

It was not until Geikie's paper of 1871 (9) that something like the modern view of the relationships of the volcanic to the Jurassic rocks was clearly expressed, though even then with little petrological detail. The same paper also includes a substantially correct account of the structure of the Sgurr.

Miller's excursions

Only those who have themselves traversed the hilly terrain and the rocky shores can fully appreciate what Miller achieved in his 3 days of exploration in 1844 (Figure 1). I was initially inclined to suspect that Miller had condensed his account, but the chronology as recorded in *The Cruise of the Betsey* seems secure. Miller had joined Swanson and his crew of two on the *Betsey* at Tobermory in Mull on the 17th of July, and made some geological observations there before sailing for Eigg, which was reached at nightfall. On the 18th they made a tour of the south-east of the island, culminating geologically in the ascent of the Sgurr. Miller memorably describes the view from the summit. In the evening they visited one of Swanson's congregation, with whom they dined. They returned to the *Betsey* to find a dead sheep aboard (another story). On the 19th they made an even longer day of it, investigating the sedimentary rocks by going to Laig Bay and right around the north of the island. By this time it was nearly dark, but that didn't stop Miller from finding the famous plesiosaur bones. They retired to Howlin House at Cleadale for supper, and again returned after dark to the *Betsey*. The following day being a Saturday, Swanson had to prepare his sermon, so Miller was accompanied only by John Stewart, a Gaelic speaking islander. They returned to the north end to collect more bones, and this time returned by the east coast, where they encountered some island girls at a shieling, again near nightfall, a place and a visit which inspired some of Miller's finest descriptive writing. The next day was the Sabbath, on which fossil hunting, being neither a work of necessity nor mercy, was impermissible. And besides, "...the morning rose like a hypochondriac wrapped in his night clothes, – gray in fog, and sad with rain." On Monday 22nd July they set sail for Skye.

Miller returned to Eigg in 1845, and on Tuesday 17th June set out by himself to find the outcrop of the Reptile Bed on the east coast. This he did, to his understandable delight. He tried again on the north coast, the original discovery site, but failed, as all his successors also have. Rather surprisingly, he then records that despite spending ten days on the island that year, he made no further discoveries; Michael Taylor suggests that he was preoccupied with his editorial duties for the *Witness*, and also anxious about the imminent birth of a child to his wife.

Miller's discoveries and observations

Miller's contributions can be discussed as original contributions to our factual knowledge of the island's geology, as interpretations of such facts,

as an exposition of already existing facts and interpretations, and as influencing or foreshadowing later work. How good was Miller as a field geologist and palaeontologist? In the light of our present understanding, which is certainly not perfect but is a great deal in advance of what it was 150 years ago, did he get it right? What work remains to be done on subjects that Miller investigated? I shall consider Miller's contributions under subject headings, using modern terminology but avoiding, so far as possible, the technicalities of stratigraphical and petrological nomenclature. I give references to recent papers so that those interested can compare Miller's interpretations with current ideas. I will start with Miller's contributions to Jurassic geology and palaeontology, where his expertise was greatest, and so far as possible use the order in which Miller made his observations.

Jurassic stratigraphy and palaeogeography

In *The Cruise of the Betsey*, Miller describes his journey by steamer to Tobermory, where he was to join Swanson and the *Betsey*. He inserts a passage on the palaeogeography of western Scotland in Jurassic times, that, apart from its Victorian diction, and its reference to successive creations, is remarkably similar to our present conception:

“The outer Hebrides may have existed as the inner skeleton of some ancient country contemporary with the mainland, and that bore on its upper soils the productions of perished creations, at a time when by much the larger portion of the inner Hebrides, - Skye, and Mull, and the Small Isles, - existed as part of the bottom of a wide sound, inhabited by the Cephalopoda and Enaliosaurians of the Lias and the Oolite.”

On Eigg itself, Miller's excursion of 19 June 1844, with Swanson, started by examining the Jurassic rocks of area around the Bay of Laig. The first strictly geological description concerns an oyster-rich limestone that forms the upper part of the “Oolitic” rocks around the cottages of Cleadale. Miller does not record this as a discovery but I have found no previous account of it; perhaps Swanson knew of it. Be that as it may, Miller's description is accurate as regards the morphology of the oysters, and perspicacious. “The nearest resembling shell in Sowerby [his *Mineral Conchology*] is the *Ostrea acuminata* - an oyster of the clay that underlies the great Oolite of Bath.” Miller did not give a name to the oyster, but Edward Forbes named the species in 1851 as *Ostrea hebridica* from its occurrence in Skye (10). It is now regarded as closely related to *O. acuminata*, both being placed in the genus *Praeexogyra*, and the rocks in which it occurs are just a little younger than those yielding *acuminata*. Thus Miller shows his awareness of the value of fossils for correlation. He also stresses that this occurrence is of a true oyster bed - “They [the oyster shells] are massed as thickly together, to the depth of several feet, as shells on the heap at the door of a Newhaven fisherman, and extend over several acres” - not merely of oysters scattered among other fossils. Similar

ancient-modern comparisons are explored in the next section.

The party then went to the southern side of the Bay of Laig, there to examine an obscure outcrop of shale that is visible only between boulders and below tidemark. Again, I have found no previous record of this occurrence and it is not a place that would naturally attract even a geological visitor. Hay Cunningham (8) mentions ammonites and belemnites, which suggests he knew this outcrop, the only one on the island in which they occur, but his account is so garbled that it is uncertain what he saw. Or again, perhaps Swanson knew of it. Miller records the fossils they found and attributes the rocks unequivocally to the Lias (Lower Jurassic), thus being older than the oyster limestone. He mentions finding “the common Liassic Ammonites of the north-eastern coast of Scotland”. This is interesting, and wrong. Miller always referred to the rocks around Eathie, near Cromarty, the site of his first experience of serious fossil collecting, as Liassic; an attribution he presumably took from Murchison (5). We now know that the rocks on Eigg are Oxfordian (Upper Jurassic), and those at Eathie Kimmeridgian, a little younger still. I suspect that we have here a survival of the kind of lithological correlation that was soon displaced by more accurate palaeontology. The Lias in England is predominantly shale, so shaly Jurassic rocks were supposed to be Liassic elsewhere. The use of ammonites in what we now call biostratigraphy was in its infancy. In 1878 Judd (11) correctly identified the age of the strata in Laig Bay, using fossils collected by “Mr Hugh Miller”. It is perhaps not quite certain whether this means Hugh Miller senior, or his son who later became a geologist. Miller speaks of “descending the geological scale” on the traverse from the oyster locality to the shale outcrop, but this is based purely on his attribution of the latter to the Lias, as there are no relevant exposures along that part of the shore.

Jurassic palaeoecology

The most conspicuous Jurassic rocks on Eigg are sandstones that form picturesque cliffs to the north of the Bay of Laig. Together with the overlying oyster limestones of Cleadale, and underlying shales that crop out on the intertidal foreshore, on the north and east coasts, they are now included in the Great Estuarine Group of the Middle Jurassic. These strata were examined later on 19 June.

Miller and Swanson first turned their attention to sandstone cliffs. These had already been described by Macculloch, Jameson, Hay Cunningham and others. Characteristically, Miller found identifiable fossils, and interpreted their significance, where his predecessors had merely recorded obscure shells. In a shale bed intercalated with the sandstone¹ he found abundant bivalves and gastropods, but did not find ammonites or belemnites.

He thus stated: “From the absence of the more characteristic shells of the Oolite, I am inclined to deem the deposit one of estuary origin”. Such interpretations were not unusual for the time; this aspect of what we now call palaeoecology was one of the better-developed parts of the science,

and similar observations are recorded by others, for instance by Lyell (12) on the Isle of Wight. But Miller's observations were original for the Jurassic of Eigg.

Miller's observations on the conspicuous concretions in the sandstone and on the weathered basalt dykes that traverse it, metamorphosing the sandstone on either side, are accurate and picturesque but add little scientifically to previous accounts. It is only recently that any substantial understanding of the concretions has been achieved (13, 14).

Finding further "estuarine" fossils in shales beneath the sandstones, Miller inserts a more general discussion on whether intercalations of beds with apparently freshwater fossils among marine ones should be interpreted as the products of great floods, instancing well known events in Moray and the Solway; or as representing alternations between marine and lacustrine conditions in the basin of deposition. This problem has been faced by many later investigators. Still later on the same day, Miller found his estuarine gastropods and bivalves associated with the strata that yielded reptile bones at Ru Stoir. On his 1845 visit he again found them where he discovered the Reptile Bed *in situ* north of Kildonnan.

Much later, Judd (11) named the group of rocks of which these occurrences form a part as his Great Estuarine Series (now Group), and this interpretation, with modification, has persisted to the present day. "Estuarine" was then used in a wider sense than it is now, and the environment of deposition is generally regarded as lagoonal (15). However the molluscs have much in common with those found in estuaries, as Miller realised. His interpretations were virtually ignored, for instance in the Geological Survey's original Memoir of 1908 (16), until revived by the present writer (15) in the 1960s. Research has expanded, especially because the mollusc shells are beautifully preserved, mineralogically and geochemically. They have attracted attention from across the Atlantic (17, 18, 19), and the new techniques employed greatly refine and quantify previous interpretations. Miller would have approved.

The Eigg plesiosaur

Passing Camas Sgiotaig with its musical sands, of which more anon, and the dramatic cliffs of the north of Eigg, Miller and companions reached the far north point of the island, which he called Ru Stoir (Sgor Sgaileach on modern maps). The cliffs of this headland are composed of a reddish rock with columnar jointing, which had caused some debate among previous observers as to whether it was "trap" (igneous) or sandstone; a map which Miller carried ("not one of high authority, however") showed it as Old Red Sandstone. Miller records his own puzzlement about this, eventually (correctly) settling for the igneous interpretation on his second visit. However, he soon turned aside from the cliffs and examined rolled blocks of fossiliferous shale and limestone on the foreshore. He found molluscs like those of the shale of Bay of Laig, fish teeth and scales, and, in a particular deep red "altered shale", reptilian bone. As night fell,

Miller was exultant about this discovery, as well he might be: "The hard red beds of Ru-Stoir belong...not to the ages of the *Cocosteus* and *Pterichthys* [fishes typical of the Old Red Sandstone], but to the far later ages of the *Plesiosaurus* and the fossil crocodile.", and, a little later, "It was an interesting moment for the curtain to drop over the promontory of Ru-Stoir: I had already found in connection with it well nigh as many reptilian remains as had been found in all Scotland before..." Further exploration was postponed until the morrow.

On the following day Miller and John Stewart returned to Ru-Stoir and made more collections of bones, mainly of plesiosaurs but some probably crocodylian, and fish teeth and scales. Miller enthusiastically described the finds. He probably took his account of *Plesiosaurus* from Buckland's *Bridgewater Treatise* (20); he describes the distinction between the deeply concave centra of the vertebrae of ichthyosaurs and the shallowly-concave examples, characteristic of plesiosaurs.

Miller could not find the reptile-bearing limestone *in situ* at the Ru Stoir locality, and his successors have similarly failed. Miller and Stewart returned to the *Betsey* via the east coast. He observed scattered outcrops of sedimentary rocks but lacked the time to explore them; as usual at the end of these expeditions, it was past nightfall.

The main object of Miller's return visit in 1845 was to find the reptile-bearing bed *in situ*. On a solitary expedition on 17th of June he set out along the shore of the east coast, walking northwards from Keill (Kildonnan), and admiring the columnar jointing of the basalts in the cliffs above. For some distance the shore is so littered with basaltic debris that the Jurassic strata are completely concealed, but eventually he found a place where fossiliferous shales and limestones are revealed. There are abundant molluscs and fish remains, including teeth which he correctly attributed to the shark *Hybodus*. On his return, he had some of these teeth sectioned, and he describes their microstructure. He remarks, as he had the previous year, that in none of these strata did he find "...any of the more characteristic [marine] shells of the system, – Ammonites, Belemnites, Gryphites, or Nautili." It is this outcrop which has been the source of most of the material used in the geochemical researches referred to above, and the most recent results emphasise the predominance of freshwater in the lagoonal system.

However, Miller's greatest excitement was naturally reserved for finding his reptile bed *in situ*.

"Following the beds downwards along the beach, I found that one of the lowest beds the tide permitted me to examine, – a bed coloured with a tinge of red, – was formed of a denser limestone than any of the others, and composed chiefly of vast numbers of small univalves resembling *Neritae*. It was in exactly such a rock that I had found, in the previous year, the reptile remains; and I now set myself with no little eagerness to examine it. One of the first pieces I tore up contained a well-preserved plesiosaurian vertebra...."

Surprisingly little has been published about the Eigg plesiosaur since

Miller's discovery. It is mentioned without emphasis in the *Geological Survey Memoirs* (16, 2). Following the re-discovery and description of the locality by the present writer (21), B. H. Newman made collections and contributed a brief account to a paper by Persson (22). A full re-study is currently being undertaken by Dr David Brown, whose research on reconstructing the animal from disarticulated bones enabled the production of an excellent life-size (2.5m) replica by Jeremy Hunt, commissioned by the National Museums of Scotland for display in the Museum of Scotland in Edinburgh.

The Sgurr of Eigg and the Eigg Pine

In exploring the sedimentary rocks of the northern part of Eigg, and especially in collecting fossils, Miller was employing skills that he had acquired in many years of similar work on the east coast of Scotland. The igneous rocks of the island, and especially the Sgurr, must have been much less familiar to him, and presented more formidable problems of interpretation.

The rocks of the south coast and the Sgurr were explored by Miller, Swanson and an un-named assistant on 18 July 1844. They first visited the well-known pitchstone dykes of the south coast. The basalts into which the pitchstones are intruded are described first as "trap rocks" and then as "amygdaloid". We now regard them as a succession of thin basaltic lava flows that do indeed contain many amygdalae (mineral-filled gas bubbles). Miller notes that pitchstone, with its anhydrous equivalent, obsidian, "constitutes one of the links that connect the trap with the unequivocally volcanic rocks", a view in line with a vulcanist interpretation of "trap". They next explored the much-described massacre cave, of which Miller supplies his own description with his usual feel for telling detail.

The party then approached the Sgurr itself. Miller quotes Jameson (7) and Macculloch (4) extensively, especially on the columnar jointing, criticizing the latter for excessive poeticism. He then contributes his own verbal picture, not devoid of poeticism, before ending his chapter with a fine rhetorical flourish: "The gigantic Scur of Eigg rests on the remains of a prostrate forest".

The description of the Sgurr, its columns, and the apparent stratification that is produced by the alternation of columnar pitchstone and non-columnar "trap", continues in the next chapter. Miller describes one of these non-columnar layers as running along the base of the Sgurr ridge, forming a recess overhung by the columnar base of the main pitchstone, and floored by a "gritty conglomerate". Then, as now, this recess was full of sheep-dung from its use as a natural shelter. It is in this recess that the famous wood of the Sgurr, the "Eigg Pine", had been found by Macculloch (4) early in the century, and described by Witham (23), Lindley & Hutton (24), and Nicol (25) in the 1830s. This wood was the source of Miller's reference to a prostrate forest. Although the wood was, for its time, well-known botanically from the application of newly developed thin-sectioning techniques, accounts of its field occurrence were

sketchy, and have remained controversial almost to the present day, so it is instructive to note what Miller made of its setting. He gives an outline interpretation before he describes the wood itself:

“Under the foundations of this huge wall [the columnar pitchstone] we find the remains of a pine forest, that, long ere a single bed of the porphyry [pitchstone with included crystals] had burst from beneath, had sprung up and decayed on hill and beside stream in some nameless land, – had then been swept to the sea, – had been entombed deep at the bottom in a grit of the Oolite, – had been heaved up to the surface, and high over it, by volcanic agencies working from beneath, – and had finally been built upon, as moles are built upon piles, by the architect that had laid down the masonry of the gigantic Scur in one fiery layer after another”.

Miller then, in a masterly piece of journalistic technique, inserts his well-known diatribe against landlords and their game laws, rejoicing that they did not, as yet, apply to fossils.

His sober description of the actual occurrence of the wood is valuable, before he reverts to speculative interpretation:

“We were successful in procuring several good specimens of the Eigg pine, at a depth, within the conglomerate, of from eight to eighteen inches. Some of the upper pieces we found in contact with the decomposing trap out of which the hollow piazza above had been scooped; but the greater number, as my set of specimens abundantly testify, lay embedded in the original Oolitic grit, in, I doubt not, their present fossil state, ere their upheaval, through plutonic agency, from their deep sea bottom”.

So, the wood occurs in a conglomerate beneath a decomposed trap, which is itself beneath the pitchstone. Most of it is in the conglomerate but some contacts the trap. It is clear, as Miller says, that the incorporation of the wood in the conglomerate must pre-date the eruption of the pitchstone. What seems strange to a modern geologist is Miller's insistence on the transport of the wood, and presumably the pebbles in the conglomerate, from a land surface to “the deep sea floor”. He cites no evidence for the marine nature of the “gritty conglomerate”, still less for its depth. He must have had some external reason for this postulate, especially as his interpretation requires that the deposit must then be upheaved again before the eruption of the pitchstone. It is possible that he was influenced by the common occurrence of driftwood in the marine Jurassic rocks of north-east Scotland, as well as by the notion, common in the mid 19th century, that the “traps” were erupted beneath the sea (see Judd (26)). But his reference to “fiery layers” suggests a succession of sub-aerial lava flows.

Miller is on perhaps more congenial ground in his discussion of growth rings in the wood of the Eigg Pine. He quotes, with much approval, Witham's (23) and Lindley & Hutton's (24) accounts of the microscopic

structure, and their conclusion that the pine differed from the coniferous wood of the Carboniferous coals. It appears from Miller's style that some of his description may be based on personal observation. Miller naturally regarded the age of the wood as Jurassic ("Oolitic") because he believed that all the volcanic rocks were of that age. He then unwittingly confuses the unwary reader by going on to assert that the Eigg Pine was also the common tree ("some three creations ago") of the Oolitic deposits of the east of Scotland, with which he was familiar; but we now know that these really are Jurassic. Thus in his admirably lucid account of the use of growth-ring data in elucidating conditions of seasonal growth in fossil trees, it is unclear to which age of pine, Tertiary or Jurassic, he is referring. This discussion goes well beyond the brief account of seasonality in Witham (23). He notes that the thickness of rings in trees depends not only on general climate but on soil and microclimate "I have seen the annual rings of a young vigorous fir that had sprung up in some rich moist hollow, differ from the annual rings of trees of the same species that had grown in the shallow hard soil of exposed hill-sides". And he noted the occurrence in ancient pines of groups of hard or mild growing seasons, as observed in modern times "as we learn from Bacon, by the people of the low countries, and which has since formed the basis of meteoric tables and of predictions...." This discussion anticipates the modern use of growth ring studies in investigating ancient climates (e.g. 27, 28), and it would be interesting to know more about its originality or otherwise.²

Miller's party then climbed the Sgurr. An intriguing sideline is Miller's reference to correspondence he had had with Mr Woronzow Greig, a well-connected polymath, who had collected a piece of pumice from the top of the Sgurr in 1825 or 6. It had been shown to Lyell, no less, who said it could not come from Eigg but could have been washed up there. Greig naturally thought that its occurrence on the Sgurr summit militated against this idea. Miller is probably right in suggesting that it was produced artificially from the pitchstone during the setting of fires to warm those occupying the hill-fort near the Sgurr summit. He was familiar with vitrified forts from his east Scottish experience.

Later investigations of the Sgurr and its wood can only be outlined here (see (3) for a brief account). Geikie, in 1865 (30) and more fully in 1871 (9), provided the first description and interpretation in modern form. He proposed that the pitchstone lava filled a valley previously carved by river erosion in the underlying basalts; the conglomerates, with the wood, formed as sedimentary deposits in the bottom of the valley. The pitchstone valley-fill subsequently proved more resistant to erosion than the basaltic sides, so that the former valley became the highest eminence on the island. This elegant theory gained wide acceptance, not least through Geikie's advocacy in his several text-books. In 1906, however, Harker (31) challenged it, deciding that the pitchstone was a sill, not a lava flow, and that the apparent valley was deceptive. The conglomerate became a volcanic agglomerate, with clasts brought up from below: thus he thought the wood might, after all, be Jurassic, derived from Jurassic rocks beneath the

basalt lavas. Modern opinion (2), preceded by Bailey (32), has swung back towards Geikie, but the Sgurr has not regained its text-book status. Uncertainty about its age, expressed, for instance by Seward (33), has also inhibited work on the wood. Other kinds of wood besides the pine are now known from the Sgurr (Geoffrey Creber and Jane Francis, personal communications). Crawley (34) described angiosperm wood from there; it must be Tertiary as the field relations demand, because angiosperms did not exist in the Jurassic. The taxonomy of the Eigg pine itself is in dispute; various names have been applied to it. A major investigation is long overdue, and happily is about to take place.

The musical sands and other beach deposits

Another discovery made by Miller on his exploration of north Eigg on 19th July 1844 was of the “musical sand” of the bay now known as Camas Sgiotaig. The Bay of the Singing Sands is one of the most beautiful places in the Hebrides. The quartz sand is derived from the Jurassic sandstone cliffs, as Miller describes:

“I was turning aside this sand of the Oolite, so curiously reduced to its original state, and marking how nearly the recent shells that lay embedded in it resembled the extinct ones that had lain in it so long before, when I became aware of a peculiar sound that it yielded to the tread, as my companions paced over it.”

Miller enthusiastically describes the phenomenon, which leads him to a long digression about singing desert sands recorded by Brewster from Arabia and Burnes from Afghanistan. He is amusingly dismissive of attempts to describe and interpret the sounds emitted by these, and his own observations started a minor academic industry in explaining singing beach sands, which occur in several places besides Eigg (e.g. 35).

On the previous day, his very first geological observation on Eigg concerned the modern beach sand near the harbour. He was struck by its extreme whiteness, and found that it was composed almost entirely of shells, in varying degrees of breakage and wearing down. He also realised that once a shell sand was formed, it became a suitable habitat for further generations of molluscs and sea-urchins, an example of what we might call positive feedback. “And such, I doubt not, is the history of many a calcareous rock in the later secondary [Mesozoic] formations.” The present is therefore the key to the past; examples of such deductions abound in *Betsey* and in Miller’s other writings.

Miller’s influence

I have commented above on some of the ways in which Miller’s observations and interpretations foreshadow later work, as regards particular places and topics. It remains to attempt some general assessment of the place of his observations on Eigg in the history of research on the geolo-

gy of the region.

It is immediately clear that his direct influence on later work, at least as represented in scientific publications, was small. Most later authors, until recently, either disparaged his work or ignored it altogether, although they often cited *The Cruise of the Betsey* in bibliographies. In the historical section of the 1908 "Memoir", Harker (16), states that "Accounts of the island [Eigg] were published by von Oeynhausien and von Dechen, by Hay Cunningham, and by Hugh Miller, without adding much of importance to Macculloch's description"; the bracketing of Miller with Hay Cunningham is particularly unjust. Barrow, in his introduction to the Jurassic section, is a little more generous, saying that Miller's "irrepressible proclivities as a naturalist caused him to make a careful examination of the more interesting rocks of the island" and referring to the discovery of the reptile bed. Geikie (9), who owed much to Miller as he later acknowledged at the 1902 centenary celebrations, wrote: "His [Miller's] attention was more particularly directed to the fossil contents of the oolitic strata, of which he made a collection, and which he has to some extent described. He did not add any new facts to the known geology of the island." The first statement is true, if ungenerously expressed; the latter is not, unless fossils don't count as facts.

There lies part of the reason for the neglect of Miller's discoveries. Neither Geikie, nor Harker, nor Barrow were palaeontologists, and there is no doubt that Miller's contributions to palaeontology are what he deserves to be remembered for. Investigations of Hebridean geology were dominated for a hundred years by study of the igneous rocks of the region. These are, of course, responsible for most of the scenic splendour of the islands, and the investigations became classics not only of Scottish but of world geology. Even Judd (26, 11), who had the most balanced appreciation of any of the 19th century writers of the relative importance of the sedimentary and the igneous rocks of the region and the relationship between them, does no more than mention Miller's visit in passing. This is the more surprising in view of Judd's particular interest in estuarine strata, and unlike contemporary workers who referred exclusively to Skye and Raasay, he visited Eigg and made it the "type section" of his Great Estuarine Series. The neglect of the Scottish Jurassic only changed with the revival of interest in sedimentology and palaeontology after the second world war, when a new generation of Ph.D. students looked beyond the English heartlands for new fields to conquer. Some of us were attracted to remote islands enticingly described, and inserted remarks on Miller's perspicacity into academic publications (15, 21). In the 1960s, with the discovery of North Sea oil in Jurassic rocks, the Hebridean Mesozoic became a subject of international interest.

But Miller was not writing an academic treatise, and perhaps we should not be disappointed that *The Cruise of the Betsey* was not treated as such. He was writing a supremely instructive and entertaining book, for *The Witness* articles were clearly intended for publication in book form, and in prose that, at its frequent best, is surely the finest ever devoted to Scottish

geology. In the geological sections of *The Cruise of the Betsey* he was explaining the significance of what others had written, and adding his own observations, in the belief that those of his readership with any interest in the natural world would find such things interesting. He was perhaps writing the purest natural history to be found in any of his books: he was not trying to write a systematic account of a group of fossils or of phenomena; he had no theories of natural theology to propound; he was not yet constrained to combat ideas about progression in life forms. He was delighted by what he found, and he triumphantly succeeded in delighting his contemporaries and successors, as the many reprintings of *The Cruise of the Betsey* showed. We can share his delight now.

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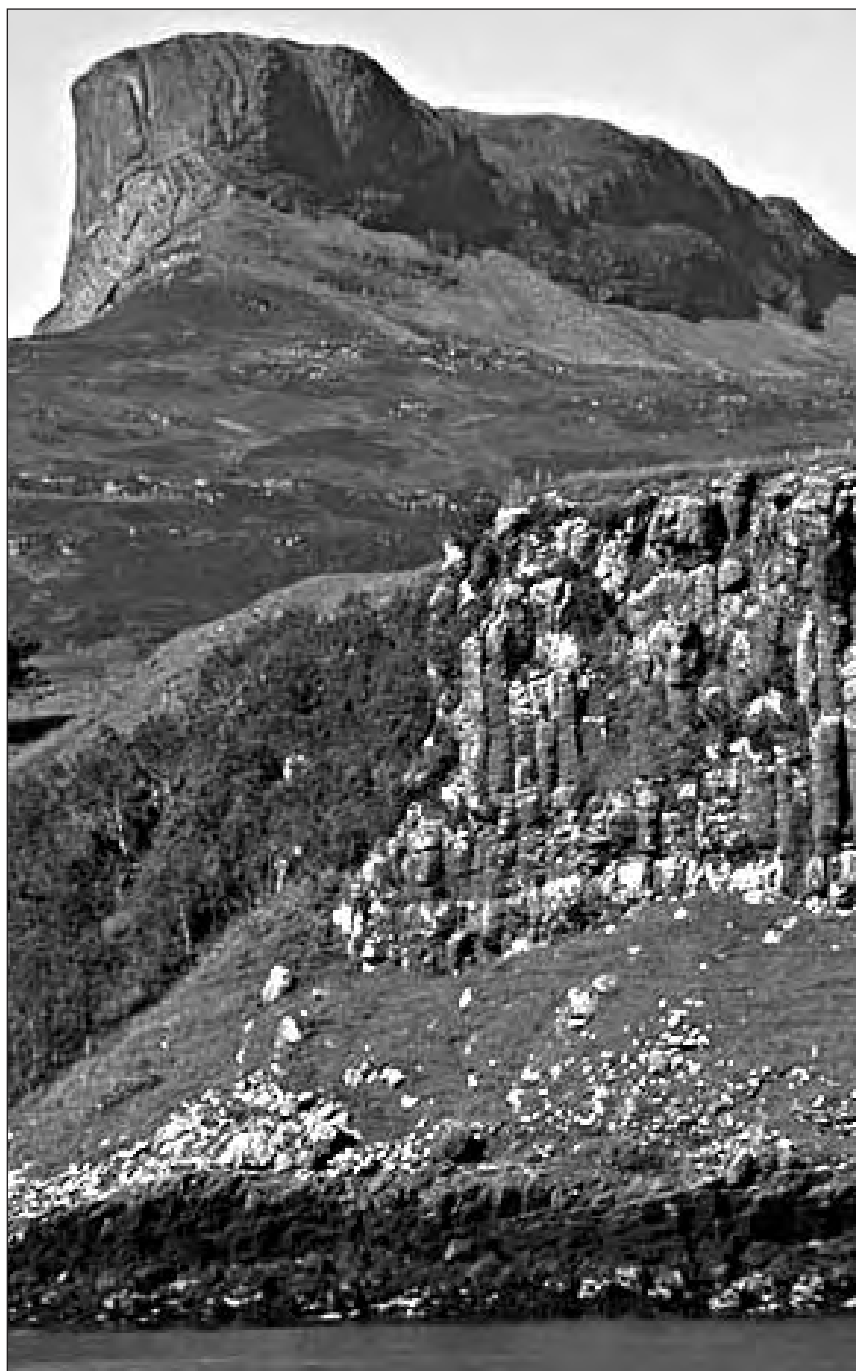
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Footnotes

1 Although fossil assemblages of the kind Miller describes are found at several levels within the Great Estuarine rocks of Eigg, I have not so far identified the precise site where Miller collected. It was evidently near the south end of the line of cliffs that intervene between the Bay of Laig and Camas Sgiotaig:

“We spent a full half hour picking out shells from the bottom of a long dock-like hollow among the rocks, in which a bed of clay had yielded to the waves, while the strata on either side stand up over it like low wharfs on either side of a river”.

2 In an expanded account in Miller's “Sketch-book of Popular Geology” (29), based on lectures he gave later in his life, it is clear that the detailed account of growth-rings and their periodicity derives from Jurassic wood from Helmsdale in Sutherland, although he still refers to the tree as *Pinites Eiggensis*.



Sgurr of Eigg, photo courtesy of Scottish Natural Heritage

Hugh Miller in an Age of Microscopy

Dr Alison Morrison-Low and Dr R. H. Nuttall,
National Museums of Scotland

Hugh Miller, born two hundred years ago this year and dying in 1856, lived through an age in which he helped advance the newly burgeoning science of palaeontology, and make geology's findings better known to the public. The tool of the geologist is famously embodied in his hammer, but the other indispensable aid became the microscope, enabling invisible structures to be seen with the human eye. During Miller's lifetime, the microscope altered significantly from a gentleman's toy to be transformed into a true scientific instrument, while geology came of age.¹ This paper will look at Miller's friends and contemporaries where they effected change in geological microscopy, and also at his own role in this area. There are several aspects of this improvement which should be reviewed: the first being the introduction of the achromatic microscope; the second, the convergence of the study of minerals in polarised light with the development of the polarising microscope; the third, the evolution of the methods for the preparation of thin sections of fossils, minerals and rocks, thus facilitating examination under the microscope in their geological context. To the second and third of these outlined areas of improvement, Scots made a significant contribution and they are thus worthy of closer attention. First of all, though, we shall look at the state of microscopy during Miller's lifetime.

In about 1800, just before Miller's birth, microscopes were used more for entertainment than for pushing back the boundaries of knowledge. Of course this is an outrageous statement, and we can find many instances to contradict it.² Nevertheless, in that year the London instrument retailers W. & S. Jones were able to offer 17 different designs of microscope – ranging from “common microscopes” priced between 5 shillings to a guinea, to “the lucernal microscope, as improved by W. Jones ... combined with a solar, compound, &c. apparatus forming the most perfect collection of “microscopical apparatus” at an extravagant £36 15s.³ However, the instrument was structurally unstable, and optically rather poor. Paradoxically, at this time, the simpler the device, the better were both its stability and image-production. In fact, in 1800 the simple microscope, with merely a single lens, the direct descendant of the “beads of glass” constructed by the seventeenth-century Delft draper, Anthony van Leeuwenhoek, was a more reliable instrument than its spindly compound

counterpart, with its blurred and colour-fringed images.⁴ Similar problems had been encountered in the improvement of telescope images, but these had been largely overcome during the eighteenth century. Telescope optics are by their nature larger than those of the microscope, and thus easier to fabricate, and this technological frontier was surpassed using mirrors rather than glass. John Dollond patented his solution to chromatic aberration (a coloured fringe round the image) in refracting telescope lenses in 1758. He proposed the use of lens components made of crown and flint glass. Nevertheless, the quality of the image seen through the refracting telescope remained comparatively poor at high magnifications, and this had much to do with the inability to produce larger pieces of good optical glass. The most effective telescope during the eighteenth century and for much of the nineteenth, particularly for astronomical observations, remained the reflector. It used mirrors of polished metal, ground to the correct curvature. This instrument produced an erect image and did not suffer from chromatic aberration.⁵

In the seventeenth century it was recognised that the single lens simple microscope gave better microscopic vision than did the compound form (which used several lenses together), though the simple instrument was far less convenient to use. Both, however, suffered from the inherent defects of spherical and chromatic aberration. Spherical aberration, a fuzziness of the image caused by its curvature, was especially noticeable in the simple microscope.⁶ Early in the nineteenth century it was discovered that it could be controlled using two lenses with an intermediate aperture, an arrangement called a “Wollaston doublet”, after its inventor William Hyde Wollaston.⁷ In 1820, the Edinburgh scientist David Brewster suggested a lens with the sides ground away to form a grooved sphere, and his idea was publicised by Henry Coddington, so becoming known (to Brewster’s annoyance) as the “Coddington lens”.⁸ Brewster also suggested that single lenses might be made from materials with very high refractive indices, such as diamond or sapphire, which would lessen the effects of spherical aberration. A few of these were made by optical workers in London and Edinburgh, but they were expensive to produce and difficult to manufacture. In particular, at Brewster’s instruction, Alexander Adie of Edinburgh experimented with garnet lenses at this time, and some of his results can be seen in the National Museums of Scotland.⁹ It was generally realised that an achromatic microscope (one which produced images without colour fringes) would, in principle, be a substantial improvement over the uncorrected compound microscope, but there was a technical inability to manufacture the tiny achromatic lens-pairs for objectives at the beginning of the nineteenth century. Some microscopists sought other solutions. One of these was the reflecting microscope, produced by Giovanni Battista Amici in Italy, Syds Rienks in the Netherlands and John Cuthbert in London, all in the 1820s. However, these were produced in extremely small numbers, to order, and never became widespread in use.¹⁰ For instance, a reflecting microscope commissioned from Amici was used by the optical scientist and photographic inventor, William

Henry Fox Talbot for his botanical and optical studies.¹¹

There were numerous attempts to achromatise the microscope in the Netherlands, Germany, France and Britain. Achromatic objectives used singly did not improve upon the simple microscope; however, this situation was transformed by the work of Joseph Jackson Lister, a London wine merchant, and father of the surgeon, Lord Lister. His experiments culminated in his paper on the design of objective lenses published by the Royal Society in 1830. As the historian of the microscope, Gerard Turner has written,

“not only did he specify the crown-flint lens pair, but he designed a combination of three of these so as to eliminate spherical aberration as well as chromatic. He also designed a more stable microscope that was now necessary because of the higher magnifications that were made possible.”¹²

The microscope manufacturers of London were thus shown a valuable way forward to become the most highly skilled in the world and they held this position for at least thirty years, before being overtaken in technical expertise by Continental competition. There were three pre-eminent London firms, which made solely achromatic microscopes, and these survived well into the twentieth century. These businesses were run by Andrew Ross, Hugh Powell (later Powell & Lealand) and James Smith (subsequently Smith & Beck).¹³ Initially the new improved microscope proved very expensive: W. & S. Jones – the general scientific instrument retailers mentioned earlier – first mentioned it in a catalogue dated 1843, as “the latest improved achromatic compound microscope with complete apparatus, packed in mahogany box” priced from £31 10s to £47 5s.¹⁴ By 1850, they had extended the range down to the much lower price of 6 guineas.¹⁵ The Joneses’ establishment was a retailing centre: prices of microscopes from Ross, Smith and Powell reflected the prestige in their names. For example, the “No. 1” instrument produced by Powell & Lealand over a period of about forty years from the mid-nineteenth century could come as a complete kit in a cabinet with several drawers of accessories, for the princely sum of £200 15s.¹⁶ This was at the very top end of the market, for wealthy amateurs, or those who could persuade their institutions to buy one for their use.

However, the popularity of natural history ensured that by the mid-nineteenth century all opticians of repute stocked the microscope in a variety of shapes and sizes to suit most pockets. Every Victorian drawing-room seemed to boast a fern-case, a shell collection or an aquarium. Every well brought-up young lady could recite the names of dozens of different ferns or fungi. Evenings at the microscope, or magic lantern lectures illustrated by images taken through the microscope, on, for instance, the Life History of the Bee, were among the most fashionable forms of after-dinner entertainment. All the newspapers ran natural history columns. Clergymen dreamed of writing natural histories of their parishes in imita-

tion of Gilbert White. Artisans hoarded pennies to buy magazines such as the *Entomologists' Weekly Intelligencer*. For the Victorians, and archetypically Miller, natural history represented rational amusement, spiritual enlightenment through “natural theology” and outdoor recreation. It was also classless, although gentlemen and artisans only met at certain points, as characterised by some of Miller’s initial relationships on arrival in Edinburgh. However, most of the naturalist’s equipment - nets, jars, pins, collecting boxes - could be assembled by anyone. Their price driven down by demand, even a microscope could cost as little as two or three guineas. Hugh Miller’s writings on geology must have played a significant role in this process.¹⁷

By the second half of the century microscopes manufactured on the Continent were being imported into Britain in large numbers. These low-priced instruments were of a standard high enough to satisfy even the medical research worker. Such was their success that British makers supplied or copied them. Without the production facilities to make the large numbers demanded by the market, most British firms bought in for re-sale. However, there were a number of firms, beyond the three top London makers, who did manufacture cheaper instruments, to counter the French and German instruments. The Society of Arts, based in London, offered a prize in 1855 to the manufacturer who could produce a cheap, efficient microscope in two forms, a compound model at 3 guineas, the other a simple instrument at 10 shillings and 6 pence, which could be used by those unable to afford the extravagances of the top of the range. Twelve instruments were submitted: three simple microscopes and nine compound instruments.¹⁸ Field & Co. of Birmingham was declared the winner, and in 1859, some four years later, the president of the Royal Microscopical Society was able to announce in his annual address that:

“I am glad to inform you that the sale of cheaper microscopes of powers decidedly available for scientific microscopes has greatly increased. We are greatly indebted for this to the step taken by the Society of Arts of appointing a committee of your Society to decide upon a form of cheap microscope to which they should award one of their medals as a mark of approbation. The makers of the microscope which obtained the medal have sent out 1393 of these instruments, and I find, on enquiry amongst various makers, that, since the appearance of this microscope [presumably the compound instrument], the sale of microscopes at a cost of ten guineas and under has greatly increased. Much is thus evidently done towards making the microscope an instrument of popular use and instruction”.¹⁹

Improvements in the optics and mechanics of the microscope were all very well for those who wanted to look at botany, blood corpuscles or pond life. Students of the new science of geology had more difficulty. Their specimens were opaque, difficult to see in normal transmitted light. In order to extend their visual capabilities, both the optics of the micro-

scope had to be adapted, and the specimens treated in a particular way. Curiously, one man appears to have been responsible – or at least, deeply involved in developing – both. His name was William Nicol, and he had retired to Edinburgh in the 1820s after a life of scientific lecturing. His contributions were a method of preparing thin specimens so that they transmitted light and thus could be examined under the microscope, and a method of polarising that light, the well-known Nicol prism. His investigations had caused him to form a collection of natural history specimens, which he was happy to allow other workers to use: one such, was David Brewster.¹⁰

Brewster, originally destined for the Church, had instead become a scientific journalist, but had also undertaken serious work on the nature of optics: his early scientific work in measuring the optical properties of literally hundreds of substances had laid the foundations for nineteenth-century investigations into the nature of light. This was unglamorous donkey work, it rapidly entered the literature, and it was subsequently forgotten to whom the credit was due. Brewster's scientific work – as opposed to his scientific journalism – was noted in appropriate circles, and in 1813 his first paper "On some Properties of Light" was published in the *Philosophical Transactions* of the Royal Society of London, the same year that he published his first substantial book, a *Treatise on New Philosophical Instruments*. This volume is devoted to descriptions of what today we would call scientific instruments – mostly optical – and the determinations of the refractive and dispersive powers of nearly 200 substances made during his attempts to improve achromatic telescopes. News of similar work on the Continent towards the end of the Napoleonic Wars – he visited France in 1814 – moved Brewster's interest back to optical theory, but the improvement of optical instrumentation remained a life-long fascination. In 1815, he became a Fellow of the Royal Society of London, and published a series of papers on the polarisation of light. For the next fifteen to twenty years he energetically pursued four related fields of research in this area. Firstly, he followed the line that successive polarisation by refraction by a pile of glass plates, which he concluded was a constant, ought to allow both the investigation of the form and structure of crystals, and indeed, the nature of light itself. Secondly, he searched for a general law of polarisation – the law which now bears his name, Brewster's Law – finding that the index of refraction of the reflecting medium is the tangent of the angle of polarisation. Thirdly, he studied metallic reflection, concluding that light was elliptically polarised, and deduced laws which predicted quantities and angles of polarisation of light. His fourth research field created the new fields of optical mineralogy and photoelasticity. His experiments in 1813 on the structure of topaz led to the unexpected discovery of its two optical axes, and by 1819 Brewster had classified hundreds of minerals and crystals into their optical categories by painstaking experiment. While undertaking this project, he also discovered that heat and pressure could alter the doubly refracting structures of minerals and crystals and again, he deduced the general laws

which enabled these phenomena to be predicted. Yet it was not Brewster who produced the Nicol prism, but the older, and more retiring, William Nicol, from whose collection the younger man had on occasion borrowed materials for experiment. Even before the introduction of the Nicol prism, the study of polarised light phenomena was assisted by the polariscope, a tool devised by men of science on the Continent. Their work greatly stimulated that of Brewster.²¹

Brewster's own apparatus in undertaking this optical groundwork, according to his extensive writings, was never very thorough or complex, and on different occasions during the 1810s and 1820s, his polarisers and analysers consisted of agate and tourmaline transmission plates, roughened rhombs of Iceland spar used as refractive index discriminators, piles of glass plates and simple black-glass analysers for use by reflection.²² He also worked with Iceland spar, from which the Nicol prism was made: this simple transmission device was the first effective polariser, enabling minerals to be identified through optical characteristics which derive from their crystal structures. It was described by Nicol in the *Edinburgh New Philosophical Journal* for 1829.²³

Yet the prism was not taken up with the alacrity one might expect. Not for another five years was there any comment, until Henry Talbot, the English photographic pioneer, commented in a scientific paper that "the admirable contrivance ... does not appear to have become generally known ... My own attention was first drawn to the subject from seeing a translation of Mr Nicol's paper in a German journal".²⁴ Talbot himself recommended those made by Francis Watkins, optician, of Charing Cross, London, and in a later article that year entitled "Microscopic Appearances with Polarized Light", he described discarding a tourmaline plate, which gave green and brown tinges, in favour of Nicol's invention.²⁵ By 1837, in dedicating his *Treatise on the Microscope*, Brewster was giving his friend Talbot the credit for being the first to fit up a compound microscope "in the completest manner and for the express purpose of examining structures by polarized light", and clearly found it difficult subsequently to give praise in print to Nicol's invention.²⁶

Henry Clifton Sorby of Sheffield has often been credited with the invention of making thin sections for microscope examination of geological specimens. However, it is perhaps worth quoting from a paper which he read in 1882:

"It is generally stated that Mr Witham was the first to introduce the method of preparing thin sections of stony material for use with the microscope. He published many years ago a work on the Microscopical structure of fossil wood, but I think it is very much open to doubt whether he was the man who invented that method.

A good many years ago I had the pleasure of making the acquaintance of Mr Nichol [sic], of Edinburgh, well known as the inventor of 'Nichol's Prism'. He was about seventy years of age, and was a very fine man indeed for that age. He had an exceedingly interesting collection of sections of

wood and minerals, and he told me that it was he who originated the method of preparing thin sections of fossil wood for the use of the Microscope, and that Mr Witham did not write the book. ... I am inclined to believe that Mr Witham bought his sections of fossil wood from Mr Nichol, and had the book written for him, and he thus got the credit of being the first to introduce the method.

... there can be no doubt that Mr Witham's book was the first account of the method by means of which sections of fossil wood could be prepared so as to be examined as transparent objects with the Microscope".²⁷

Nicol's argument with Henry Witham ensured that all references to Nicol were expunged from the second edition of his book, *On Fossil Vegetables*.²⁸ Nicol, however, was always careful to credit the Edinburgh lapidary, George Sanderson, as the pioneer of the technique, with his own role as an improver.²⁹ We have an eyewitness account of Nicol's methods, published in 1837:

"... I was admitted to see Mr Nicol's extensive and beautiful collection of fossil and recent [plants], arranged for examination through the microscope. His method of preparing them is as follows. He cuts from the specimen to be examined a slice as thin as possible; one side of this he grinds on plate glass, till the requisite smoothness is acquired; the polished side is then attached to a piece of clear glass by a transparent varnish, and when the adhesion has become firm, the other side is reduced to a proper degree of thinness. The last operation demands some practice and manual dexterity. For, if on the one hand the process be not carried on far enough, the result does not exhibit a simple section of the cells, but a system of two or more sections one above the other, thus creating an appearance of undue complication; this circumstance has given rise to numerous errors, in assigning the genera of plants by a reference to their intimate structure. And if, on the other hand, the grinding is continued a single turn too long, the web-like texture of the specimen is torn and broken up, and all the labour bestowed on it is thrown away".³⁰

By about 1840, geologists were increasingly recognising the advent of the microscope for the study of fossiliferous and sedimentary rocks, so that Hugh Miller's references to his use of the microscope very much reflected an important general trend in his work. When Miller was furthering his geological reputation with *The Old Red Sandstone; or New Walks in an Old Field*, first published in book form in 1841, he mentioned both George Sanderson and William Nicol, and later referred back to this time when he wrote *Footprints of the Creator*, first edition 1849:

"The late Mr George Sanderson of Edinburgh [Sanderson had died in 1847], one of the most ingenious lapidaries in the kingdom, and a thoroughly intelligent man, made several preparations for me, for microscop-

ic examination, from the teeth and bones [of the *Asterolepis*]; and though they were by far the oldest vertebrate remains he had ever seen, they exhibited, he informed me, in the working, more of the characteristics of recent teeth and bone than any other fossils of the kind he had ever operated upon. Recent bones, when in the course of being reduced on the wheel to the degree of thinness necessary to secure transparency, is apt, under the heat induced by the friction, to acquire a springy elasticity, and to start up from the glass slip to which it has been cemented; whereas bone in the fossil state usually lies as passive, in such circumstances, as the stone which envelopes it. Mr Sanderson was, however, surprised to find that the bone of the *Asterolepis* still retained its elasticity, and was scarce less liable, when heated, to start from the glass, – a peculiarity through which he at first lost several preparations”.³¹

A few chapters later Miller remarks that:

“In my little work on the Old Red Sandstone, I have referred to an apparent lignite of the Old Red of Cromarty, which presented, when viewed by the microscope, marks of the internal fibre. The surface, when under the glass, resembled, I said, a bundle of horse-hairs lying stretched in parallel lines: and in this specimen alone, it was added, had I found aught in the Old Red Sandstone approaching to proof of the existence of dry land. About four years ago I had this lignite put stringently to the question by Mr Sanderson; and deeply interesting was the result. I must first mention, however, that there cannot rest the shadow of a doubt regarding the place of the organism in the geologic scale. It is unequivocally a fossil of the Lower (middle) Old Red Sandstone. ... And what, asks the reader, is the character of this ancient vegetable, – the most ancient, by three whole formations, that has presented its internal structure to the microscope? ...”³²

And a few pages later:

“The organism here referred to has been since slit by the lapidary, and the sections carefully examined. It proves to be unequivocally a true wood of the coniferous class. [This] is the decision [...] of Mr William Nicol of Edinburgh, confessedly one of our highest living authorities in that division of fossil botany which takes cognisance of the internal structure of lignites, and decides from their anatomy their race and family”.³³

From these remarks, we would be happy to conclude that Hugh Miller on occasion used a microscope. But did he own one? And if so, what model was it? Was it perhaps an expensive, top-of-the range model? His near contemporary and friend, the coastguard Charles William Peach, was presented with a microscope from the London and Birmingham firm of Carpenter & Co., although in fact the instrument – now in the National Museums of Scotland – was constructed by Powell & Lealand.³⁴ In *The*



Figure 1. James Good Tunny, Hugh Miller using a handlens, photograph. Copyright: Scottish National Photography Collection, Scottish National Portrait Gallery.

Old Red Sandstone, Miller appears to examine specimens closely with the unaided eye, or at most to use a hand lens, as in these quotations: “The scales, minute, but ... when examined with a glass, the body appears as if covered with scallops...”; “The scales, which are of extreme minuteness that their peculiarities can be detected by only a powerful glass ...”; “... and the effect, viewed through the glass, is one of lightness and beauty”; or, “On applying the glass, however, the punctulated character of the surface showed that the supposed shells were but parts of the concave helmet-like plate ...”.³⁵ There is a photographic portrait of Miller by James Tunny, showing Miller apparently studying a specimen with a handlens (Figure 1).

However, in *My Schools and Schoolmasters*, first published in 1854, Miller states that:

“[On the shores of the Cromarty Firth] I had long before observed that the rock rose to the surface in this little bay ... I laid open a nodule with a blow of the hammer, and my heart leapt up when I saw that it enclosed an organism. A dark, ill-defined, bituminous mass occupied the centre; but I could distinguish what seemed to be spine and small ichthyic bones projecting from its edges; and when I subjected them to the scrutiny of the glass, unlike those mere chance resemblances which sometimes deceive for a moment the eye, the more distinct and unequivocal did their forms become. I laid open a second nodule ... it was with intense delight that, as the ripple of the advancing tide was rising against the pebbles, and covering up the ichthyolitic beds, I carried them to the higher slopes of the beach, and, seated on a boulder, began to examine them with a common botanist’s microscope”.³⁶

In his *Sketch-book of Popular Geology*, first published posthumously in 1859, he mentions “the annual rings [of vegetable fossils of the Oolite] told me, when exposed to transmitted light in the microscope, that the winters of that time gave vegetation as decided a check as our winters do now”. Again, in the same work, “The jaws of the *Coccosteus* are interesting in another point of view, as being perhaps the oldest portions of any

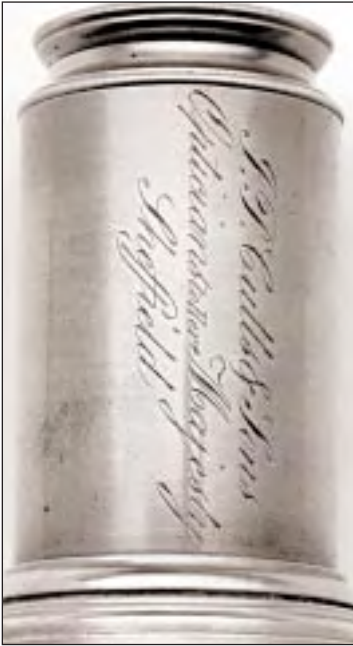


Figure 2. Signature on the microscope in Hugh Miller's Cottage. By permission of the National Trust for Scotland, photograph by permission of the Trustees of the National Museums of Scotland.



Figure 3. "Drum model" microscope signed by "J. P. Cutts & Son ... Sheffield", c.1845. By permission of the National Trust for Scotland, photograph by permission of the Trustees of the National Museums of Scotland.

internal skeleton that have presented their structure to the microscope". In the appendix, concerning fossil-wood of the oolite at Helmsdale, Sutherland, he writes

"My microscope, a botanist's, was of no great power; but by using its three glasses together, and carefully grinding down small patches of the weathered wood till it began to darken, I could ascertain with certainty, from the structure of the cellular tissue, what indeed, seemed sufficiently apparent to the naked eye from the general appearance of the specimens, that they all belonged to the coniferae".³⁷

In the National Trust for Scotland's property in Cromarty, Hugh Miller's Cottage, there is a small microscope, designed for the cheaper end of the market. However, the cost of mid-nineteenth century microscopes was such that they could be recycled and resold secondhand. It seems likely that the instrument described by Miller as being "a botanist's", with "three glasses" perhaps met this fate. The microscope in the Hugh Miller's Cottage is signed in italic script: "J. P. Cutts & Sons / Opticians to Her Majesty / Sheffield" (Figure 2). It is of a type which, when it was made, was typically described as a "Martin's microscope", and cost about £2.10s (that is, £2.50). This identification stems from the

eighteenth-century originator of the design, the London optician, Benjamin Martin.³⁸ The model is described in detail in a pamphlet produced by Cutts: “Description of an improved compound microscope”, which was probably provided with an example of the instrument, from which it has now been separated. It illustrates a microscope and set of accessories closely similar to that in the Cottage, but which is now more normally identified as a “drum model” (Figure 3). The Cutts factory produced instruments of many types, including brass telescopes fabricated from tubing of the type which forms the basis of the construction of this instrument. Thus, the business was in a position to make microscopes of this design inexpensively, and which are now to be found signed with the names of a variety of retailers who obtained their supply from Cutts, and other manufacturers and wholesalers active in the English midlands. Relatively few survive, however, bearing Cutts’ own signature in this particular style, and on the basis of a series of business name changes at the time, a date of manufacture around 1845 is very probable.

In fact, although the date of manufacture allows an association with Miller, the instrument itself has a definite provenance going back only to Miller’s grandchildren, so we reluctantly must conclude that it is not one used by Miller himself. In addition, a relatively crude repair suggests abuse not in accord with the veneration of association with Miller’s personal belongings. It was originally sold, and probably manufactured by Cutts, Sutton & Son of Sheffield, and was one of the microscopes designed to sell for a few pounds to a growing audience of interested amateurs – of the very sort of readership who were enthused by reading the gripping prose of Hugh Miller.

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your hospitality at Lacock Abbey; but as these required to be illustrated with finely coloured drawings, I trust that you will speedily communicate them to the public in a separate form. In placing your name at the head of this little volume, I express very imperfectly the admiration which I feel for your scientific acquirements, and for the zeal with which you devote your fortune and talents to the noblest purposes to which they can be applied. I am, MY DEAR SIR, Ever most faithfully yours, D. BREWSTER. ALLERLY, Nov. 16, 1837".

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Hugh Miller's Dealings with Contemporary Scientists

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In an obituary notice of Hugh Miller, the son, that appeared in the journal of the Edinburgh Geological Society, the writer referred to an address delivered by the younger Hugh Miller in his capacity as Vice-President of the Society, entitled *Landscape Geology; a Plea for the Study of Geology by Landscape Painters*.¹ He refers to the “great message” of geology as “one of the greatest intellectual achievements of the century”, using the occasion to castigate the French Impressionists for their ignorance of the structural reality of what they were looking at – for example, mountains – and for limiting their attention to superficial appearances. Landscape painters should know their geology, he meant, to avoid inaccuracy. Clearly stated in this address is the difference between two types of knowledge, or two types of fact, or, one might say, between the simple, discrete, observable, physical phenomena in which Hugh and Lydia Miller believed, for it is reasonable to suppose that Hugh Miller would have agreed with his son, and the complex appreciation that such phenomena only existed in the analysis of them. For the geologist, a fact was an observation of a physical phenomenon that could be repeatedly verified; for the Impressionist a fact was the observation of a physical phenomenon that could never be verified because never exactly repeated.

This paper concerns the brief ascendancy of fact in the first sense during that nineteenth-century period when exclusive attention to what was there before one's eyes – a fossil, a mineral, a rock sample – engendered a liberating euphoria, as the mind enjoyed believing it could free itself from ignorance of the earth's history, and also from sophisticated metaphysics, stale ideas, worn-out ideologies, and even – in some cases – religion. If dates were attributed to this period they might be 1815 to 1870. Hugh Miller's contemporaries did not use the word fact in the same way as, say, Hume – “[Fact] lies in yourself not in the object”, he says in the *Treatise*² – or Jane Austen – “Gracious in fact, if not in word”³, where in both cases the word fact means an action, that is, the behaviour of a human being. No; by the time Hugh Miller had become an astute, well-read, intelligent and energetic teenager, when, as he said, he had become a “glutton” for books, the meaning of the word had altered as a response to the needs of contemporary scientists, only slightly before the word “scientist” itself began to gain currency.⁴

The senior Hugh Miller, whose life and works are celebrated at this

conference, for a short period believed he could share in what for the purposes of this paper is being called a “culture of fact”, being a set of modern attitudes and ideas not inconsistent with his faith, apparently, in as far as the identification of rock types and the fossils some of them contained was evidently an important, new compartment of knowledge in which, by definition, geology was isolated from considerations not relevant to it, so that it could be studied in its own terms, and indeed so that the terms appropriate for its study could be established.

The extremely important, for Hugh Miller seminal, book called *Anderson's Guide to the Highlands*,⁵ provides a good example of what is meant here. Published in Inverness in 1834,⁵ and said to have been ten years in the making, the Guide which covered the whole of northern Scotland, was closely based on the personal travels of the two authors, George and Peter Anderson, and the small number of advisers whose help they acknowledge. It is replete on almost every page with geological observations of a detailed kind. Remarkably, the Guide also includes a fifty-page essay on the geology of the entire region, the Highlands of Scotland as then defined. In the preamble to this fifty-page section, the authors claim that “ever since geology acquired a title to be ranked as a science”, Scotland had been seen to be important as providing “a rich collection of facts” within a small compass, “more tangible to human comprehension”, they argue, “than the enormous plains and mountain chains of foreign lands”.⁶ In other words, the Andersons believed that to understand Scotland the traveller needed not just an aesthetic but, more important, a geological appreciation of what was seen, and that it was essential to have such knowledge. Why else include in a guidebook such a long, wholly academic screed? A detailed analysis of this 22,000 word essay is beyond the scope of the present paper. Suffice it to say that in its descriptive exactness, its datable, early nineteenth-century specialist terminology and its post-Wernerian mind-set, it stemmed directly from Robert Jameson's Edinburgh lectures, those very lectures that Darwin had found tedious because so lacking in ideas.

In passing, it is interesting to notice what it said about where we are meeting. Of what they call the western Sutor of Cromarty, the Andersons state: “that the whole ridge has been elevated from beneath is apparent, from its having raised up the secondary sandstone strata on its sides, and thrown them in opposite directions; those next the Cromarty Firth dipping towards the north, and those on the other side towards the south, or into the basin of the Moray Firth. The once horizontal strata of the lias, on the outer side of this ridge, have likewise been upheaved at a very high angle, their ammonites and belemnites being now seen sticking out in bold relief”.⁷ This is actually the passage that Miller would characteristically transpose into metaphor, saying that it was easier to find a book that was vertical on a shelf than a book that was horizontal under layers of other books in a box.

That Hugh Miller possessed, or had immediate access to, the first edition of Anderson's *Guide to the Highlands of Scotland* one knows from

Louis Agassiz' article on Hugh Miller, – the one that was used in the first edition of *Footprints of the Creator*.⁸ Roderick Murchison would remember this in one of his revisions of *Siluria*, stating that “Mr. George Anderson of Inverness has thrown much light on parts of his native country, and has been of great use to many observers besides myself”.⁹ Consistent with this is the fact that the letter from Miller to George Anderson dated 1834 reproduced at the end of Volume One of Bayne's biography reads as though it were the first such letter.¹⁰ This then – 1834 – is when Miller's previous, mostly solitary naturalist rambles throughout the Black Isle and Easter Ross acquired something like a professional focus, initially through his relationship with George Anderson.

Up to this point Miller had feared he was acquiring all too slowly geological knowledge that others already had. From 1834 onwards he was in touch with those others. This is the same George Anderson, by the way, as later helped Miller to get *Footprints of the Creator* published.

Because both Hugh and Lydia Miller attached such immense importance to what they called fact, another example of this disingenuous culture of the uninterpreted, uncontextualised can usefully be referred to here. This is conveniently provided by one of George Anderson's closest friends, George Gordon. By the time he obtained his MA from Marischal College Gordon was already committed to becoming a Church of Scotland minister. He wanted a manse, a quiet domestic life, children, and freedom from care. Why then did he first go to the University of Edinburgh with his brother William to study geology under Jameson and botany under Robert Graham, becoming a habitué of Jameson's museum, in what we now call the Old College, and regularly accompanying Graham on summer field-trips? What was the cultural determinant that put it into his head to behave in this way? – that is, to postpone the life of the Church for ten years in order to study geology?

This may have been *the* fashionable thing to do, and was required of medical students, as in the case of Gordon's brother, William, but in Gordon's case it was indicative of a massive, intense desire for scientific knowledge which at that time, the eighteen twenties and thirties, he by no means thought incompatible with religious belief. He attended Jameson's lectures twice, first in 1822-3 and then, later, in 1828-9. His fastidious, detailed notes for both sets of lectures, which are introduced here as themselves being an important cultural artefact, are now in the Elgin Museum,¹¹ a cultural artefact not because the experience of attending lectures in the University of Edinburgh in the eighteen twenties can be definitively recaptured, but because, like important archaeological finds, they provide the best available hints one has about a way of life during a certain period.

It will come as no surprise that these fact-laden, non-analytic lecture notebooks are closely compatible with the geology sections of Anderson's *Guide to the Highlands*, since Anderson and Gordon, who remained life-long friends, were together in the University of Edinburgh in the company of other Highland Scots, like William Stables, a keen botanist, son of

the factor at Cawdor and fellow member of the Plinian Society, and Alexander Robertson, a rogue scientist who later revised and shortened the geology section of the *Guide*.¹² Possibly Gordon attended Jameson's lectures for a second time specifically for the sake of the *Guide*.

At the time Hugh Miller came to realise there were other people in the world who already knew what he wanted to know, there thus existed around the Moray Firth a circle of Edinburgh-trained, educated friends fully competent to give direction to his own original field enquiries, which of course were well underway before he knew such people existed nearby.¹³ It is important to appreciate that the fact that these well-informed, highly educated northern Scots did not seek preferment, high office or professional advancement based on their scientific knowledge did not mean that they lapsed into rural ignorance when they left Edinburgh. The opposite was the case. They read the same books and journals as London mandarins and peacocks; attended many of the same meetings, notably the meetings of the British Association; and kept in touch with persons of like mind by means of the massive correspondence that many nineteenth-century folk accepted as a normal part of existence. It seems correct to call them scientists because science was what shaped their lives.

At this point Hugh Miller met John Grant Malcolmson, whose remarried mother lived in Forres, the town on the south side of the Moray Firth which at that point he knew best – judging at least by Bayne's account of these years, the late eighteen thirties. An Edinburgh MD¹⁴ and near-contemporary of George Gordon and George Anderson, Malcolmson had just completed a twelve year tour of duty as a surgeon with the East India Company. Travelling back to Britain as much as possible overland, he had introduced himself to Louis Agassiz and seen his collection of fossil fish.¹⁵ In London, which he reached late in April 1838, he had quickly been elected to the Royal Society, his sponsors including Roderick Murchison who had read his geological papers on central and southern India, subsequently getting to know him personally while introducing him to the geology of the Home Counties,¹⁶ Charles Darwin had found his zoological observations in the Red Sea extremely useful, as their exchange of letters demonstrates.¹⁷ In many respects the enthusiastic, rather earnest, apparently tireless Dr Malcolmson provided a link, though not an exclusive one, between the people named in this talk so far, since he used the period of residence in his mother's Forres house to explore both shores of the Moray Firth in the manner of an already experienced field geologist. Geology had become his passion. From the book *The Old Red Sandstone* we know that he visited Hugh Miller at least once.¹⁸ Having a set of publications behind him, a knowledge of what was happening in other places, and a set of influential friends in London, Malcolmson served as the catalyst which allowed the local geological knowledge that already existed to be brought more into the public domain. Actually, Malcolmson's two-year residence in Moray coincided exactly with the composition of the articles that became Miller's crucially important book *The Old Red Sandstone*.¹⁹

Science is mostly a collaborative activity. To the extent that Hugh Miller

was a geologist, he provides an example of a highly talented investigator who at first found it difficult to work in isolation. This changed when he met Malcolmson, the agent who connected him to the outside, public world of science where information, ideas, interpretations, and also samples, specimens and fossils were already circulating. Specifically, he introduced him to George Gordon, co-founder of the Elgin Museum, who strongly believed, devoted patriot though he was, that geological and palaeontological finds should be sent to wherever they might be accurately interpreted, even to England. He, Gordon, had already (in 1831) been in touch with London geologists²⁰ on this score, and had already published articles on the geology of Moray. Of course the Edinburgh Museum in Chambers Street that before long would become such an important Scottish institution did not yet exist. It was London *faute de mieux*, or Paris, or Neuchatel. He also introduced him to Roderick Murchison, then Vice-President of the Geological Society of London, who had encouraged Malcolmson to write about the geology of the Moray basin, in part, it has to be said, for purposes of his own,²¹ and who recommended to Miller that he should allow his fossil finds to be inspected both by palaeontologists in Paris and by Louis Agassiz in Switzerland. Malcolmson responded to both requests. He wrote the article and submitted it to the Geological Society where, however, though read in part at a regular meeting, it was not published until 1859, and then only in an abbreviated version.²²

He also took a number of Hugh Miller fossil finds to the Continent, though Agassiz may not have seen them at that time. Malcolmson and Gordon, whose close friendship resulted in the most detailed geological survey of Hugh Miller's territory to date, had done what they believed to be right; but possibly this was not fully appreciated or understood in London. The important effect, nonetheless, was to bring Hugh Miller and Louis Agassiz into contact with each other.

Suddenly, then, the geology of Cromarty, and of the Moray Firth as a whole, became part of the international scene. In 1840 the British Association for the Advancement of Science met in Glasgow where Louis Agassiz gave a paper at Murchison's invitation and with his sponsorship. Agassiz wanted to meet Miller and see his territory, so was impatient to travel north as soon as possible. Whether he actually visited Cromarty cannot be demonstrated, though he certainly visited Forbes and may have seen Miller there;²³ but with Murchison and Buckland he was present at the important meeting of geologists at Altyre House, the home of the Gordon-Cummings on the estate through which runs the Findhorn and various burns that had exposed the fossil bearing strata. (This by the way was the *old* Altyre House, the one later razed to the ground because it was so expensive to run). Lady Gordon-Cummings' daughter would later remember her mother returning to the house in a muddy state after the day's hunt for fish fossils "escorted by several gentlemen whom I now know to have been Sir Roderick Murchison, Hugh Miller, Agasis [sic], and other eminent geologists".²⁴ 1840 was the watershed in the life of

Miller as a geologist. From that point on, it was widely accepted that he had an important contribution to make to the study of Devonian fossil fish, so his dealings with scientists in other places became progressively more significant.

This, it has to be remembered, was the age of innocence for the geology of Scotland. The problems that would be confronted during the rest of the century had hardly been identified yet, let alone knowledgeably formulated. Hugh Miller noticed the apparent topographical “movement” in northern Scotland from west to east, but could not know about the Moine Thrust. The absence of the Carboniferous had yet to be explained. The debate about the movement of ice across the land as indicated by striae or marks on the rock face had only just begun. Knowledge of the movement about the globe of large land-masses or continents had not yet been anticipated. The British Association did not yet have a boulder committee or see the need for one. The contact points of various types of sandstone had not been identified. The fossil remains of extinct reptiles around the Moray Firth had not been discovered or collected. And so on. If even mentioning such matters now seems elementary, the point nonetheless is that Hugh Miller’s explorations could only occur within the context of what it was possible for him to know. Description had to precede analysis. *Detailed* description would necessarily precede historical interpretation of any kind, as also the consideration of geological process, the conception of global stratigraphic systems, and the systematic ordering of those single specimens to which species names had been boldly but often erroneously attributed. Field geology as practised in 1840 could be conducted innocently, then, though the storm clouds were gathering.

Crucial to what happened at the 1840 Altyre House meeting, and for the next few years, was the participation of Roderick Murchison and Louis Agassiz whose interests and motives fashioned all subsequent developments. It was they who facilitated the movement of specimens and samples *from* Scotland to their own places of work, thus establishing the mostly one-way traffic from region to metropolis, concentrating information well away from the places where it had been acquired, and for a while making it difficult to consider specimens and samples in the context of the localities where they had been collected.

Murchison’s motives were implicit in the title of his first book, *The Silurian System*, published in 1839, where the word “system”, later abandoned because no longer needed, the battle having been won, expressed his conviction that rock of the same type would be found wherever in the world the same conditions of deposit had once existed, and that such rock could be correlated on the basis of the fossil content. In 1840 he was keen to confirm what he called this “bold generalisation”. His essentially global approach to geology would take him to Russia, central Europe and Scandinavia; would result in the interim report or book called *The Geology of Russia* (1845); and would be concluded in the synoptic revisions of *Siluria*, which, published in 1854, succinctly summarised his knowledge of Palaeozoic systems, containing also a precise and accurate acknowl-

edgement of Hugh Miller's contribution to the study of Devonian fossil fish.²⁵ Murchison understood that Miller, while not a geologist in the strict sense, was nonetheless a well-informed, observant collector. In *Siluria* he says: "The British reader, is, or ought to be, familiar with the *The Old Red Sandstone* of Miller; but as my volume may fall into the hands of foreigners, perchance unacquainted with that work, let me urge them to refer to it, not only as an eloquent and original treatise, but also as singularly instructive and well-calculated to incite the general reader to the study of geological science".²⁶ Murchison in Chapter Ten of *Siluria*, paid particular tribute to what he called Miller's "vigilant eye".²⁷

Although, like Miller, Murchison had himself collected Devonian fossil fish in Caithness, and would do so again during his great journeys in Russia, he fully recognized that he was no palaeontologist, so that to sustain his thesis about the correlation of fossil assemblages and the strata in which they were found, he needed a reliable expert to determine what was what. For this purpose he depended on the Swiss palaeontologist, Louis Agassiz, continuing to depend upon him absolutely up to the time Agassiz emigrated to the United States, even though by that time he had met other first-rate scientists working in the same field.²⁸ This was not only because he recognised Agassiz' great skill in identification and reconstruction, but also because he needed a universally adopted terminology that would supersede, he thought, the random naming or random species attributions by investigators collecting fossils only in their own districts. Over the course of more than a decade he had appreciated that Agassiz was, like himself, essentially a European scientist with a knowledge of collections, field-sites and colleagues in many different countries. This was why, directly and indirectly, he encouraged Hugh Miller to send his finds to Agassiz, which is what happened. Thus Louis Agassiz was able to enrich his great book with valuable information received from Miller. How well they knew each other during the five-year period between the 1840 meeting at Altyre House and the publication of Agassiz' book in 1845 is difficult to determine. Agassiz' gracious letter of thanks, accompanying the gift of a copy of the book, was addressed to *The Witness* office and was written in French.²⁹ Possibly their communications with each other, though of great significance, had been mostly through intermediaries.

To concentrate on the period up to 1845 is to focus on Hugh Miller's active participation in on-going research on Devonian fossil fishes around the Moray Firth, active in the sense that he came into personal contact with other scientists whose objectives were clear, or soon became clear: Anderson, Malcolmson, George Gordon, Lady Gordon-Cumming, Alexander Roberston, Murchison and Louis Agassiz; perhaps also William Stables; then Robert Jameson and other Edinburgh geologists. Later he met a wider set of geologists in England, visited the Museum of Economic Geology in London, and continued to interest himself, indeed educate himself, in the developments of the discipline.³⁰

When all is said and done, however, it is easier to regard him as a writer of genius than as a research geologist of the first rank. In July 1838,

when Murchison sent Agassiz an advance copy of his book, *The Silurian System*, he also sent a “box containing certain fishes from the Old Red Sandstone of the Sutors of Cromarty” and in the accompanying letter, the date of which by the by shows that Murchison had read *The Old Red Sandstone* before it was published, said “Mr Miller is a most extraordinary person for from being a stone mason he has really become an accomplished writer & *I hope* a good geological observer”.³¹ This seems a correct estimate. Miller *was* a good geological observer, though not a stratigrapher or theorist, and soon became something more than a merely accomplished writer. His unpublished correspondence with Charles St. John, partly preserved in the National Library of Scotland,³² shows his willingness to learn his writerly trade well before geology became one of his subjects, in the same way, it could be said, as religion became one of his subjects. In due course he would receive encouragement and practical advice from other published authors. This does not mean that his geological knowledge was shallow; the contrary was the case. But the writing of books and articles had priority.

The great question with Miller is whether or not religion and science could be reconciled. Was this a problem during the innocent period being referred to here when simply collecting information, garnering facts, classifying and reclassifying, reconstructing, figuring and sharing, occupied most of the time, burnt up most of the energy? As boxes of “finds” were sent by Miller from Cromarty and Malcolmson from Aberdeen on their long sea journey first to Leith, then onwards to London, and from Dover to Calais perhaps, to begin the land-journey to Paris or Neuchatel, were they thought of as containing facts that would usefully add to the sum of human knowledge, as George Anderson at first believed was the case, or did they constitute in effect an ideological time-bomb that would have threatened the decent beliefs of a man like Malcolmson had he lived? My thesis as regards Hugh Miller is that he at first thought the former but as the years passed came to appreciate the threat of the latter.

In 1871, the year of Roderick Murchison's death, and incidentally the year of Bayne's life of Hugh Miller, the French Impressionist painters were preparing for their first Paris exhibition. They did not believe that truth had a rock-like knowable stability; indeed there was no such thing as factual stability, so they had come to believe. On the contrary, human experience, depending as it did on perception, could only be ephemeral, inexact and untrustworthy. It is well known that the first Impressionist Exhibition, though dismissed by the younger Hugh Miller, signalled the end of an intellectual era. Only people like T. H. Huxley believed that fact spoke for itself.³³ For most people experience required interpretation, analysis, conjecture, dialogue and the repeated replay of first thoughts, subsequent conclusions. The discipline of geology began to reveal its own instabilities, as systems gave way to formations, as enquiry became localised again, and old judgements were subjected to fresh research often with new instruments. Geology has indeed become the modern discipline most dependent on the word “probably”, as the interpretations of one

generation give way to the interpretations of the next. Geology, you could say, that had once been everyone's domain or intellectual safe harbour, because uncontaminated by metaphysics, began to lapse into specialist activity, with a specialist vocabulary that had to be learnt and taught, and a methodology that could not easily be mastered by the amateur. Of course, Hugh Miller's great intellect, ready comprehension and vast imaginative powers would have absorbed all this, but had he lived he would have had to write in a different way, at least if he had wished to bridge the ever widening gap between popular understanding and specialist research, and between the supposed revelations of religion and the scientific study of the global environment.

References

- 1 Volume X, p. 224.
- 2 *Oxford English Dictionary*. As an example, see Miller as quoted by Bayne (II 151); "I have picked up in a desultory way a good many facts".
- 3 *OED*.
- 4 As proposed by Whewell (c. 1840) in *The Philosophy of Inductive Science*.
- 5 The full title of this book is *Guide to the Highlands and Islands of Scotland, including Orkney and Zetland, Descriptive of their Scenery, Statistics, Antiquities and Natural History: with Numerous Historical Notices*. George Anderson is identified as "General Secretary of the Northern Institution for the Promotion of Science and Literature" (founded in 1825) and Peter Anderson as "Secretary of the Inverness Society for the Education of the Poor of the Highlands". Published in London by John Murray in 1834.
- 6 *Guide* p.182.
- 7 *Guide* p. 144.
- 8 *Footprints of the Creator*, 1849.
- 9 *Siluria*, London: John Murray, 1854.
- 10 Peter Bayne. *The Life and Letters of Hugh Miller*, Strahan & Co., 1871.
- 11 Gordon's lecture notebooks in the Elgin Museum have not yet been given reference numbers.
- 12 Perhaps it is not entirely correct to call Alexander Robertson a rogue scientist since he lectured on a variety of scientific subjects, worked with Forbes on the measurement of glaciers in the Alps (mentioned in the revision of the *Guide*) and corresponded with Lady Gordon-Cumming, and others, about the stratigraphy of the south shore of the Moray Firth. See the correspondence of Edward Forbes at St. Andrews. As far as the Moray Firth was concerned, Robertson depended on Patrick Duff's *Sketch of the Geology of Moray*, making mention neither of Hugh Miller nor George Gordon.
- 13 Martin Gostwick gives a useful summary of these early finds, as remembered by Miller himself, in his *The Legend of Hugh Miller*, a Cromarty Courthouse publication, 1993.
- 14 After school in Forres, Malcolmson went to King's College in the University of Aberdeen and then to the University of Edinburgh where he qualified as a surgeon.
- 15 Malcolmson was not returning home on sick-leave as has been suggested; he had completed his tour of duty with the East India Company. On his way back he visited a cousin in Aden, then, from about half way up the Red Sea, crossed the desert to join the upper reaches of the Nile. From Egypt he went by ship to Marseilles, then overland to Britain.
- 16 On the certificate of election his titles given as "MD FGS & Fellow of the Royal Asiatic Society" and his publications as "several memoirs on the Geology of parts of Hindostan and Scotland, and essays on beriberi and tropical diseases".
- 17 *The Correspondence of Charles Darwin*, Cambridge: Cambridge University Press, Volume Two (1986) pp. 207-12, 215-18, 223-5, 225-7, 244-6, 247.

18 *The Old Red Sandstone*, 1841, p.141.

19 Malcolmson spent the winter months of 37-38 and 38-39 in Scotland but at other times lived with his brother in London or travelled on the Continent, this latter being a possibly important part of his scientific career that has not been studied.

20 He had published two papers in the *Transactions of the Geological Society* [of London] and had perhaps been introduced to Murchison by Robert Jameson, or even met him during his London visit of 1832.

21 Roderick Murchison's lifelong preoccupation with the Old Red Sandstone has still to be satisfactorily explained though its beginnings in what has been called the "Great Devonian Controversy" are well known.

22 Nothing has survived to suggest that Miller and Malcolmson kept in touch after Miller moved to Edinburgh and Malcolmson returned to India, both events occurring in 1840. Nor does one know whether Miller was aware of this crucial article. The progress of geological research around the Moray Firth might well have been very different, possibly for Miller and certainly for everybody else, had it been published in 1839. In fact, Malcolmson's article was presented to the Geological Society only in part in 1839 to be rediscovered in 1859 by Murchison, who even then only authorised the publication of an abstract. He did so in 1859 because of pressure on him exerted by George Gordon who took the position that he would publish Malcolmson's research findings himself, which he did, if the Geological Society of London continued to suppress them. This story still has to be told in full. Relevant here is the fact that it seems to show that Miller's contact with people conducting fossil fish research on the south shore of the Moray Basin was non-existent after 1840.

23 See William Buckland's Anniversary Address for 1840: *Proceedings*, Vol. VIII, Part II, 1841, No. 81, pp. 469-517. Buckland had been familiar with the role being played by Agassiz in the determination of Scottish fossil fishes at least since 1835 when Jameson told him he had sent his own finds to Neuchatel.

24 C.F. Gordon-Cumming. *Memories*, Edinburgh, 1904, p. 38.

25 The publication of Murchison's *Siluria* in 1854 terminated that part of his career that was devoted to the designation of Palaeozoic systems. Miller and Murchison had remained good friends, at least on a certain level. Archibald Geikie remembered that he owed the direction of his own career to Miller, who had introduced him to Murchison and thus paved the way towards work for the Geological Survey. That occurred during the Portobello years. What Murchison thought about Miller in private is a different matter.

26 *Siluria*, p.249.

27 *ibid.* p. 254.

28 This dependence carried through to the publication of Murchison's *The Geology of Russia* in 1845. Miller may have been gratified by Agassiz' using his name for a few species sent from Scotland and it may well be the case he never recognised the deficiencies of Agassiz' classification. He received a presentation copy of *Les recherches* but there does not seem to be any record of his response to it.

29 ALS Agassiz to Miller, 1 November 1844: Special Collections, University of Edinburgh Library, MS 7516 ff.100-107.

30 The first edition of Anderson's *Guide* had noticed MacCullough, Sowerby, Jameson, Hibbert, William Hooker, Murchison and Gordon. That was in 1834. Twenty five years or so later the Millers also knew Egerton, Geikie and Symonds.

31 In *The Old Red Sandstone* Miller states that he began to write the book "in the autumn of last year". Was last year 1840 or 1839 or when? The matter requires more investigation. See ALS Murchison to Agassiz, 27 June 1838, Houghton Library, Harvard University.

32 National Library of Scotland, MS 9654, 21 March 1833.

33 A good example of Huxley's severely restricted attitude to knowledge is provided by the first few pages of Chapter One of his book called *The Crayfish*.

Hugh Miller and Geological Spectacle

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In this paper I shall not be discussing Hugh Miller's scientific achievements. I shall be discussing him in his capacity as a writer and lecturer on geology for the general public. Miller was a man of letters in the comprehensive early nineteenth-century sense of the word, and as with similar giants such as Walter Scott and John Ruskin, his writing unifies all the different aspects of his career. His geology cannot be separated out from his other interests: it shades variously into folklore, theology, poetry, aesthetics, literary criticism, social history and polemics. He is not a man who can be easily packaged.

He was, moreover, a major literary figure. His publisher, William P. Nimmo, marketed his works as literature, as the advertisement appended to each volume of the 1869 cheap (5d) reissue series declares: "his works, by universal consent, take rank among the highest in English Literature." The claim may be partial, but the term "literature" can hardly have been intended as a controversial label. For a writer like Miller, the term "popularizer" seems totally inadequate – though inevitably I shall be using it myself. Popular science writing today, along with history, biography and other non-fiction genres, is not considered to be "literature", despite the substantial literary abilities of Miller's modern descendants, such as Richard Fortey, Stephen Jay Gould and Simon Conway Morris.¹ This regrettable attitude should certainly not be projected back into mid-nineteenth century Britain. Back then, despite the existence of generic hierarchies by which (for instance) the epic poem was seen as a "higher" form of writing than a novel, all the various genres of fiction and non-fiction formed one multifaceted literary culture, in which science writing played a prominent and sometimes sensational part. Men of science could become literary "lions".²

Though some people did perceive "science" and "literature" as distinct and mutually-exclusive categories, the "two cultures" attitude and its attendant myopia had not yet been given the institutional and economic support they enjoy today. Individual writers could pass freely across the boundaries. Thomas Hawkins left geology for epic poetry in 1840,³ while Miller's own literary career began in 1829 with a volume of verse.⁴ Miller once said that Joseph Addison's "true poems" were the prose essays he wrote for his journal *The Spectator*; elsewhere he refers to Thomas

Chalmers's *Astronomical Discourses* as "one of the sublimest philosophical poems of modern times".⁵ One might say the same of Miller's own prose – like Addison's journalism both exalted and homely, sublime and chatty.

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Since the beginning of the nineteenth century, geologists had been trying to generate public enthusiasm for their new science. To begin with, this public tended to consist of wealthy collectors and other gentlefolk, but from the 1830s on, it embraced the lower and especially middle classes. This change was due partly to cheaper printing techniques and partly to an increasing determination among the self-styled intellectual elite to bring their expert knowledge to the so-called "masses".⁶ It was in the 1830s that the term "popularization" came to refer precisely to such "diffusionist" practices. For the geological writer or lecturer, this meant not only providing the audience with facts, but inducing them to drop their jaws and marvel at the awesome truths revealed by the experts. In short, they had to make a spectacle of their science.

Why did geologists feel the need to popularize their science in this way? There are several reasons. In these turbulent years of Reform agitation and Chartism, haunted by the spectre of revolution, the new methods of mass education were designed to keep the people quiet as much as to enlighten them.⁷ Miller's *The Old Red Sandstone* was written in part to encourage working men to give up Chartism and take up geology instead, as a more peaceable means of bettering their situation.⁸ But geologists also needed public support. Theirs was a new and controversial science in an age of Biblical literalism, and many conservative clerics saw geology as a threat to the Bible's authority – as indeed it was, in the hands of Radical atheists.⁹ To some extent, geologists had to close ranks and engage in a concentrated propaganda effort to win geology an authoritative place within British culture, to show that this science, correctly understood, upheld fundamental Christian truths. They aimed to present a far grander – and therefore more truthful – idea of the Creator's power than a literal reading of Genesis could. So it was natural that they should try to popularize their science by appealing to that fascination for spectacle that so dominated nineteenth-century British culture, from the Royal Family on down.¹⁰

How did they do this? On the face of it, geology was an unlikely subject for spectacle. Other sciences had already been established as vehicles for professional showmen in the eighteenth century, above all electricity and chemistry with their demonstrations of mighty and invisible forces. Telescopes and microscopes offered their viewers direct visual access to worlds and creatures scarcely visible to the naked eye.¹¹ But though geology presented relics of a succession of worlds, the worlds themselves had long since vanished. Like the antiquarian, the geologist could impress his public in one of two ways: displaying the relics, or reconstructing the whole. In fact, fossils had long played an important role in popular show

culture, displayed alongside Egyptian or Roman remains in museums as witnesses to a remote past. Geologists channelled that sense of antiquarian wonder into their own field. As Humphry Davy announced to the world in 1822:

“If we look with wonder upon the great remains of human works, such as the columns of Palmyra, broken in the midst of the desert, ... or the mutilated fragments of Greek sculpture ... in our own Museum ... with how much deeper a feeling of admiration must we consider those grand monuments of nature, which mark the revolutions of the globe”¹²

Hugh Miller delighted in this kind of comparison, calling one fossil locality “a field of the dead so ancient, that the sepulchres of Thebes and Luxor are but of the present day in comparison, – resting-places for the recently departed, whose funerals are but just over.”¹³ As James G. Paradis has shown, Miller’s fossil descriptions are littered with the treasures of human antiquity: as seen in the adjacent galleries of the Newcastle town museum, “the antiquities piece on in natural sequence to the geology”, and both belong to “one department”.¹⁴

So public enthusiasm for geology in particular could be generated by appealing to an already-existing enthusiasm for antiquity in general. Likewise, geologists were quick to boast that their science offered unrivalled opportunities for travelling among sublime landscapes.¹⁵ But museums were not the only place where people could marvel at the past, and visiting the countryside was not the only way of seeing landscapes. Both demands could be cheaply met by theatre of one kind or another. In this period, plays were often little more than vehicles for grand scenery and historical pageantry. It was in the theatre that Austin Henry Layard’s reconstructions of ancient Nineveh were first displayed to a wide public in 1853, with Byron’s philosophical drama *Sardanapalus* providing the rather redundant text.¹⁶ Even productions of Shakespeare often placed more importance on accurate historical reconstruction and beautiful landscapes than on the poetry itself.¹⁷ If the works of great poets could become vehicles for spectacle, this was all the more true of ephemeral popular forms like the melodrama and pantomime. Here plot, music and dialogue repeated variations on a few well-trodden themes, whereas the exotic settings and visual “special effects” were prepared with breathtaking technical virtuosity and innovation.¹⁸ Geological spectacle arguably began at the pantomime, with Philippe Jacques de Louthembourg’s *Wonders of Derbyshire* (1779): this was essentially a series of large-scale views of dramatic geological features in front of which Harlequin and his friends capered in the usual manner.¹⁹

But you did not necessarily have to visit the theatre to see a theatrical spectacle. In these decades the theatres were crowded, uncomfortable, full of rowdy working-class men and women, and haunted by prostitutes. They were not suitable for respectable middle-class family outings, let alone those of conservative or Puritan tendencies who despised theatre

and fiction on principle.²⁰ And there were more respectable ways of enjoying theatrical scenery.²¹ The panorama had originally been invented in Edinburgh in 1787 (a 360-degree view of that city), but by the 1830s the word's meaning had broadened to denote simply a gigantic, topographically-accurate painting without a frame, whose subjects ranged from picturesque landscapes to historical sites of interest. Panoramas created the illusion that the spectator was actually standing at the place depicted, and they provided a much-appreciated cheap alternative to travelling abroad. Various kinds of "moving panorama" were also developed by painting related scenes on a single, very long canvas (sometimes as much as four miles long, according to the showmen), to be rolled before the viewer. This technique, borrowed directly from the pantomime technicians, allowed the showman to unfold a sequence of scenes telling a story, or – more commonly – to present the illusion that the spectator was travelling along a river or across a continent.

The diorama, invented by Louis Daguerre (of photography fame) in Paris in 1822 and brought to London in 1823, was a still more theatrical contraption: the audience sat in a moving auditorium and viewed a series of painted scenes, each one clearly separated from the previous one, and each illuminated by shifting light effects that traced the progress from day to night or the dispersal of mist. The audience sat in darkness: all they could see was the view itself, and in an age when theatre auditoriums remained lit throughout the play, this unusual darkness created the illusion that they were actually witnessing the events depicted. In the 1830s the diorama's dramatic potential was increased by painting the canvas on both sides and illuminating each in turn, so that (for instance) a building could seem to crumble into a ruin. Today, the word "diorama" refers to a modelled or stuffed "habitat group" against a static painted background, which is confusing since the defining features of Daguerre's invention were illusions of time passing and scenes shifting.²² Dioramas and other such ancestors of the cinema were popular vehicles for disaster scenes and geological catastrophes: avalanches, volcanic eruptions, storms, fires and earthquakes. At the less exalted end of the spectrum were such things as the phantasmagoria, a terrifyingly realistic magic lantern show of Belgian origin in which the ghosts of famous men and women were raised along with demons and other monsters.

These were some of the forms of "rational amusement" by which early nineteenth-century city-dwellers could satisfy their appetite for direct visual contact with figures, scenes and events distant in space and/or time, simply by paying a shilling and visiting a show. As one commentator put it in 1826, "we are every day not only informed of, but actually brought into contact with remote objects".²³ For geologists like William Buckland, this visionary contact was also what made geology so exciting:

"When we see the body of an Ichthyosaurus, still containing the food it had eaten just before its death, ... all these vast intervals seem annihilated, time altogether disappears, and we are almost brought into as imme-

diate contact with events of immeasurably distant periods, as with the affairs of yesterday".²⁴

Hugh Miller made this sentiment much more accessible to his audiences by adopting a familiar autobiographical tone, thus putting himself and his own emotional response vividly into the picture.²⁵ All the same, geologists could not really expect the uninformed reader to go into raptures at the mere sight of a fossil. In the panoramas and dioramas, the spectacle itself was there for all to see, fully reconstructed; in geological lectures and books, the spectacle had to be evoked in the mind's eye by vivid language that reproduced the techniques of the showmen – what Jim Secord has called a "rhetoric of spectacular display".²⁶

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Of course, they did not *confine* themselves to verbal rhetoric. In his Oxford lectures, Buckland brought the pterodactyle vividly to life by grabbing the tails of his academic gown and rushing up and down the rostrum waving his arms.²⁷ More sensibly, one could display an illustration (or model) of a reconstructed "scene from deep time", as detailed by Martin Rudwick's book of that title.²⁸ Such is the preferred method today. But before the 1860s, such illustrations were generally very cautious. Far more importance was placed on verbal reconstruction, in which poetry quotations played a key role.²⁹ In his *Bridgewater Treatise*, Buckland brings to life the world of the pterodactyles by depicting them as simulacra of Satan, as he appears in John Milton's epic *Paradise Lost*, exploring the dark regions of Chaos that border on Hell:

"Thus, like Milton's fiend, all qualified for all services and all elements, the creature was a fit companion for the kindred reptiles that swarmed in the seas, or crawled on the shores of a turbulent planet.

'The Fiend,
O'er bog, or steep, through strait, rough, dense, or rare,
With head, hands, wings, or feet, pursues his way,
And swims, or sinks, or wades, or creeps, or flies.'

With flocks of such-like creatures flying in the air, and shoals of no less monstrous Ichthyosauri and Plesiosauri swarming in the ocean, and gigantic Crocodiles, and Tortoises crawling on the shores of the primæval lakes and rivers, air, sea, and land must have been strangely tenanted in these early periods of our infant world".³⁰

The vehicle by which Buckland brings this scene before the reader's mind's eye is a quotation from *Paradise Lost* itself. Poems had long been judged for their ability to call up vivid images before the mind's eye, and the public's craving for visual stimuli gave new force to the neoclassical

requirement that a poem should paint a picture in words.³¹ Miller himself recalled that during his years as a wandering stonemason it was the poets he read who “gave me eyes, by their exquisite descriptions, to look at nature”.³²

More literally than today, then, poetry quotations functioned as catalysts for the visual imagination in popular geology books, performing an analogous role to the sequences of reconstructed “scenes from deep time” with which later books were lavishly illustrated.³³ Poems like *Paradise Lost* were particularly well suited to this role. By the 1830s, views of Milton’s Hell and Chaos – definitive of the “sublime” since the mid-eighteenth century³⁴ – had become a cliché of the spectacular imagination. The programme of De Louthembourg’s proto-dioramic mechanical theatre, the Eidophusikon (“representation of nature”, shown 1781-2 and 1786), culminated in a view of Milton’s Satan gathering his demons on the banks of the fiery lake and raising his metropolis “Pandaemonium”, complete with “terrific” sound effects.³⁵ The same scene was made into the subject of a full-scale panorama by Robert Burford in 1829,³⁶ and this and other Miltonic scenes of Hell and Chaos were popular themes for large-scale paintings by British artists.³⁷ John Martin, the most celebrated of these, stamped his apocalyptic and theatrical manner upon this subject-matter for the British reading public in numerous paintings and, above all, his mezzotint illustrations for Septimus Prowett’s four editions of *Paradise Lost* (1825-7).³⁸ So when Buckland here quotes what Charles Lyell calls “Milton’s picture of the infernal world”,³⁹ a well-known set of vivid images provides ready-made scenery for his nightmarish description of prehistoric monsters, guiding the reader to see them as if through Milton’s eyes. The frequency with which readers of the time (like Miller) speak of “seeing through the poet’s eyes” invites us to draw an analogy with the “Claude glass”, that ingenious optical device which allowed travellers among picturesque landscapes to endow the scene before them with the composition and balance of a Claude Lorrain painting (though, ironically enough, the device was constructed so as to require the viewer to turn his or her back to the landscape itself).⁴⁰ Just as the tinted convex mirror of the “Claude glass” coloured the scene, rendered the distance misty, and made the trees in the foreground appear to bend in, framing the prospect – all in the manner of the French master – so these poetry quotations work as metaphorical lenses for the reader’s mind’s eye. Potentially bewildering *described* scenes are thus endowed with the familiar aesthetic conventions of the poems quoted, eliciting expected responses to unexpected objects.

This use of poetry had precedents in exhibitions, panoramas and dioramas, where guidebooks were often sold to point out the show’s most striking features. Some of these were stuffed with quotations from well-known poems, working as ready-made metaphorical lenses through which to view the scene and respond in the expected manner.⁴¹ Similar techniques were used by most of the early popularizers of geology, especially those who also wrote poetry – Lyell, Hawkins, Gideon Mantell, Maria Hack and (most self-consciously of all) Miller. Chapter 4 of *The Old Red*

Sandstone begins, for instance, by courteously yet deliberately establishing a specific aesthetic frame of reference:

“Has the reader ever heard of the ‘griesly fisch’ and the ‘laithlie flood’, described by that minstrel Bishop of Dunkeld ‘who gave rude Scotland Virgil’s page?’ ”

In case the answer might be “no”, Miller then gives a vivid description (with quotations) of a mediaeval poem in which demonic fish shriek at the poet amid a stormy and desolate landscape: “they were both fish and elves, and strangely noisy in the latter capacity”.⁴² After pretending to disapprove of the poem’s lack of restraint, Miller now superimposes its Gothic vision upon his own field of antiquity in a manner so careful and candid as to disarm the reader:

“Shall I venture to say, that the ichthyolites of the Old Red Sandstone have sometimes reminded me of the “fisch of the laithlie flood?” They were hardly less curious. We find them surrounded, like these, by a wilderness of dead vegetation and of rocks upcast from the sea; and there are the footprints of storm and tempest around and under them. True, they must have been less noisy. Like the ‘griesly fisch,’ however, they exhibit a strange union of opposite natures.”⁴³

Like Buckland’s pterodactyles, Miller’s fish are momentarily cast as devilish monsters – despite both authors’ overarching thesis that these creatures were perfectly designed by a benevolent Creator. Spectacle lends itself to the monstrous and freakish, and in these memorable moments theology is overruled purely for dramatic effect.⁴⁴ Likewise, Miller ends his Edinburgh lecture on the Primary rocks by a shorter-than-usual verbal reconstruction of the Miltonic scenery of the period, “fiery and yet dark, – a solitary hell, without suffering or sin”, which culminates in a substantial quotation from Thomas Aird’s poem “The Devil’s Dream on Mount Aksbeck” (1839).⁴⁵ By this means Miller intends us to “see with his [Aird’s] eyes”.⁴⁶ Behind all this lies the promotion of geology as rational amusement *par excellence*, encapsulated by Mantell’s assertion that “the realities of Geology far exceed the fictions of romance”⁴⁷ – an assertion Miller upheld more strenuously than anyone.

The mediaeval image of the world as a stage on which we act out our parts took on a new force with geology’s revelation of a vast pre-human history, dwarfing the human presence rather as contemporary stage scenery was dwarfing (or even doing away with) the actors. The scenery – the landscape itself – became the chief actor in what Mantell called “the earth’s physical drama”.⁴⁸ Lyell filled his *Principles of Geology* with stories of spectacular eruptions, earthquakes and inundations to persuade his readers that the surface of the earth, and the history of life itself, had been shaped over countless millennia by such events.⁴⁹ As Lyell repeatedly put it, the earth was a vast “theatre” of change, “revolution” and “decay”.⁵⁰

This metaphor had obvious affinities with the dioramas and moving panoramas, devoted as they were to spectacular scenic metamorphosis. But though Lyell made a significant contribution to geological spectacle in his disaster anecdotes, he did not indulge in visions of lost worlds – at least, not in his *Principles*.

Mantell, however, did. In 1837, in the first of six public lectures in Brighton (later published as *Wonders of Geology*), he told his audience:

“the ground on which we stand was not always dry land, but once formed the bottom of a sea or estuary the weald of Kent and Sussex ... was once the delta of a mighty river, that flowed through a country which is now swept from the face of the earth – a country more marvellous than any that even romance or poetry has ventured to portray.”⁵¹

Like Miller fifteen years later, Mantell structured his lecture series as a journey back into the past, descending the strata, with himself as the Virgil-like guide:

“We have entered upon the confines of the past, and already we find ourselves surrounded by an innumerable population of unknown types of being – not as dim and shadowy phantoms of the imagination, – but in all the reality of form and structure”⁵²

In other words, this is more than a mere phantasmagoria, and all the more impressive for being “real”. In the third lecture Mantell pauses in this downward journey to give his audience a “Retrospect” of the Tertiary period, this time as a series of scenes in chronological order. The dream-like nature of these dissolving views is emphasized by the punctuation in the published version:

“– a change came over the scene – violent eruptions burst forth from craters long silent – the whole country was laid desolate – its living population swept away – all was one vast waste, and sterility succeeded to the former luxuriance of life and beauty. Ages rolled by – the mists of the mountains and the rains, produced new springs, torrents, and rivers...”⁵³

In his fourth lecture, Mantell takes his audience back into the Age of Reptiles, which he then summarizes in another narrative “retrospect”. But he then takes the unprecedented step of *repeating* the same retrospect, only this time employing a device from the recently-translated *Arabian Nights* (though Humphry Davy’s influential *Consolations in Travel* also lurks behind this conception).⁵⁴ He asks the audience to imagine “some higher intelligence from another sphere” – an alien space-traveller or angel (these concepts were indistinguishable) – visiting the Brighton area at various points in its history and reporting the changes he sees:

“Countless ages ere man was created, he might say, I visited these regions of the earth, and beheld a beautiful country of vast extent, diver-

sified by hill and dale, with its rivulets, streams, and mighty rivers, flowing through fertile plains. Groves of palms and ferns, and forests of coniferous trees, clothed its surface; and I saw monsters of the reptile tribe, so huge that nothing among the existing races can compare with them, basking on the banks of its rivers and roaming through its forests After the lapse of many ages I again visited the earth; and the country, with its innumerable dragon-forms, and its tropical forests, all had disappeared, and an ocean had usurped their place. And its waters teemed with ... innumerable fishes and marine reptiles. And countless centuries rolled by, and I returned, and lo! the ocean was gone, and dry land again appeared And I beheld, quietly browsing, herds of deer of enormous size and I heard the roar of the lion and the tiger, and the yell of the hyena and the bear. And another epoch passed away, and ... the face of the country no longer presented the same aspect; it was broken into islands, and the bottom of the sea had become dry land Herds of deer were still to be seen on the plains And I beheld human beings, clad in the skins of animals, and armed with clubs and spears And a thousand years elapsed, and I revisited the country, and a village had been built upon the sea-shore And lastly, after an interval of many centuries, I arrived once more, and the village was swept away, and its site covered by the waves; but in the valley and on the hills above the cliffs a beautiful city appeared; ... its streets teeming with a busy population in the highest state of civilization ... the residence of the monarch of a mighty empire. And I perceived many of its intelligent inhabitants gathering together the vestiges of the beings which had lived and died ... and endeavouring ... to trace the succession of those events of which I had been the witness”⁵⁵

The positioning of a spectator within the narrative – one who ends up watching its author at work in Brighton – brings it to life and pushes it one step closer to science fiction.

Miller took this technique further still. His imagination was more comprehensively theatrical than Mantell’s. His subject was the “great drama of being”,⁵⁶ authored and stage-managed by God. He, too, liked to end his lectures on a high note. Here is a typical example:

“a formal summary of the conclusions ... should now terminate our history. Permit me, however, to present you, in conclusion, not with a formal summary, but a somewhat extended picture, of the whole, exhibited, panorama-like, as a series of scenes.”⁵⁷

By way of preparation, he then quotes a well-known passage from James Thomson’s poem *The Seasons* “in which the poet lays all Scotland at once upon the canvass”⁵⁸ – note the equation of poetry and painting – and for the next five pages, Miller and his audience stand before a shifting series of magnificent views.⁵⁹ These are scenes in the full theatrical sense: “The scene shifts as we pass from formation to formation; we are introduced in each to a new *dramatis personæ*”, he writes, comparing this

to Shakespeare's procedure in *The Winter's Tale*.⁶⁰ Elsewhere he reflects on the puzzling Permo-Triassic boundary which brought to a close "the long drama of the Palaeozoic period, with all its distinct acts":

"A strange shifting of scenes took place on that rough stratum at our feet; but it would seem as if the theatre had been darkened when the alterative process was going on. The lamps burnt low, and concealed the machinery of the stage".⁶¹

As I mentioned earlier, normal theatres were never darkened; Miller may have been thinking at this point of the diorama, a metaphor he found increasingly satisfying. The following passage introduces a lengthy and beautiful description of Cretaceous Scotland:

"The geologic diorama abounds in strange contrasts. When the curtain last rose upon our country, we looked abroad over the amber-producing forests of the Tertiary period, with their sunlit glades and brown and bosky recesses, and we saw, far distant on the skirts of the densely wooded land, a fire-belching volcano, over-canopied by its cloud of smoke and ashes. And now, when the curtain again rises, we see the same tract occupied, far as the eye can reach, by a broad ocean, traversed by a pale milky line, that wends its dimpling way through the blue expanse, like a river through a meadow".⁶²

Unlike real-life dioramas, this one follows a reverse chronology, from Tertiary to Cretaceous, reproducing the geologist's journey into the past.

Both these passages should warn us against trying to pin down Miller's analogies too narrowly. He was not impressed by real-life theatre, at least as far as we can tell from his rare comments; it was in reading plays, not seeing them acted, that their "vividly-drawn scenes and figures" appeared for him with "the truth of nature".⁶³ He nowhere mentions having visited a diorama or magic-lantern show, but when he lay ill and delirious with smallpox he took some interest (he claims) in observing – and trying to control – the hallucinations that arose before him "as scene succeeds scene in the box of an itinerant showman", "a mysterious cabinet of daguerreotype pictures".⁶⁴ His fascination for the visual imagination, for the blurred boundary between phenomenon and illusion, is reflected in the bewildering range of (melo)dramatic "visions" that occur across his *oeuvre*, from the apocalyptic-satirical "Vision of the Railroad" to the "Mosaic Vision of Creation" (discussed below).⁶⁵ His is a theatre of the mind: its metaphors evoke the whole spectrum of Victorian theatrical culture – drama, diorama, panorama, moving panorama – all merging seamlessly into each other to restore lost worlds before the spectator's mind's eye.

The sheer immediacy of these reconstructions owes much to Miller's chatty autobiographical style and poetic exuberance, which allow him to indulge in reminiscences of the "visions" he has experienced. The vision

is Miller's chief means of making the crucial imaginative leap from fossil object to restored scene. At such moments, fossils become magic windows allowing him "to form vistas through them into the recesses of the past".⁶⁶ Since any one locality offers an infinite number of possible pasts, Miller can build a dream-like narrative by piling scene upon scene.⁶⁷ For Mantell's omniscient interplanetary traveller Miller substitutes himself as geologist and poetical dreamer. Here he is, standing in the graveyard at Inveresk, travelling steadily backwards along the stream of time:

"like a dream remembered in a dream, the vision of a forest-covered country rose before me The grim legionaries of the Proconsul of Augustus were opening with busy axes a shady roadway through the midst; and the incessant strokes of the axe and the crash of falling trees echoed in the silence throughout the valley. And then there arose another and earlier vision, when ... the site of the town itself [existed] as a sandy bay, swum over by the sea-wolf and the seal And then there arose yet other and remoter scenes. From a foreground of weltering sea I could mark a scattered archipelago of waste uninhabited islands, picturesquely roughened by wood and rock; and near where the Scottish capital now stands, a submarine volcano sent forth its slim column of mingled smoke and vapour into the sky. And then there rose in quick succession scenes of the old Carboniferous forests: long withdrawing lakes, fringed with dense thickets of the green Calamite, tall and straight as the masts of pinnaces, and inhabited by enormous fishes, that glittered through the transparent depths in their enamelled armour of proof yet again, there rose a scene of coral bowers and encrinal thickets, that glittered amid the deep green of the ancient ocean And, last of all, on the further limits of organic life a thick fog came down on the sea, and my excursions into the remote past terminated, like the voyage of an old fabulous navigator, in thick darkness."⁶⁸

The diorama-like vividness of these descriptions makes the transition from dream-vision to time-travel seem perfectly natural.

Likewise, Miller's visionary persona allows him to play Virgil to the audience's Dante, and take them with him on his imaginary travels.⁶⁹ He concludes his lecture on the Oolite by first apologizing for giving his audience nothing but a "dry list" of Oolite "productions", then offers an alternative:

"could we travel backwards into the vanished past, as we can descend into the strata that contain their remains, and walk out into the woods, or along the sea-shores of old Oolitic Scotland, – we should be greeted by a succession of marvels strange beyond even the conceptions of the poet, or at least only equalled by the conceptions of him who, in his adventurous song, sent forth the Lady Una to wander over a fairy land of dreary wolds ... its hills the abodes

'Of dreadful beasts, that, when they drew to hande,
Half-flying and half-floating, in their haste,

Did with their largeness measure o'er much lande,
 And made wide shadow under bulksome waist,
 As mountain doth the valley overcaste;
 And trailing scaly tails did rear afore
 Bodies all monstrous, horribill, and vaste.' ” 70

Miller is quoting (or rather, reworking) Canto I, stanza 8 of the first book of Edmund Spenser's epic *The Faerie Queene*,⁷¹ and these lines about Satanic dragons performs the same lens-like function as Buckland's Milton quotation (indeed, the original stanza arguably influenced that particular passage in *Paradise Lost*).⁷² It casts a lurid, nightmarish light over what follows. Miller now proposes “a short walk into the wilds of the Oolite”,⁷³ but what he goes on to present is really a pair of scenes with distinct viewpoints, one in the woods, one on the shore. The influence of the diorama seems clear, for while the scenery and viewpoints remain constant, Miller takes great pains to describe how the light constantly shifts as the afternoon passes gradually into evening and night:

“the ray falls bright and warm on the rich vegetation around us, – tree ferns, and tall club-mosses, and graceful palms The sun is fast sinking, and, as the light thickens, the reaches of the neighbouring river display their frequent dimples, and ever and anon scaly backs are raised over its surface But the night comes on, and the shadows of the woods and rocks deepen: there are uncouth sounds along the beach and in the forest; and new monsters of yet stranger shape are dimly discovered moving amid the uncertain gloom And now the moon rises in clouded majesty; and now her red wake brightens in one long strip the dark sea”⁷⁴

These stage directions, so to speak, are interspersed with the appearance, approach and withdrawal of various monsters in turn, and this didactically convenient arrangement also recalls the phantasmagoria's scare-show technique. The devilish associations of those shows fits well here with Miller's Spenserian fauna – his “winged dragon”, plesiosaur with “fiery sinister eyes”, and ichthyosaur with its “monstrous eye”.⁷⁵ This piece of time-travel is unusually realistic, even for Miller. Most such scenes present him and his audience as disembodied presences within the landscape, though confined to realistic viewpoints rather than floating in space like Mantell's alien voyager. But here there is a sense that these monsters might pose a real threat to us. Miller is quick to reassure us that the enormous *Iguanodon* is herbivorous, so that “with no desire to attack ... he moves slowly onward, deliberately munching, as he passes, the succulent stems of the cycadacea”.⁷⁶ In a brilliant touch, he brings both voyage and lecture to a close by beating a hasty retreat: “But the night grows dangerous, and these monster-haunted woods were not made for man. Let us return then to the safer and better furnished world of the present time, and to our secure and quiet homes.”⁷⁷

Sometimes Miller brings snapshots of the past to life with a straight-

forward piece of micro-narrative, as for instance the Dickensian anecdote about how the chelonian crossed the estuary.⁷⁸ But Miller's larger-scale reconstructions often seem to be, at one and the same time, past-tense narrative history and present-tense vision. *The Old Red Sandstone*, for instance, concludes with a three-chapter-long reconstructed narrative "history" of the period, like Mantell's own retrospective summaries.⁷⁹ But metaphors are soon mixed when Miller recalls the stormy confusion of "the first scene in the *Tempest*" and writes that "the history" of the period he is describing "must have opened in a similar manner".⁸⁰ Miller's own reading habits play their part here: as mentioned above, he preferred to read plays rather than attend the theatre, and the *mise-en-scène* took place within his mind. In his prose, likewise, we may simultaneously watch a sequence of scenes (separated by curtains) and read a narrative. The last chapter of this particular "history" begins in a manner that fuses theatre with time-travel:

"The curtain rises, and the scene is new ... we are surrounded ... by the existences of a later creation. There is sea all around, as before ... Shoals of *Cephalaspides*, with their broad arrow-like heads and their slender angular bodies, feathered with fins, sweep past like clouds of cross-bow bolts in an ancient battle. We see the distant gleam of scales, but the forms are indistinct and dim"⁸¹

Once again it is a very short step from being the spectator of a visionary "scene" to being caught up within and surrounded by it, as if by a 360-degree panorama. This chapter ends with the most vivid scene of all, structured explicitly as time-travel by ship. The Carboniferous forests are Miller's *Heart of Darkness*, an oppressively alien world of rank luxuriance:

"We have entered the Coal Measures. For seven formations together, – from the Lower Silurian to the Upper Old Red Sandstone, – our course has lain over oceans without a visible shore The water is fast shallowing. Yonder passes a broken branch, with the leaves still unwithered; and there floats a tuft of fern. Land, from the mast-head! land! land! – a low shore thickly covered with vegetation. Huge trees of wonderful form stand out far into the water A river of vast volume comes rolling from the interior, darkening the water for leagues with its slime and mud there is silence all around, uninterrupted save by the sudden splash of some reptile fish ... or when a sudden breeze stirs the hot air"⁸²

This celebrated passage parallels the visual effect of the moving panorama, and it may have inspired Henry Morley's light-hearted piece of science fiction *Our Phantom Ship on an Antediluvian Cruise*.⁸³ And at this point we must, with Miller, "pursue our history no further".⁸⁴

★

There is something oddly extravagant about Miller's geological spectacle.

More seems to be intended than merely to put up a grand show. I would like to suggest two additional reasons for Miller's colossal imaginative exertions. The first is specific and theological; the second is rather more open-ended and brings us from theology back to his status as man of letters.

Miller never tired of wielding geology against religious scepticism. Natural theology – drawing conclusions about God's power through the evidence of design in His works – was a favourite target for sceptics. David Hume had objected that since we have only our own finite world to reason from, and nothing to compare it with, we have no basis on which to argue that its Creator could have created anything more perfect (such as heaven). We have no “*experience* in creations”. But according to Miller, geology's revelation of successive worlds, each with a “higher” fauna than the last, nullifies Hume's objection.⁸⁵ Miller's efforts to make these worlds real for his audience, even to the point of actually travelling there, allows him to provide a virtual “*experience* in creations”, thus conferring imaginative plausibility upon a rather dry piece of logic-chopping.⁸⁶

The same might be said of Miller's most daring piece of geological spectacle, which he invoked to prove that the Biblical Creation account was in no way compromised by geology. He developed the current theory that Moses was vouchsafed a vision of the “creation drama” itself, “an exhibition of the actual phenomena of creation presented to the mental eye of the prophet under the ordinary laws of perspective, and truthfully described by him in the simple language of his time”.⁸⁷ Miller took his cue from *Paradise Lost* and envisaged the visionary event like this: “it was, let us suppose, a diorama, over whose shifting pictures the curtain rose and fell six times in succession” – or again, “the successive scenes of a great air-drawn panorama”.⁸⁸ Genesis I thus represents Moses's interpretation of this spectacle. It sounds unlikely, and this lecture has received its share of ridicule; but if one accepts the premises – that both Genesis and geology present truthful historical accounts – then Miller's exegesis works well enough. What draws it beyond the realm of theological quibbling, however, is Miller's vividly reconstructed “Mosaic Vision of Creation” with which the lecture ends, taking his audience back in time to watch Moses watching the “panorama of creation”.⁸⁹ Here is the first “day”:

“A “great darkness” first falls upon the prophet Unreckoned ages, condensed in the vision into a few brief moments, pass away; the creative voice is again heard, “Let there be light,” and straightway a gray diffused light springs up in the east, ... casting its sickly gleam over a cloud-limited expanse of steaming vaporous sea it sinks beneath the dim undefined horizon; the first scene of the drama closes upon the seer; and he sits awhile on his hill-top in darkness, solitary but not sad, in what seems to be a calm and starless night”.⁹⁰

As W. Keith Leask wrote in 1896, “If there are to be reconciliations at all, as either necessary or desirable, it would be hard to beat this fine piece of fused strength and imagination”.⁹¹

In the hands of other popularizers, geological spectacle had the (often intended) effect of throwing *Genesis I* into the shade. But Miller used it to enrich, not to eclipse, the sacred history. As a geologist with the “poetic faculty”,⁹² he claimed the provinces of geology for the poetic muse; but his “visions of creation” are not just lyrical flights. Miller likened his visionary techniques to those of an “allegorist ... who mixes up with his groups of real personages qualities and dispositions embodied in human form, – angelic virtues with wings growing out of their shoulders, and brutal vices furnished with tails and claws”.⁹³ This technique underlies both Spenser’s and Milton’s epic poems, but Miller above all shares Milton’s prophetic aim, to “justify the ways of God to men”,⁹⁴ and *Paradise Lost* hovers constantly in the background. For many an early nineteenth-century Christian reader, this poem was not merely a source of pictorial clichés, but a divinely-inspired prophetic utterance second only (or even, in some senses, superior) to Scripture itself.⁹⁵ Even Miller, for whom the Bible’s authority was without equal, thought Milton’s epic revealed “sober truth caught from the invisible world” rather than “merely ... ingenious fancy”.⁹⁶ One suspects Miller would have liked his own “visions” to be taken no less seriously. At one point he actually lays out a plan for a modern *Paradise Lost* conforming “to the special demands of these latter times”,⁹⁷ in which Lucifer falls from heaven on to the primitive earth, and over the succeeding aeons witnesses the birth and development of organic life:

“our present earth, existing as a half-extinguished hell, has received him and his angels animal life, to even the profound comprehension of the fallen angel, is an inconceivable idea. Meanwhile, as the scarce reckoned centuries roll by, vacantly and dull, ... the miserable prisoners of our planet become aware that there is a slow change taking place in the condition of their prison-house With what wild thoughts must that restless and unhappy spirit have wandered amid the tangled mazes of the old carboniferous forests! With what bitter mockeries must he have watched the fierce wars which raged in their sluggish waters, among ravenous creatures horrid with trenchant teeth, barbed sting, and sharp spine ...!”⁹⁸

Such a poem, Miller says, might be written by “a poet of the larger calibre, who to the divine faculty and vision added such a knowledge of geologic science as ... that which Milton possessed of the general learning of *his* [time]”.⁹⁹

Behind this rhetoric of modesty – disclaiming his own ability to write such a poem – we glimpse Miller taking on the prophetic and poetic role of a latter-day Milton. Such ambitions would help to explain the unusual prominence and visionary intensity of his geological spectacle. Similar ambitions were entertained by many a blank-verse writer of the period, the so-called “hyper-Miltonic school” against whose productions Miller here explicitly sets up his own projected epic;¹⁰⁰ but while these poets earned scorn and oblivion, Miller’s rich and passionate prose earned him

a reputation as the Shakespeare of geology that lasted long after his theories were rendered obsolete.¹⁰¹

Edward Fitzgerald wrote to his friend Edward Cowell in 1847 that “it is not the poetical imagination, but bare Science that every day more and more unrolls a greater Epic than the Iliad this vision of Time ... is ... more wonderful than all the conceptions of Dante and Milton”, and that geology “is a more wonderful, grand, and awful, and therefore *Poetical*, idea than any we can find in our Poetry. For it is a FACT!”¹⁰² But as the geologists themselves well knew, “bare Science” would not get very far among the general public without the help of “the poetical imagination”. The latter is often ascribed to poets alone, but the poetic treatment of geology began among the geologists. Byron, Wordsworth and Tennyson responded not to mere geological “FACT” but to the imaginative eloquence of such men as Georges Cuvier, Adam Sedgwick, Buckland, Lyell, Mantell and Miller; and the same was true of the general public. According to the *Presbyterian Review* in July 1841, public enthusiasm for geology derived not from “the pure love of science” but from the appeal of “what may be called the *literature* of the science” – the “romantic work of Lyell” and the “amusing publications” of Buckland.¹⁰³

But it is to Hugh Miller that this reviewer assigns the title of supreme “poet of geology”, claiming that *The Old Red Sandstone* spreads “what Coleridge calls ‘the mist of obscure feeling’ over the cold forms with which he has to deal”, so that “our sympathy is secured even for the fortunes of a fossil fish.”¹⁰⁴ Those among Miller’s nineteenth-century readers who have left records of their responses express their enthusiasm in terms of immediate visual contact, as discussed above with reference to the panoramas and their kin: his capacity to make “the aspects of past ages stand out picturesquely before us” so that “to read him is like taking a walk with him”; his “word-painting” that “reclathes” with “vivid words” the bones of extinct monsters, and makes Waterhouse Hawkins’s Crystal Palace dinosaur models “walk ... revived” so that those unfamiliar with the wonders of geology “can picture them to their mind’s eye”¹⁰⁵ – these comments all suggest that Miller achieved the visual effects he so clearly intended, and their elision between words and pictures confirms his status as poet by the aesthetic standards of the age. Mantell, for all his literary gifts, felt that the country of the Iguanodon was something “which language can but feebly portray,” requiring “the magic pencil of a Martin” (i.e. John Martin) to restore the scene in the frontispiece to *The Wonders of Geology* “with its appalling dragon-forms, its forests of palms and tree-ferns, and all the luxuriant vegetation of a tropical clime.”¹⁰⁶ But Miller’s “masterpieces of geological landscape”, as one reviewer of *A Sketch-Book of Popular Geology* put it, were achieved purely by his own “scene-drawing pen”, “laying on his colours ... in dark, dreamy visions like a Martin.”¹⁰⁷

Hugh Miller’s poetic skill has ensured that his prose continues to be read, enjoyed and loved. By displaying their geological spectacle in words rather than pictures, his reconstructions avoid the datedness that inevitably colours our appreciation of Martin’s or Waterhouse Hawkins’s

monsters. The *Iguanodon* standing in the overgrown glades of Sydenham remains a poignant memento of the Victorian age, old-fashioned and somehow homely, like an antique car. But for all the advances since made in palaeontology, Miller's Old Red Sandstone fish live on, and the verbal artistry by which he communicated his passion for geology to his vast nineteenth-century public continues to draw people into the science today.

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- 2 See James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation* (Chicago and London: Chicago University Press, 2000), pp. 178-90, 410-26.
- 3 Ralph O'Connor, "Thomas Hawkins and Geological Spectacle", forthcoming in *Proceedings of the Geologists' Association*.
- 4 Hugh Miller, *Poems, Written in the Leisure Hours of a Journeyman Mason* (Inverness: R. Carruthers, 1829).
- 5 Hugh Miller, *First Impressions of England and Its People*, reprint edition [f.p. 1855] (Boston: Gould and Lincoln, 1871) p. 374; Hugh Miller, *Essays, Historical and Biographical, Political and Social, Literary and Scientific*, ed. Peter Bayne, 3rd ed. [f.p. 1862] (Edinburgh: William P. Nimmo, 1869), p. 368.
- 6 Secord, *Victorian Sensation*, pp. 41-76; for further references see Jonathan Topham, "Scientific Publishing and the Reading of Science in Nineteenth-Century Britain: A Historiographical Survey and Guide to Sources", *Studies in the History and Philosophy of Science*, 31 (2000), 559-612 (esp. p. 560).
- 7 See Jonathan Topham, "Science and Popular Education in the 1830s: The Role of the *Bridgewater Treatises*", *British Journal for the History of Science*, 25 (1992), 397-430 (at pp. 405-7).
- 8 Hugh Miller, *The Old Red Sandstone or New Walks in an Old Field*, 7th ed. [f.p. 1841] (Edinburgh: W. P. Nimmo, Hay, & Mitchell, 1857), pp. 33-5.
- 9 Nicholaas A. Rupke, *The Great Chain of History: William Buckland and the English School of Geology (1814-1849)* (Oxford: Clarendon Press, 1983), pp. 209-18; James R. Moore, "Geologists and Interpreters of Genesis in the Nineteenth Century", in *God and Nature: Historical Essays on the Encounter between Christianity and Science*, ed. David C. Lindberg and Ronald L. Numbers (Berkeley, California: University of California Press, 1986), pp. 322-51; Ralph O'Connor, "Byron's Afterlife and the Emancipation of Geology", forthcoming in volume of conference proceedings, 36th International Byron Conference [2000] (Liverpool University Press).
- 10 On the market for spectacle in London, see Richard D. Altick, *The Shows of London: A Panoramic History of Exhibitions, 1600-1862* (Cambridge, Massachusetts: Harvard University Press, 1978), pp. 221-34.
- 11 Simon Schaffer, "Natural Philosophy and Public Spectacle in the Eighteenth Century", *History of Science*, 21 (1983), 1-43; Altick, *Shows of London*, pp. 363-74.

12 Humphry Davy, *Six Discourses Delivered Before the Royal Society at Their Anniversary Meetings, on the Award of the Royal and Copley Medals; Preceded by an Address to the Society, on the Progress and Prospects of Science* (London: John Murray, 1827), pp. 54-5. Davy made this particular speech to the Royal Society in November 1822 when presenting the Copley Medal to William Buckland for the latter's groundbreaking palaeoecological description of the Kirkdale Cave fauna. See Rupke, *Great Chain of History*, pp. 31-41.

13 Hugh Miller, *The Old Red Sandstone*, p. 225.

14 Hugh Miller, *First Impressions of England*, p. 35, quoted in James G. Paradis, "The Natural Historian as Antiquary of the World: Hugh Miller and the Rise of Literary Natural History", in *Hugh Miller and the Controversies of Victorian Science*, ed. Michael Shortland (Oxford: Clarendon Press, 1996), pp. 122-50 (at p. 122). See also H. S. Torrens, "Geology and the Natural Sciences: Some Contributions to Archaeology in Britain 1780-1850", in *The Study of the Past in the Victorian Age*, ed. Vanessa Brand, Oxbow Monographs, 73 (Oxford: Oxbow, 1998), 35-59.

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17 Richard W. Schoch, *Shakespeare's Victorian Stage: Performing History in the Theatre of Charles Kean* (Cambridge: Cambridge University Press, 1998).

18 On the pantomime, see David Mayer III, *Harlequin in His Element: The English Pantomime, 1806-1836* (Cambridge, Massachusetts: Harvard University Press, 1969). For references to recent work on melodrama, see Rohan McWilliam, "The Licensed Stare: Melodrama and the Culture of Spectacle", *Nineteenth Century Studies*, 13 (1999), 153-75.

19 On this extravaganza see Ralph G. Allen, "The Wonders of Derbyshire: A Spectacular Eighteenth-Century Travelogue", *Theatre Survey*, 2 (1961), 54-66.

20 Altick, *Shows of London*, pp. 184-5.

21 The most detailed study of all these forms – panorama, moving panorama, diorama, phantasmagoria and others – is still Altick, *Shows of London* (esp. pp. 128-220), though this only covers London. See also Stephan Oettermann, *The Panorama: History of a Mass Medium*, trans. Deborah Lucas Schneider [f.p. 1980] (New York: Zone, 1997), and in particular Ralph Hyde, *Panoramania! The Art and Entertainment of the "All-Embracing" View* (London: Trefoil, 1988).

22 On this semantic shift, and the early history of what we now call "dioramas", see Karen Wonders, *Habitat Dioramas: Illusions of Wilderness in Museums of Natural History*, Acta Universitatis Upsaliensis Figura Nova Series, 25 (Uppsala: Uppsala University, 1993), 12-22.

23 *Repository of Arts*, 3rd series, 28 (1826), 297.

24 William Buckland, *Geology and Mineralogy Considered with Reference to Natural Theology*, 2 vols (London: William Pickering, 1836), I, 201-2.

25 See, for example, Hugh Miller, *The Old Red Sandstone*, pp. 35-43 ("It was twenty years last February ...") and especially p. 40 ("Wonderful to relate ..."). See also James G. Paradis, "Natural Historian".

26 James A. Secord, *Victorian Sensation*, p. 439. On the deliberate theatricality of the nascent British Association for the Advancement of Science in the 1830s and 40s, see Jack Morrell and Arnold Thackray, *Gentlemen of Science: Early Years of the British Association for the Advancement of Science* (Oxford: Clarendon Press, 1981), pp. 157-63.

27 David Elliston Allen, *The Naturalist in Britain: A Social History* (London: Penguin, 1976), p. 63.

28 Martin Rudwick, *Scenes from Deep Time: Early Pictorial Representations of the Prehistoric World* (Chicago, Illinois: Chicago University Press, 1992). On the role of illustration in popular science generally, see Bernard Lightman, "The Visual Theology of Victorian Popularizers of Science: From Reverent Eye to Chemical Retina", *Isis*, 91 (2000), 651-80.

29 The role of poetry quotation in later Victorian science writing is analysed by Gillian Beer, *Parable, Professionalization, and Literary Allusion in Victorian Scientific Writing* [f.p. 1990], in her *Open Fields: Science in Cultural Encounter* (Oxford: Clarendon Press, 1996), pp. 196-215 (see esp. pp. 210-11 and

214-15 on Milton). In the present volume, Simon Knell and Michael Taylor discuss Miller's narrative reconstructions with reference to William Cowper's narrative verse.

30 William Buckland, *Geology and Mineralogy* (1836), I, 223-5. Buckland has taken the whole passage from his own paper delivered to the Geological Society in 1829: "On the Discovery of a New Species of Pterodactyle in the Lias at Lyme Regis", *Transactions of the Geological Society of London*, 2nd series, 3 (1835), 217-22 (at pp. 217-9). The verse is from John Milton, *Paradise Lost*, Book II, lines 947-50. See Milton, *Paradise Lost*, edited by Alastair Fowler, 2nd ed. [f.p. 1968] (London: 1971), p. 134.

31 On Horace's dictum "ut pictura poesis" and its application to eighteenth- and nineteenth-century British art and poetry, see Andrew Wilton, *Turner and the Sublime* (London: British Museum, 1980), pp. 9-48.

32 Hugh Miller, *First Impressions of England*, p. 374.

33 As Rudwick has shown (*Scenes from Deep Time*), fully-fledged sequences began with Franz-Xaver Unger's *Ideal Views of the Primitive World* (f.p. 1851, English translation 1855) and Louis Figuier's *World Before the Deluge* (f.p. 1863, English translation 1865). Poetry quotations are very thin on the ground in such books. By contrast, Maria Hack's children's book *Geological Sketches and Glimpses of the Ancient Earth* (1832) contains no reconstructed "sketches" of the ancient earth, but plenty of poetry to feed the reader's visual imagination. Most recent popular geology books rely wholly on lavish images, "illustrations" in the visual sense, to which this word's meaning is now restricted; notable exceptions like Richard Fortey's relatively modestly-illustrated *Life: An Unauthorised Biography* (see pp. 7, 36, 90, 245-6) employ poetry in the old manner.

34 See Lucy Newlyn, *Paradise Lost and the Romantic Reader* (Oxford: Clarendon Press, 1993), pp. 49-56.

35 Altick, *Shows of London*, pp. 121-7.

36 Anon., *Description of an Attempt to Illustrate Milton's Pandemonium; Now Exhibiting in the Panorama, Leicester Square. Painted by the Proprietor, Robert Burford, from the Designs of H. C. Slous* (London: n.p., 1829); see also Altick, *Shows of London*, 181-2.

37 For a survey see Marcia R. Pointon, *Milton and English Art: A Study in the Pictorial Artist's Use of a Literary Source* (Manchester: Manchester University Press, 1970), pp. 62-244.

38 Pointon, *Milton*, pp. 174-97; William Feaver, *The Art of John Martin* (Oxford: Clarendon Press, 1975).

39 Charles Lyell, *Principles of Geology, Being an Attempt to Explain the Former Changes of the Earth's Surface, by Reference to Causes Now in Operation*, 3 vols (London: John Murray, 1830-3), III, 89.

40 On the Claude glass, see Michael Clarke, *The Tempting Prospect: A Social History of English Watercolours* (London: British Museum, 1981), p. 33.

41 For example, the guidebook to Burford's 1827 panorama of Geneva evoked conventional Byronic sentiments at the distant Alps and at Lake Lemán by quoting famous passages from *Childe Harold's Pilgrimage*: see *Description of a View of the City and Lake of Geneva, and Surrounding Country; Now Exhibiting in the Panorama, Strand. Painted by the Proprietor, Robert Burford, from Drawings taken by Himself in the Year 1826* (London: n.p., 1827), pp. 3, 8. John Martin availed himself of similar techniques with his more "panoramic" productions: his *A Descriptive Catalogue of the Engraving of the Deluge* (London: Plummer and Brewer, 1828) quotes liberally from Byron's apocalyptic drama *Heaven and Earth* to modulate audience response to particular features of the landscape.

42 Hugh Miller, *The Old Red Sandstone*, p. 83.

43 Hugh Miller, *The Old Red Sandstone*, p. 84.

44 Compare Thomas Hawkins, whose hyper-Miltonic vision of Liassic "sea dragons" (illustrated by John Martin) overturned his natural theology to the extent that ichthyosaurs and plesiosaurs became, quite literally, creatures of Satan: see Ralph O'Connor, "Thomas Hawkins".

45 See Thomas Aird, *The Poetical Works*, 5th ed. (Edinburgh: Blackwood, 1878), pp. 40-52. Aird was the editor of the *Dumfriesshire and Galloway Herald* and a staunch supporter of political and ecclesiastical conservatism, and he and Miller crossed swords over the Disruption. In this context, Miller's use of Aird's description of Hell to conclude his entire six-lecture geological narrative seems a remarkably generous gesture.

- 46 Hugh Miller, *Sketch-Book of Popular Geology*, reprint edition [f.p. 1859] (Edinburgh: W. P. Nimmo, Hay, & Mitchell, 1889), p. 239. The chapters in this book were originally lectures Miller gave to the Edinburgh Philosophical Institution in the early 1850s, which Miller intended for the “popular” parts of his projected *magnum opus*, *The Geology of Scotland* (see *Sketch-Book*, pp. xiii-xvi, xxxiv-xxxv). Lydia Miller here edits six of the eight lectures, with notes by William Symonds and Archibald Geikie.
- 47 Gideon Mantell, *Illustrations of the Geology of Sussex: Containing a General View of the Geological Relations of the South-Eastern Part of England* (London: Lupton Relfe, 1827), p. 78; Mantell, *The Geology of the South-East of England* (London: Longman, Rees, Orme, Brown, Green, and Longman, 1833), p. 280.
- 48 Gideon Mantell, *The Wonders of Geology; or, a Familiar Exposition of Geological Phenomena. Being the Substance of a Course of Lectures Delivered at Brighton, from Notes Taken by G. F. Richardson*, 2 vols (London: Relfe and Fletcher), II, 605.
- 49 Lyell amplified these descriptions of human tragedy on an epic scale in later editions: see J. M. I. Klaver, *Geology and Religious Sentiment: The Effect of Geological Discoveries on English Society and Literature between 1829 and 1859*, Brill’s Studies in Intellectual History, 80 (Leiden: Brill, 1997), 46-7.
- 50 Lyell, *Principles of Geology*, I, 73, 231, 260.
- 51 Mantell, *Wonders of Geology*, I, 30-1. On the lecture series of 1837 see Dean 1999, 162-3.
- 52 Mantell, *Wonders of Geology*, I, 167.
- 53 Mantell, *Wonders of Geology*, I, 262-3.
- 54 Miller was fond of analogies from the *Arabian Nights*, as James G. Paradis has shown (“Natural Historian”, pp. 146-7 n. 13): see Hugh Miller, *Old Red Sandstone*, pp. 42, 118. Humphry Davy’s “Vision” of the progress of human civilization and of the angelic inhabitants of Jupiter is found in his *Consolations in Travel, or The Last Days of a Philosopher*, 5th ed. [f.p. 1830] (London: John Murray, 1851), pp. 18-65. Its literary relatives include the Comte de Volney’s *Ruins of Empires* and Byron’s *Cain*. All three works were known to Mantell.
- 55 Mantell, *Wonders of Geology*, I, 373-6.
- 56 Hugh Miller, *Old Red Sandstone*, p. 229.
- 57 Hugh Miller, *Sketch-Book of Popular Geology*, p. 74.
- 58 Hugh Miller, *Sketch-Book of Popular Geology*, pp. 74-5. Thomson’s words invoke the Muse to “See Caledonia in romantic view”.
- 59 Hugh Miller, *Sketch-Book of Popular Geology*, pp. 75-9.
- 60 Hugh Miller, *The Old Red Sandstone*, pp. 69-70.
- 61 Hugh Miller, *First Impressions of England*, p. 242.
- 62 Hugh Miller, *Sketch-Book of Popular Geology*, p. 117.
- 63 Hugh Miller, *My Schools and Schoolmasters* [f.p. 1854], ed. James Robertson (Edinburgh: B & W Publishing, 1993), p. 328.
- 64 Hugh Miller, *My Schools*, pp. 328-9. On Miller’s connection with the pioneers of photography, Hill and Adamson, see Sara Stevenson, “Hugh Miller in Focus: The Art of Hill and Adamson”, in *Hugh Miller in Context: Geologist and Naturalist: Writer and Folklorist*, ed. Lester Borley (Cromarty: Cromarty Arts Trust, 2002), pp. 72-9.
- 65 “A Vision of the Railroad” (*The Witness*, 4 March 1843) is reprinted in Peter Bayne, *The Life and Letters of Hugh Miller*, 2 vols (London: Strahan & Co., 1871), II, 224-30. It paints a picture of the future desolation of Scotland resulting from the running of railways on the Sabbath (see James A. Secord’s contribution to this volume).
- 66 Hugh Miller, *Sketch-Book of Popular Geology*, p. 45.
- 67 See especially the brief vision of the boulder-clay period, “glimpses of a half-submerged land, and an iceberg-mottled sea, turbid with the comminuted debris of the rocks below”, with which his second Edinburgh lecture begins (*Sketch-Book of Popular Geology*, p. 46). The “panorama-like ... series of scenes” with which Miller closes that lecture contains what seems to be a deliberate echo of this vision at the relevant point in the drama of which they form a building-block (p. 78).
- 68 Hugh Miller, *Sketch-Book of Popular Geology*, pp. 83-5.

69 This aspect of Miller's work is also discussed, with particular reference to the accumulation of factual details, in Lynn L. Merrill, *The Romance of Victorian Natural History* (Oxford: Oxford University Press, 1989), pp. 250-1.

70 Hugh Miller, *Sketch-Book of Popular Geology*, pp. 148-9.

71 Spenser's original treats of only one dragon:

By this the dreadful Beast drew nigh to hand,
Halfe flying, and halfe footing in his hast,
That with his largeness measured much land,
And made wide shadow under his huge wast;
As mountain doth the valley ouercast.
Approaching nigh, he reared high afore
His body monstrous, horrible, and vast

Edmund Spenser, *The Faerie Queene*, ed. A. C. Hamilton (London: Longman, 1977), p. 144.

72 On this link see John Milton, *Paradise Lost*, ed. Fowler, p. 134 n..

73 Hugh Miller, *Sketch-Book of Popular Geology*, p. 149.

74 Hugh Miller, *Sketch-Book of Popular Geology*, pp. 149-52.

75 Hugh Miller, *Sketch-Book of Popular Geology*, pp. 150-1. Coincidentally or not, the composition, lighting and dragonish connotations of Miller's sea-scene (pp. 151-3) give it a distinct family resemblance to John Martin's mezzotint of "The Great Sea-Dragons as they Lived", published as the frontispiece to Thomas Hawkins's *Book of the Great Sea-Dragons* (1840). On the devilish associations of the phantasmagoria see Martin Quigley, Jr., *Magic Shadows: The Story of the Origin of Motion Pictures* (Washington: Georgetown University Press, 1948), p. 78.

76 Hugh Miller, *Sketch-Book of Popular Geology*, p. 150. See note 82 below on the possible relation between Miller's antediluvian time-travel and that found in Dickens's journal *Household Words*.

77 Hugh Miller, *Sketch-Book of Popular Geology*, p. 152.

78 The chelonian's tale is discussed by Simon Knell and Michael Taylor in the present volume. On the influence of Walter Scott's historical novels on Miller's prose, see James Robertson, "Scenes and Legends of the North: Feeding a Youthful Imagination", in *Hugh Miller in Context*, ed. Lester Borley, pp. 17-25.

79 Hugh Miller, *Old Red Sandstone*, pp. 227-8.

80 Hugh Miller, *Old Red Sandstone*, p. 233.

81 Hugh Miller, *Old Red Sandstone*, p. 256.

82 Hugh Miller, *Old Red Sandstone*, pp. 267-9.

83 "Our Phantom Ship on an Antediluvian Cruise", *Household Words*, 3 (1851), 492-6. This piece of fiction may in its turn have influenced Miller's "walk into the wilds of the Oolite" quoted above, in its emphasis upon the potential threat posed by the monsters and the benign nature of the *Iguanodon* ("Don't fear. You are not a vegetable; he will not eat you", p. 494).

84 Hugh Miller, *The Old Red Sandstone*, p. 270.

85 Hugh Miller, *The Testimony of the Rocks or Geology in its Bearings on the Two Theologies, Natural and Revealed*, 45th thousand [f.p. 1857] (Edinburgh: William P. Nimmo, 1878), pp. 184-7.

86 Though, as David Lowenthal pointed out (this conference), the sense of progression and gradual preparation for humanity in these successive scenes is undercut by the vividness and narrative exhilaration with which each individual scene is described: Miller seems to delight in them for their own qualities, however bleak or oppressive the landscape.

87 Hugh Miller, *Testimony of the Rocks*, pp. 159 and 147.

88 Hugh Miller, *Testimony of the Rocks*, pp. 168 and 160.

89 Hugh Miller, *Testimony of the Rocks*, pp. 170-4 and 170.

90 Hugh Miller, *Testimony of the Rocks*, p. 171.

- 91 W. Keith Leask, *Hugh Miller* (Edinburgh: Oliphant, Anderson and Ferrier, 1896), p. 132.
- 92 Hugh Miller, *Sketch-Book of Popular Geology*, p. 107.
- 93 Hugh Miller, *First Impressions of England*, p. xi.
- 94 Quoted in Hugh Miller, *Testimony of the Rocks*, p. 235, from John Milton, *Paradise Lost*, ed. Fowler, p. 44 [Book I, line 26].
- 95 Lucy Newlyn, *Paradise Lost*, pp. 54-6.
- 96 Hugh Miller, *Testimony of the Rocks*, p. 235.
- 97 Hugh Miller, *Testimony of the Rocks*, p. 235.
- 98 Hugh Miller, *Testimony of the Rocks*, pp. 235-7.
- 99 Hugh Miller, *Testimony of the Rocks*, p. 235.
- 100 The term “hyper-Miltonic” was coined in a review of Robert Montgomery’s *Satan* in *The Eclectic Review*, 3rd series, 8 (1832), 227. Miller refers to this poem in *Testimony of the Rocks*, p. 235. On this “school” and its relation to nineteenth-century geology, see Ralph O’Connor, “Thomas Hawkins”.
- 101 Charles Coulston Gillispie, *Genesis and Geology: A Study in the Relations of Scientific Thought, Natural Theology, and Social Opinion in Great Britain, 1790-1850*, Harvard Historical Studies, 58 (Cambridge, Massachusetts: Harvard University Press), pp. 170-1.
- 102 A. M. Terhune and A. B. Terhune, ed., *The Letters of Edward Fitzgerald*, 4 vols (Princeton, New Jersey: Princeton University Press, 1980), I, 566 and 569; the first passage is quoted in James A. Secord, “Introduction”, in Charles Lyell, *Principles of Geology* (abridged), ed. James A. Secord (London: Penguin, 1997), pp. ix-xliii (at p. xxxix).
- 103 *Presbyterian Review*, 14 (1841), 208-17 (at pp. 210-11).
- 104 *Ibid.*, p. 211.
- 105 The references for these comments are, respectively: Archibald Geikie, “Hugh Miller: His Work and Influence”, reprinted in his *Landscape in History and Other Essays* (London: Macmillan, 1905), pp. 257-81 (at p. 275); Peter Bayne, *Life and Letters*, II, 501; review of Hugh Miller, *Sketch-Book of Popular Geology*, in *United Presbyterian Magazine*, 2nd series, 3 (1859), 511-12 (at p. 512); review of Hugh Miller, *Sketch-Book of Popular Geology*, in *The Athenæum* (1859), pp. 445-7 (at p. 446); review of Hugh Miller, *Testimony of the Rocks*, in *United Presbyterian Magazine*, 2nd series, 1 (1857), 257-9 (at p. 257).
- 106 Gideon Mantell, *Wonders of Geology*, I, 369.
- 107 Review of Hugh Miller, *Sketch-Book of Popular Geology*, in *The Athenæum* (1859), p. 446.



SYMPOSIUM ON CHURCH AND SOCIETY

Chaired by Rev. Professor Andrew McGowan,
Principal, the Highland Theological College, Dingwall

Summary of Discussion

Sandy Thomson, Cromarty Community Council

Firstly, can I thank Rev. Professor Andrew McGowan for his excellent Chairmanship of our Session. Things became quite animated from time to time, but Andrew's calm and good-humoured management of the debate kept us all from fisticuffs. Secondly, I think I am grateful to Lester Borley for his invitation to be the *rappporteur* for the Church and Society strand of the conference. I think I am: although perhaps throwing an Episcopalian layman into a lion's den of Presbyterian historians wasn't his kindest act. However, I do appear to have come through unscathed.

I should like to offer a very brief summary of the topic of each of the eight papers, so that you know roughly what we have been talking about. Then I will highlight one or two of the general discussion themes that arose from these papers. We began with the contributions from the Rev. Dr. Frank Bardgett and Dr. Deryck Lovegrove.

Frank Bardgett looked at the role of the missionary movement in Scotland in Miller's day - both within and without the Established and Free Churches. These included Baptist preachers, ministers in Chapels of Ease (like our own Gaelic Chapel here in Cromarty), and especially Thomas Chalmers' use of church elders in his Glasgow parish. Dr Bardgett concluded that these missionaries succeeded in bringing the gospel to a great many of the population who were otherwise neglected by the major denominations.

Deryck Lovegrove focused on the earlier period of the 1790s - a time of considerable social and political unrest as well as profound demographic change, when the existing parish structure was increasingly less able to cope with the major population shifts of the period. A wave of "unauthorised" lay preaching and catechising spread across Scotland. The Society for the Propagation of the Gospel in the Highlands (SPGH), funded by the Haldane brothers, employed lay missionaries throughout the north and, like other "unauthorised" initiatives, was widely perceived as destabilising to the established social order.

The second pair of speakers illuminated the period immediately prior to the Disruption of 1843. *Ian Maciver* focused on the summons to Miller in late 1839 to edit *The Witness*, and outlined for us the political back-

ground of the people involved – Evangelical in religion and Whig in politics – and reminded us of the hostile context in which the new paper was launched, with the majority of the press opposed to the Evangelicals. *Dr Nick Needham* gave us a wonderful summary of the issues dividing Evangelicals and Moderates at the time of the Disruption, and of the politics of the “Ten Year Conflict” and of the General Assemblies that preceded the fateful one of 1843.

On the second day of the session, we began with papers from the Rev. David Robertson of the Free Church and Hugh Cheape from the National Museum of Scotland. *David Robertson* argued that Miller’s politics could be misunderstood if we tried to categorise them in terms of “left” or “right”, and that they were above all filtered through his highland experiences. Unlike some of his contemporaries, he did not view highlanders as inherently lazy or degenerate, but recognised the practical problems they faced with lack of capital and lack of ownership of their land and dwellings. In our Chairman’s words, “David fought manfully to rescue Hugh Miller from the awful fate of being labelled a Tory!”

Hugh Cheape had plundered the NMS archives to produce some wonderful slides to illustrate his thesis that “the Disruption was an heroic event defending democracy against hierarchy and the Establishment”. He led us to that conclusion via contemporary highland accounts of the strengths and weaknesses of several highland ministers, and spoke of the role of lay preachers and “The Men” of the highlands whose activities did serve to undermine the Moderates in the Church.

The final pair of speakers consisted of Dr Krisztina Fenyő from Budapest and Michael Fry, distinguished journalist, historian and parliamentary candidate. Dr Fenyő looked at press coverage of the highlands between 1845 and 1855 – the famine and clearance years. She argued that there were three strands to this coverage – contempt, sympathy and romance, with contempt dominant. Papers including the *Scotsman* and the *Inverness Courier* pursued a racist agenda, arguing that the degenerate highlanders were undeserving of charity. Of the sympathetic press, the *Witness* was a key member: at least from 1847 to 1849, when a peculiar silence fell and the cause was taken up by more radical crusading papers such as the *North British Daily Mail* and the *Inverness Advertiser* – leading Dr Fenyő to conclude that Miller’s contribution to the cause of the highlanders should be re-evaluated.

Michael Fry continued this more critical theme – pointing out that *The Witness* sold only 2,500 copies at a weekly cost of 9d per week at a time when a skilled workman earned around £1 per week; suggesting that its circulation was confined to committed believers. More importantly, the paper made absolutely no attempt at objectivity in theological matters. Miller’s editorials, Fry argued, were occasionally dishonest and frequently unfair – citing his vilification of the Earl of Aberdeen, when that peer tried to broker a compromise deal in 1840 and his attacks on John Lee, who had won the post of Principal of Edinburgh University fairly and squarely against Thomas Chalmers.

What were some of the key issues that emerged from the two days? Probably the most important one is the question of getting Miller into perspective. What exactly was the impact of *The Witness*? Would the Disruption have happened without it? Did it help shape the character of the Free Church? How effective was Miller's support of the famine-stricken and cleared highlanders?

What kind of event was the Disruption of 1843? Was it a heroic event or a tragedy – or both? Was it fuelled primarily by theological or political differences? What were its long-term consequences for the church, and indeed for wider Scottish society?

Where did Miller stand in respect of Genesis chapter 1? How were his views on Creation affected by his fossil discoveries? To what extent were his beliefs typical of those of the great majority of Evangelicals in the church?

Was Miller to some extent torn between Edinburgh Enlightenment Rationalism and highland superstition? Was he a nice man? The scope for debate about Hugh Miller has, if anything, widened for this observer during the past two days. The one constant, however, has been an admiration for the quality of Miller's writing. A great pleasure has been hearing quotations on subjects as diverse as the Headship of Christ and the Herring Fishing in the Cromarty Firth. No doubt about it – the man could write.



Hebridean school of the Ladies' Highland Association.

Fifth Annual Report of the Association for the Religious Improvement of the Remote Highlands and Islands in connexion with the Free Church of Scotland Edinburgh 1855.

Neither minister nor missionary

Revd Dr Frank Bardgett, National Mission, Church of Scotland

In *My Schools and Schoolmasters*, Hugh Miller wrote of the time he spent as a mason in his youth at Niddrie Mill, outside Edinburgh: “During the ten months which I spent in the neighbourhood of Niddrie Mill, I saw neither minister nor missionary.”¹ This is my jumping off point for looking at the development of the Home Mission movement in the Scottish churches of Miller’s day – a development that was the response of the churches to the changes associated with the Industrial Revolution. The quotation can also be usefully taken wholly out of context: for the Home Mission movement was one that sought to mobilise for evangelisation people, Christian men, men like Hugh Miller – non-graduate, uneducated in the classics, not called to the ministry of Word and Sacrament, yet in a whole variety of different ways involved in Christian leadership and Christian mission. Miller was himself “neither minister nor missionary” – and nevertheless was a leader of opinion in the Church of his day.

The “Home Mission” movement became a major feature of the life of “virtually every Protestant denomination”² and had its beginnings in the 18th century. Take Cromarty, for example. As a single parish, the town of Cromarty had a Parish Church belonging to the Church of Scotland. Miller describes the burgh as “Originally a Lowland Settlement”, being a town of English-speaking merchants and seamen. Worship in Cromarty, “from the Reformation down”, was therefore conducted in English. By the later 18th century, however, Miller tells us, “Highlanders began to drop into the place in quest of employment” – Gaelic-speaking people, perhaps dispossessed of their ancient lands by the Clearances; “labourers and farm servants, and the workers in the hempen manufactory”, Hugh Miller’s own mother’s family. These Gaels were outwith the scope of the English-speaking Parish Church by virtue of their language and social position and so Miller describes how George Ross, the proprietor of the lands of Cromarty in 1770, “built for them, at his own expense, a chapel, and had influence enough to get an endowment for its minister from the Government”. Thus by the 1840s Cromarty had two Church of Scotland congregations, the English-speaking Parish Church of the merchants, seamen, farmers and gentry, “the elite of the place, all its men of property and influence” as Miller describes them, and the Gaelic-speaking Chapel of Ease for the working-class Highlanders. In a carefully balanced section

of *My Schools and Schoolmasters* Miller mentions the sense of superiority held by some of the English side, and the sense of jealousy prevalent in the Gaelic side:

“When, on a certain occasion, a stranger fell asleep in the middle of one of Mr Stewart’s best sermons, and snored louder than was seemly, an individual beside him was heard muttering, in a low whisper, that the man ought to be sent up to *‘the Gaelic’*, for he was not fit to be among them”.

(Incidentally, at the Disruption the Parish Church people “went out” to the Free Church, and the Gaelic congregation stayed with the Establishment.)³

In his own way, Cromarty’s proprietor, George Ross, is an example of the beginnings of the spirit of Home Mission which sought to provide the ordinances of religion to those in need by going outside the normal parish system, and often through private initiative. In the 18th century, the Gaelic-speaking Highlanders were generally considered by Lowlanders to be in need of the blessings of the Gospel. Indeed, the people of the Highlands were often seen by the rest of Britain as uneducated, backward, either pagan or Catholic, and generally needing the benefits of British society, understood to include the protestant religion.

So the Society in Scotland for the Propagation of Christian Knowledge (the SSPCK) had its beginnings in 1701, seeking to bring the civilising benefits of the protestant gospel to the Highlands, which their publicity described as a vast, remote wilderness lacking both regular protestant ministry and all basic education.

“...there were very few Schools therein till this Society was erected, whereby Ignorance, Popish, and even Heathenish Superstition, Profaneness, Idleness, Theft and many other Disorders did greatly abound, to the Offence of GOD, Scandal of Religion, and Prejudice of the Public ... It’s fit to be observed here, that many of those Highlanders, etc. are in an Interest absolutely inconsistent with the Safety of the Government, . . . and opposed to the propagation of true Christian Knowledge and of the English Tongue.”⁴

The SSPCK was an independent Society, but within the Church’s own structures, missionary ministers and catechists were provided by the Royal Bounty Committee, a committee of the General Assembly from 1725 given funds by the Crown to be spent employing missionaries “for the reformation of the Highlands and Islands of Scotland, for promoting the knowledge of true religion, suppressing popery and profaneness, ...”

So outwith the formal parish system, and designed to supplement its shortcomings, by Hugh Miller’s time the established Church in the Highlands had Chapels of Ease such as the Gaelic Chapel at Cromarty, the Mission Stations of the Royal Bounty Committee and the newer Church Extension charges of Thomas Chalmers’ Church Extension

Committee, besides a number of churches, the Parliamentary Churches, financed by the government in celebration and thanks to God for victory in the Napoleonic wars. Christian ministry was thus conducted in the Highlands by parish ministers, missionary ministers, and ministers in charge of Chapels of Ease. Part-time catechists supplemented the work. By the early decades of the 19th century, the evangelical movement had had considerable success in many parts of the Highlands. The tools of the Home Mission movement had been forged – the Mission Station separate from the Parish Church, the Missionary sent in by an external Society or Committee to supplement the work of the minister, to undertake the missionary work of extending the blessings of the gospel and the discipline of the church, supported by donated or private funds.

In addition, outside the Church of Scotland, other missionaries were active. Hugh Miller describes the impact of Baptist missionaries in Cromarty in the years around the turn of the 19th century:

“What were known as the Haldanes’ people, had tried to effect a lodgment among us in the town, but without success: in the course of several years they failed to acquire more than six or eight members; and these were not of the more solid people, but marked as an eccentric class, fond of argument, and possessed by a rage for the novel and the extreme. The leading teachers of the party were a retired English merchant, and an ex-blacksmith, who, quitting the forge in middle life, had pursued the ordinary studies to no very great effect, and become a preacher. And both were, I believe, good men, but by no means prudent missionaries. They said very strong things against the Church of Scotland, in a place where the Church of Scotland was much respected; and it was observed, that while they did not do a great deal to convert the irreligious to Christianity, they were exceedingly zealous in their endeavours to make the religious Baptists”.⁵

Unauthorised teaching and preaching by merchants and blacksmiths was something of an innovation in Cromarty but the Haldane movement instructed the next generation of the Kirk. Increasing numbers of the unordained did take part in Christian mission within the Kirk’s own structures. Besides, on a part-time honorarium, catechists had been authorised Christian instructors for centuries in Scotland. Mutual reading of the Scriptures, prayer and exhortation by elders and the recognised spiritual men of the congregations had become a feature of serious Highland Christianity. Schoolmasters, too, both of the Parish Schools and the missionary teachers of the SSPCK came under the discipline of Kirk Sessions, taught the Catechism and practised their pupils in psalm tunes. The strength of the Home Mission movement in the Highlands did not just depend on ministers.

But the fusion of teacher with missionary was not always productive. Hugh Miller’s own early experience of education in Cromarty schools was unhappy – it led him into what for his day and his Churchmanship was

the radical view that education was best left to professional teachers (albeit directly elected by the parents), and that church and school should be separated. Miller wrote in *The Witness*:⁶

“We have yet another objection to any authoritative interference on the part of ecclesiastical courts with the natural rights and enjoined duties of the parent in the matter of education. Even though we fully recognised some conscientious teacher as himself in possession of the divine life, we might regard him as very unfitted, from some natural harshness of temper, or some coldness of heart, some infirmity of judgment, for being a missionary of religion to the children under his care.”

From the history of Cromarty, Miller instanced one of the schoolmasters of its parish school, later a minister, Revd John Russell. He had researched Russell, questioning those who had suffered under him:

“We sought them out one by one, ... finding that, though not one among them doubted the sincerity of his religion, nor yet his conscientiousness as a schoolmaster, they all equally regarded him as a harsh-tempered, irascible man, who succeeded in inspiring all his pupils with fear, but not one of them with love. Now, to no such type of schoolmaster, however strong our conviction of his personal piety, would we entrust the religious teaching of our child. If necessitated to place our boy under his pedagogical rule and superintendence, we would address him thus: ‘Lacking time, and mayhap ability, ourselves to instruct our son, we entrust him to you, and this simply on the same division of labour principle on which we give the making of our shoes to a shoemaker, and the making of our clothes to a tailor.... We make over to you our authority to admonish and correct. But — there are things which we cannot communicate to you. We cannot make over to you our child’s affection for us, nor yet our affection for our child: ... And as religious teaching without love and conducted under the exclusive influence of fear, may and must be barren — nay, worse than barren — we ask you to leave this part of our duty as a parent entirely to ourselves.’ ”

Hugh Miller’s independence on the educational question, his emphasis on the professional and not the spiritual character of the teacher, was a key reason for the attempt in 1846-7 by some leading Free Church ministers to limit his powers as Editor of *The Witness*. Elsewhere, teaching was still considered a missionary calling.

If the Highlands were the focus for Home Mission in 18th century Scotland; by the early 19th century this focus had switched to the cities of the Central Lowlands.

“During the ten months which I spent in the neighbourhood of Niddrie Mill, I saw neither minister nor missionary.”⁷ Hugh Miller spent a period of his early life in Edinburgh 1824-25, in part on family business and in part undertaking employment as a mason. He found himself part of a

group of sixteen stonemasons taken on to work at Niddrie House. Miller's biographer, George Rosie, comments:

"It was an experience that Miller never forgot and which rankled in his memory for the rest of his life. The Edinburgh masons were a breed entirely outwith Miller's experience. The serious young journeyman from Cromarty was used to quiet, hard-working men who would be boisterous and noisy in the barracks, but who were basically placid and responsible. The city workmen were different. They were hard-drinking, free-spending, irreligious and feckless, given to blowing a fortnight's wages in a weekend of whoring, badger-baiting, boozing and fighting in the dens of Edinburgh, returning late, penniless and legless, and incapable of hard work. The Edinburgh masons shocked Miller to the core"⁸

Among the insults thrown at Miller by his Edinburgh fellows was that of "Highlander". They also derided his faith. This experience of Miller's in Niddrie may stand for us for the confrontation of the Scottish churches with the new urban industrial society of the 19th century, the confrontation which generated the Victorian Home Mission "industry" of City, Parish and Society missions and a whole new range of church workers.

Scotland during the 19th century came to be one of the most industrialised countries in the world. This small, relatively poor and largely rural nation was transformed to become for a time the engineering and ship-building workshop of the world. The description "industrial revolution" is too commonplace for the way in which mechanised production sucked huge numbers of workers and their families into the Central Lowlands as a whole, and to the Greater Glasgow area in particular; they came from across the Highlands and the Borders, and from Ireland. Moreover, the Scottish population more than doubled in the 19th century. While industrialisation greatly increased national wealth, it depended on vast numbers of skilled, semi-skilled and unskilled manual labourers - men with hammers and shovels: women with herring-gutting knives - poorly paid and living in unequalled conditions of urban squalor.⁹ So whereas in the 18th century it had been the Highlands that had been considered uneducated, backward, either pagan or Catholic, and generally needing the benefits of British society and its Protestant religion, in the 19th century it was the urban working class that became the new focus for mission - being also considered uneducated, backward, either pagan or Catholic, and also possibly a threat to the state. Hugh Miller's friend Thomas Chalmers, Convener of the Church Extension Committee and later the leader of the Free Church, was the foremost exponent of Home Mission in the early years of the century.

"I do honestly believe, [Chalmers wrote] that ...never till God put into the hearts of men to go forth among our heathen at home with the same zeal and enthusiasm which are expected of missionaries who go abroad,

will there be anything like a revival of religion throughout the mass of our city families, or a reclaiming of them from those sad habits of alienation from God and from goodness into which the vast majority of them have fallen.”¹⁰

The goal of the church to Thomas Chalmers was the “reclaiming” of the urban masses for Christ. His chosen method, the task he set his Kirk Sessions, was a systematic, continual visiting of adults in their homes, visiting described in the vocabulary of the time as the “*aggressive system*”; this was supported by an equally aggressive gathering of children into the educative discipline of Christian schooling. Devoting himself to preaching, Chalmers looked for this pastoral work, this aggressive mission work, to be done by the elders of his Kirk Session, men with sufficient resources to be able to give time as well as devotion to their districts. We do not have time here to look in detail at the work of Chalmers at Glasgow’s Tron and St John’s Parishes and Edinburgh’s West Port Mission. His biographers tend to agree that, despite his zeal, the system was inappropriate – the needs of the cities could not be met on such an amateur basis.

So as the century progressed the Churches and countless Christian Societies sought to achieve the work given to Chalmers’ elders by employing additional full time staff: men and women, missionaries, paid to visit, teach and instruct in the name of Christ. Missionaries had previously been sent to the Highlands; now they were appointed to city districts. As before, some were ministers – licentiates yet to be called to a charge of their own. Some however were laymen: men of Hugh Miller’s sort of background and education, and with something of his gifts of communication and faith. For example, by 1869, the Glasgow city missions sponsored by the established Church’s Barony Parish employed a licentiate as missionary for the Mission Chapel, with a further four lay missionaries and four “Female Agents”.¹¹ Miller’s *My Schools and Schoolmasters* series of articles began in 1853 – witness also to the fact that by mid-century it could be expected that a district such as Niddrie might have a missionary appointed to reclaim its journeymen-masons.

One growing issue was – could such Lay Missionaries preach? According to reports of the Church of Scotland’s Life and Work Committee in the 1870s, there were some in the established Church who “refuse to any but a minister the right in our Church to speak of the Gospel to more than one person at a time”. Certainly preaching, both Thomas Chalmers and Hugh Miller held, was the prime calling of the Minister. In his article *Pulpit duties not secondary*, Miller forcefully argued against a younger generation of Free Church ministers who were tending to accept that “preaching is in reality but a small part of a minister’s duty.” By contrast, Miller held that “The ordinary course of establishing a Church in any country ... is first and mainly through the preaching of the Word.” Miller therefore held that it was better for a congregation to hear 52 well-prepared sermons in a year than that necessary Sabbath preparation be weakened by the minister finding time to spend a yearly half-hour

with each family.¹² Hugh Miller held a very high view of a minister's calling as a preacher; it was a traditional Presbyterian view of the calling of Word and Sacrament. Radical in educational thinking, Hugh Miller's counterbalancing sense of due order can be seen in his views on the proper duties of the Ministry.

Miller's view of ministry perhaps reflected his upbringing in the settled and stable society of Cromarty – the challenge of the Home Mission movement was to find ways to bring the gospel to a mobile, urban Scotland; to mobilise men from a wide range of backgrounds and with a wide range of gifts in the service of the Church. That the challenge was met is shown by the fact that in the 19th and 20th centuries, “the working classes dominated the congregations of virtually all denominations”¹³ in Great Britain. This success of the Churches in basing themselves in and among the vast majority of the population owed much to the concept of Home Mission, the creation of new posts and centres for Christian activity outside the static, inflexible parish structure. The early 19th century sense of the urgency of the task of mission lay behind the Church Extension movement of Chalmers and then the need for the Church to be free to develop its own mission in its own way lay behind all the technical and legal arguments of the “10 Year Crisis”, and hence powered the drive of the Evangelicals towards the Disruption. Hugh Miller's Cromarty had its Gaelic Chapel; and he understood the need for the Niddrie journey-men to be visited by a city missionary. Hugh Miller himself, “neither minister nor missionary” also stands for those Christians of his century, without any opportunity for higher education, whose gifts the Scottish Churches – first the Haldane independents and then Presbyterian denominations – sought to mobilise for mission.¹⁴

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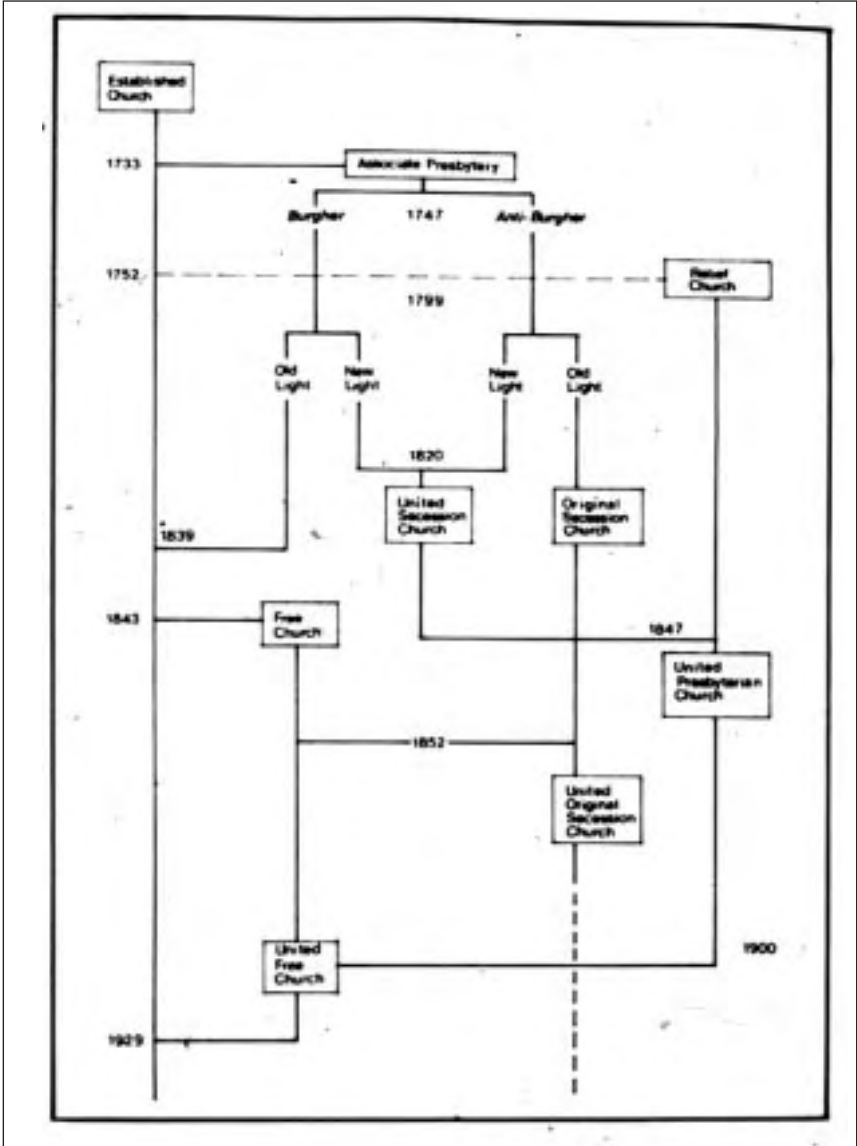
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The Church divided. Chart showing the chronology of secession and division in the church in Scotland, 1690 – 1929. Courtesy of National Museums of Scotland

New directions for the nineteenth-century church: purpose, leadership, structure

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By the later 1790s there were many indications that the institutions traditionally responsible for shaping Scottish society faced a crisis of worrying proportions. The collective nervousness of the professional classes was reflected in the pages of the Edinburgh newspapers where reports on meat shortages, increasingly onerous wartime taxation, the threat of invasion, riots against militia conscription and arrests for sedition jostled with calls for days of humiliation and prayer in connection with national deliverance.¹ The future of the ancien regime appeared anything but certain.

For the national church demographic strains were also increasingly apparent. Population numbers in urban centres in the central Lowlands were beginning to rise dramatically producing the first evidence of the vast problem of unchurched working-class society that was to characterize Scottish cities by the 1830s and 1840s. For those with eyes to see, the trend was already apparent by the turn of the century. In 1800 Robert Haldane, a well-connected landowner turned evangelical, criticized both the Edinburgh magistracy and the church authorities for their neglect of the city's poor. He was reviewing a pamphlet which called for a redirection of church finances within the capital to provide plain commodious buildings staffed by plain, upright Church of Scotland clergy who were "enthusiastically attached to the Christian religion", rather than the grandiose £20,000 edifices that graced locations such as Charlotte Square.² This awareness of the demographic time bomb facing the national church came almost a generation before the well-known efforts of Thomas Chalmers. At the same time evidence was accumulating that all was far from well in the countryside. While some parochial ministries functioned in an exemplary fashion others were neglectful and perfunctory. The social elevation of the clergy and the other leaders of rural society functioned as a barrier that deterred both artisans and cottagers, and acted to promote the fortunes of the Secession churches. The use of Gaelic by the mass of the Highland population simply added a further source of difficulty in many parishes.

During the last three years of the eighteenth century concern at the growth of unauthorized, seemingly amorphous and potentially seditious

forms of religion, a disquiet first voiced in presbytery overtures and personal correspondence from various parts of the country, issued in damage limitation measures being taken by the General Assembly. Stricter guidelines were introduced concerning those who were permitted to occupy parish pulpits, a stern Pastoral Admonition was read to all congregations warning them of the depredations of unauthorized religious teachers, and a countrywide enquiry was instigated designed to bring under the authority of the church all who were involved in the teaching of the young.³ At the same time private, albeit abortive, approaches were made by churchmen to leading political and legal figures to enlist their support in defence of the national system of religion. The declining state of the Church of Scotland and its clergy was highlighted in 1801 by the *Scots Magazine* which argued that the established clergy had forfeited most of their former “reverence and popularity” among the lower classes. As the real cause of this decline it suggested that the established clergy and the common people “no longer [bore] any resemblance to each other; the improvement of the people not having kept pace with the progress of the clergy”.⁴

What none of the clergy or secular leaders could have appreciated was that the end of the eighteenth century marked a watershed for the church in Scotland – the beginning of changes whose influence would be as extensive as those brought about by the Reformation. The new directions emerging were, however, far less obvious in their immediate effects than the results of that earlier upheaval. It is only with the benefit of two centuries of hindsight that their full significance becomes apparent.

The first of these new directions involved a profound reorientation towards the concept of mission. For many hundreds of years Scotland had regarded itself as a Christian country. Profound changes in the forms of worship had come about through the Reformation but the basic structure of the church, operating through territorial parishes, had remained unaltered. With the normal allowances for inefficiency in the system of territorial religion and for the diversity of practice caused by residual Roman Catholicism, to be born into Scottish society meant to be baptized into the national church. In that context the modern concept of mission had little meaning. The mission of the church was comprehended within the faithfulness of the clergy to their parochial functions and especially to the duty of catechizing the young. By the eighteenth century, when battles over forms of worship and church organization had largely been forgotten, the affairs of the church mirrored the structures of a society where orderliness and control were valued above everything.

Into this static situation came two streams of thought which, in their interaction, became an important catalyst for change. Enlightened individualism combined with the growing evangelical emphasis on conversion to see the individual’s experience of God’s grace and forgiveness as the basis of true Christianity and, therefore, as constitutive of the church.⁵ Already presaged in earlier seventeenth- and eighteenth-century parish-based revivals and in the remarkable and extensive conversion-oriented preaching of Whitefield, Wesley and their followers, a new market-place

model of Christianity began to make its presence felt more generally among the Protestant churches in the 1780s and '90s.

Under this new influence the very purpose of the church would be called into question. Instead of forming the moral and religious underpinning of the nation, offering religious direction to society by a process of osmosis, the new message heard even in the courts of the national church was that the frontiers of the faith required active expansion. Initially, this took the form of a call for official Church of Scotland support for overseas missions. When this presbytery-backed proposal was rejected by the 1796 General Assembly the focus shifted to independent societies. Enthusiasm for promoting the gospel overseas among native populations was directed into the newly-formed Glasgow and Edinburgh Missionary Societies and into substantial support for the English-based London and Baptist Missionary Societies.

Traditionally home mission had been construed in terms of the needs of the Highlands, as expressed in the work of the Society in Scotland for Propagating Religious Knowledge and in the teaching work of the missionary ministers supported by the Royal Bounty fund. However, neither of these should be seen as part of the new missionary impetus which appeared at the end of the eighteenth century. Rather they were an expression of the logistical difficulties of a territorial church endeavouring to conduct its pastoral, educational, social and even political duties over difficult terrain where communities were scattered, distances were great and manpower was in short supply. The earliest examples of the new concern to make converts to ardent faith out of nominal or unbelieving hearers came with the efforts of the Relief Church in parts of the western Highlands in 1797, the employment of lay catechists by the Antiburgher authorities shortly afterwards in centres such as Kirkwall, and above all with the founding in January 1798 of the undenominational and lay-led Society for Propagating the Gospel at Home [SPGH].⁶ This body, though it explicitly eschewed politics and declared its friendly support for all gospel ministers, deployed more than 300 lay preachers and catechists over a ten-year span of activity, made thousands of converts and established a significant following in many rural areas. It appeared to disregard the interests of all existing churches, most notably the Church of Scotland, together with the traditional prerogatives of the parish clergy.

The policy of seeking conversions had fundamental implications for the traditional approach to religion in Scotland. Whereas the latter presupposed a Christian society in which the essential function of the church was educative and where social mores governed the ordering of the church, the former assumed society to be radically secular and the church to be constituted only by those who had themselves experienced a spiritual awakening. Such assumptions had little time for restrictive social conventions or for denominational limitations upon the religious activity of the individual believer. What had come into existence was nothing short of a new way of looking at the church and its responsibilities.

The second important shift concerned the church's leadership. Until

the 1790s entry to the Protestant ministry in Scotland, overwhelmingly Presbyterian as it was, had almost invariably involved a period of study in one of the recognized Divinity halls. There was little sign of the flexibility to be found in the English Dissenting tradition or of the still greater disregard for formal preparation shown by eighteenth-century Methodism. Even the Relief Church mission to the Highlands in 1797 was entrusted to properly ordained ministers, and it was not until the SPGH appeared the following year that the influence of the much more relaxed Methodist approach to leadership began to be felt.⁷ The first action of the SPGH in the spring of 1798 was to appoint as an itinerant catechist based at Dunkeld the layman Hugh Ross who appeared to lack any significant educational qualification or any formal preparation for ministry.⁸ Ross was followed over the following months by other young men who seemed to their critics to have been procured by the lay sponsors of the society, in particular the wealthy Haldane brothers, from the ranks of tradesmen and apprentices.⁹ Predictably, this apparent self-assumption of religious duties, even in the relatively humble role of catechist or Sabbath (i.e. Sunday) school teacher, enraged clerical opponents of the SPGH. Leaders within the national church saw its agents as men bent on subversion, seeking to wean the affections of ordinary men and women from their parish churches, to foster unbelief and error in the minds of the young, and to destabilize society in the midst of a political crisis of international proportions.¹⁰ Spokesmen for the Seceders viewed things more in terms of the violation of existing church order and what they interpreted as New Testament models of leadership.¹¹ Both were convinced that there was absolutely no warrant for relatively uneducated men who lacked ordination to take upon themselves the conduct of public worship. The situation was debated and acted upon as a matter of urgency in the May 1799 General Assembly. The various Seceder bodies (even the Relief) passed restrictive legislation, while the General Associate Synod, the ruling body of the Antiburgher congregations, went so far in 1800 as to depose one of its ministers, George Cowie of Huntly, on the ground of his attendance at itinerant preaching conducted by the Independent James Haldane and the Episcopalian Rowland Hill, together with his offensive conduct in accusing the synod of religious persecution.¹²

In response to the charge of self-assumption the SPGH pointed out that the preachers and catechists were chosen carefully by the central committee of the society and that they were regularly monitored during their employment. The accusation of subversive intent in all its guises was emphatically rejected, while the alleged educational deficiencies of the preachers were addressed by a series of academy classes held in Glasgow, Dundee and Edinburgh between 1799 and 1808, the year of the society's demise. What no amount of apologetic or training could alter, however, were the proletarian origins of most of the agents of the new evangelicalism. Nor could it disguise the fundamental change in the concept of ecclesiastical leadership indicated by their very existence.

From very early in the history of the church the Christian ministry or

priesthood had operated in a restrictive manner. Over the centuries promising individuals from relatively humble backgrounds had been brought into its ranks, but always at the behest of ecclesiastical superiors and through the recognized channels of preparation. To all intents and purposes a professional monopoly was at work controlling access to the highly sensitive sphere of popular belief and practice. In most respects the Reformation altered little in spite of the more general availability of elementary education and the use of the vernacular in worship. In a socially stratified society, where even dissent from the established church had social implications and costs, the various functions of ministry remained the preserve of those sectors in which a classical education was the norm. Since the eighteenth-century ministry formed part of the supervisory structure of society, the breach of this pattern by the agents of the SPGH caused deep anxiety among the supporters of the status quo.

In the polemic published against the society the social inferiority of its agents featured strongly. Those who went to the meetings to listen were portrayed as credulous and as lovers of novelty. The preachers on the other hand were seen as spiritual quacks: ill-equipped to interpret scripture, claiming direct inspiration for their public utterances, lacking balance in doctrine, and both superficial and incoherent in delivery.¹³ To the conservative mind leadership, whether in general society or in the church, belonged to the gentleman or to the educated professional. Any departure from this, as now appeared to be the case, constituted a threat to the traditional methods of control and, therefore, to the fundamental stability of Scottish society. These fears were expressed openly, if vainly, in 1799 in a letter written by George Hill, the leader of the Moderate party in the General Assembly, to Henry Dundas, Secretary of State for War and the Colonies, and through him to the Home Secretary.¹⁴ The old order was passing along with its privileges and, while the rise of an active laity that would brook no professional or social restrictions had a long way to go, the seeds of the modern mentality are to be found in the 1790s.¹⁵

In one further respect the emergence of the modern condition of Scottish Christianity was indicated by these changes at the end of the eighteenth century, namely in a discernible move towards voluntarism and acceptance of the church as a gathered rather than a territorial entity. According to the voluntarist position any formal connection between church and state should be severed as being intrinsically unhelpful to the interests of true religion. Rather the church should support itself solely out of its own resources. Parallel to this there developed a concept of the church as a body of believers essentially separate from and, therefore, "gathered" out of the wider society. The gathered church principle could and did take different forms, since it was embraced both by congregations that were bound to others in a connexional structure and by those that maintained complete autonomy. Neither aspect of change was accepted easily, although in time both were destined to become dominant in Scottish Christianity, if only by default.

From the second half of the eighteenth century small congregations

organized explicitly on voluntaryist lines had appeared in various parts of central Scotland. These included the Old Scots Independents, whose supporters encompassed no less a personage than David Dale, the cotton spinner and philanthropist of New Lanark, groups of Scotch Baptists, which arose in various Lowland burghs from 1765, and those who had followed John Glas, the breakaway parish minister of Tealing, into religious dissent in 1730, becoming known in due course as Glasites or Sandemanians. By the end of the century the ranks of these practitioners of voluntaryism, locally strong in centres such as Dundee, were swelled by the converts of SPGH preaching who had formed themselves into numerous Independent congregations across Scotland.

As the nineteenth century began to unfold, the Seceding Presbyterian bodies also moved towards voluntaryism under the leadership of Andrew Marshall, the United Secession minister at Kirkintilloch. In April 1829, in a sermon preached in Glasgow, Marshall produced a clear manifesto for disestablishment. His sermon, published under the title *Ecclesiastical Establishments Considered*, initiated the so-called Voluntary Controversy which lasted until the Disruption of 1843. During this intense period of debate leaders of the national church such as Andrew Thomson and Thomas Chalmers traded arguments with the voluntaries over what both sides regarded as a fundamental principle of church organization. What sort of church was it, demanded Marshall scornfully, "which [taught] pastors to distinguish their flocks by the landmarks of a parish?" Religious establishments had not been instituted by Christ, nor were they to be found in the church prior to Constantine. Their very existence compromised the gospel, sapping the will of Christians to provide direct support for ministry, introducing worldliness and a wasteful preoccupation with property, and turning the church into a political institution. By contrast Chalmers, in his many attempts to justify the establishment of religion, was always unashamedly pragmatic. In a society already deficient in religious resources, free market forces by themselves were incapable, he believed, of supplying the mass of the people with an adequate Christian ministry. What was needed in each parish was a provision for the support of religion underwritten by law.¹⁶

When the new Free Church was born at Tanfield Hall, Edinburgh in May 1843, the body whose formation commanded so much of Hugh Miller's efforts, Chalmers made it clear that its members were not relinquishing the establishment principle per se, but were quitting only "a vitiated establishment".¹⁷ The new denomination at that stage still regarded some form of state connection as the ideal situation and saw voluntaryism as undesirable. Yet to the next generation of Free Church supporters, born as they were into an organization that had been shaped by private dynamism and had learned to value its new found freedoms, such dogged adherence to the state connection seemed mistaken. Ironically, it seems to have been the passage of the Patronage Act in 1874, which abolished the spiritually offensive practice, that finally convinced the majority of Free Churchmen of the rightness of the voluntaryist position. As a result the

Free Church joined with the United Presbyterians in the later 1870s and 1880s in a determined struggle to secure the disestablishment of the Auld Kirk.¹⁸ Although this political campaign was not successful, the spirit of moderate voluntarism continued to act upon the establishment ideal during the process of Presbyterian reunion in the 1920s in such a way as to enshrine in law the essential freedom of the Church of Scotland from state control. The outcome has been a reunited church that has not been afraid to adopt a critical stance towards national policy when occasion has demanded.

At the same time the rising tide of popular indifference towards institutional Christianity and the practical loss of tithe and other income drawn from the wider community has compelled the church to reappraise its constituency. In recent publications and practices the Church of Scotland shows evidence of being deeply affected by the natural concomitant of *de facto* voluntarism: namely, the conviction that the church in a hostile and secular environment can only be sure of its existence as a gathered body of believers. Neither of these aspects of change has been accepted readily, but over a considerable period of time both have come to dominate modern thinking. Even to this day, however, particularly in its rural parishes, the Church of Scotland stumbles uneasily between its former territorial aspirations and the present reality of its gathered condition.

Confronted by the challenge of radical secularism and post-Enlightenment individualism, the church has been compelled to react and to rethink its position. Pulled as it has been by many conflicting forces, the significance of these long-term changes has been veiled in a certain amount of obscurity and has only become obvious now that Christianity in our society is on the defensive. In the modern situation, where most citizens are non-practitioners, post-Christian unbelievers or even members of another faith, the church is compelled to reappraise its role and to place mission at the centre of its activity if it wishes to avoid oblivion. Accompanying this new situation is a marked loss of vocation to the professional ministry, a phenomenon which is transcending even the Protestant-Catholic divide. The importance of the lay membership of the church taking an active role in its total ministry has never been more apparent than it is today. Furthermore, in an age which has witnessed the virtual enslavement of the church in other countries by strong and, at times, atheistic political regimes the attractions of the state connection are far less obvious than they were to our forebears. Missionary purpose, lay participation in leadership, structural independence – all have their modern roots, as we have seen, in the period of change that accompanied the French Revolution. It is still possible to speak of a national church – for the concept has really come under serious challenge only in the past two or three decades – but, as this paper has suggested, the seismic movement away from the old realities enshrined in the idea took place during the closing years of the eighteenth century.

References

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- 2 R. Haldane, *Address to the Public concerning Political Opinions, and Plans lately adopted to promote Religion in Scotland* (2nd edn, Edinburgh, 1800), pp. 57–60.
- 3 *Acts of the General Assembly of the Church of Scotland 1638–1842* (Edinburgh, 1843), pp. 868–9, 870–5.
- 4 *Scots Magazine* lxxiii (1801), 389–90.
- 5 D.W. Bebbington, *Evangelicalism in Modern Britain* (London, 1989), pp. 42–50; B. Hindmarsh, ‘Reshaping individualism: the private Christian, eighteenth-century religion and the Enlightenment’, in D.W. Lovegrove (ed.) *The Rise of the Laity in Evangelical Protestantism* (London, 2002), pp. 79–81.
- 6 N. Douglas, *Journal of a Mission to Part of the Highlands of Scotland, in summer and harvest 1797, by appointment of the Relief Synod* (Edinburgh, 1799), pp. 5–10; *Missionary Magazine* iii (1798), 237; Anon., *An Account of the Proceedings of the Society for Propagating the Gospel at Home* (Edinburgh, 1799), pp. 15–16; D.W. Lovegrove, ‘“A set of men whose proceedings threaten no small disorder”: the Society for Propagating the Gospel at Home, 1798–1808’, *Scottish Historical Review* lxxix (2000), 69–71.
- 7 The influence of English Calvinistic Methodism communicated itself especially through the contemporaneous visits and writings of the Revd. Rowland Hill, minister of the proprietary Surrey Chapel in Southwark.
- 8 *Account*, p. 16.
- 9 For a personal comment regarding the artisan origins of one SPGH preacher see David Sutherland to Alexander Haldane, November 7, 1853, Gleneagles, Haldane MSS.
- 10 *Acts of the General Assembly*, p. 871.
- 11 J. Jamieson, *Remarks on the Revd Rowland Hill’s Journal, &c.* (Edinburgh, 1799), pp. 52–5.
- 12 Minutes of the Associate Presbytery of Aberdeen, October 8, 1799, NAS CH3/2/1; Acts and Proceedings of the General Associate Synod, April 25, 1800, NAS CH3/144/3. It is interesting to note that while most of the itinerants were laymen of humble background, Hill and Haldane were conspicuous exceptions. Rowland Hill, while never in regular Anglican employment, had long been in deacon’s orders. By the time of James Haldane’s second visit to Huntly in the summer of 1798, he also had been ordained – over the newly formed Independent church meeting in the Edinburgh Circus. Both men came from wealthy, landed families and both had enjoyed the benefits of a university education.
- 13 Anon., *Tabernaclism* (Glasgow, 1802), pp. 13–18, 34–5, 50.
- 14 George Hill to Henry Dundas, May 30, 1799, NAS GD51/5/427/6.
- 15 See D.W. Lovegrove, ‘Lay leadership, establishment crisis and the disdain of the clergy’, in Lovegrove (ed.) *Rise of the Laity*, pp. 117–33.
- 16 T. Chalmers, *Lectures on the Establishment and Extension of National Churches* (Glasgow, 1838), pp. 17–19.
- 17 W. Hanna, *Memoirs of Thomas Chalmers*, 2 vols (Edinburgh, 1878 edn), vol. 2, p. 647.
- 18 I. Machin, ‘Voluntaryism and reunion, 1874–1929’, in N. Macdougall (ed.) *Church, Politics and Society: Scotland 1408–1929* (Edinburgh, 1983), pp. 221–5.

“In my true place”: Hugh Miller and the Foundation of *The Witness*, June 1839 – January 1840

Iain Maciver, Head of Manuscripts, National Library of Scotland

In the last six months of 1839 there was a deepening sense of crisis in the Church of Scotland, a crisis which was already showing signs of extending much wider than its bounds. It marked a clear escalation in tensions between the Church, the courts of law and the government, which were to climax in 1843 with the Disruption of the Church, a major breakdown in its co-existence with the post-Union British state. A small group of Evangelical Whig churchmen were conscious that their cause cried out for an effective popular champion, and a new newspaper to promote it. They found their attention drawn, thanks to a forceful and timely political pamphlet, to a Cromarty stonemason turned banker, with a well-established literary reputation in the North of Scotland, some journalistic experience as a contributor to the *Inverness Courier* and *Chambers' Journal*, and growing fame as a palaeontologist. The object of their interest suddenly found himself about to be catapulted into an exciting but daunting new career as an Edinburgh newspaper editor and gladiator of the Evangelical party in the Kirk and the cause of what had come to be called “Non-Intrusion”.

Outwardly, Hugh Miller was a surprising choice of candidate and this was an unlikely scenario, but closer study does reveal some reasonably clear sequences of political and ecclesiastical events, and personal relationships, drawing this particular group of sponsors of a new newspaper to settle on the man from Cromarty. However, they were entering a highly competitive market. Most large towns had at least two rival newspapers, and the major cities often more; political, local and personal rivalries were often fierce, and few holds were barred in the war for circulation.

The group of adventurers who planned to create a new newspaper at an inauspicious time were, broadly, committed Evangelicals in church politics, and Liberals of mainstream Whig loyalties in secular politics. They wished for the abolition rather than the reform of a patronage system in the Kirk, in which congregations had to accept the presentation of a minister to a vacant parish by private patrons (usually lairds or aristocrats); or institutional patrons (usually town councils or universities); or, indeed, the government, which held roughly one third of patronages. Presentation they held to have become an “intrusion” (hence “Non-Intrusion”) if the nominee was to be opposed by a clear majority of mem-

bers of the congregation without redress being available to the people.

While working for abolition, they were prepared to settle, with more conservative adherents of their broad ecclesiastical coalition, for the compromise of upholding Dr Thomas Chalmers’ Veto regulation, passed by the General Assembly of the Church in 1834. However, this ecclesiastical legislation, which a majority of the Assembly regarded as falling fully within its competence, threatened the continuation of lay patronage, imposed in 1712 by a government hostile to Presbyterianism and just after a Parliamentary union which the churchmen of that time did not welcome, but considered at least to have secured its constitutional liberties.

The fathers and brethren had reckoned without the essentially English constitutional doctrine of the sovereignty of the Crown in Parliament over-riding what they regarded as an inviolable part of the Union settlement, and they continued to protest in vain to the Westminster Parliament for many years against this intrusive Patronage Act. More than a century later, and for the past twenty years in particular, the old grievance had welled up in an age of Reform to become a burning issue again in the Church of Scotland. Indeed, by this time most of the heirs of the mid-eighteenth century secessions from the Established Church on the patronage issue had taken distaste for the state “establishment” to its ultimate conclusion, by championing a “voluntary” church, entirely divorced from its corrupting influence. To the horror of the staunch upholders of the state connection within the Kirk, who believed that, however flawed was the link, it remained essential, the Voluntaries had come to believe that not only was it inefficient and incompatible with spiritual independence; it also had no warrant in Scripture.¹

The Veto Act had aimed to apply salve to the wound by granting congregational “heads of families” the right to reject a patron’s nominee to a vacant parish charge. But the post-1832 Reform government, essentially an uneasy coalition of traditional Whigs and more “advanced Liberals”, or Radicals, had vacillated long over giving Parliamentary legislative sanction to the Veto. It is worth noting at this point that the erratic Cabinet sponsor of this proposed bill, and leading vacillator, was the Lord Chancellor, Henry, Lord Brougham. The correspondence of his Scottish coadjutors, the Lord Advocate, Francis Jeffrey, and the Solicitor-General, Henry Cockburn, is replete at this time with their extreme frustration with Brougham and their despair at the failure to progress any legislation. As Cockburn put it, “a long incubation; but no egg”.²

It was Brougham’s rejection of the Church’s case in the House of Lords’ judgement on the Auchterarder case that had provoked Hugh Miller’s *Letter from One of the Scotch People to the Right Hon. Lord Brougham and Vaux* (circulated in June 1839), and brought his controversial, and potentially editorial, talents to light. Like many engaged with the issues on the Evangelical side, Miller was shocked that Brougham, born and raised in Scotland, co-founder of that great liberal intellectual journal the *Edinburgh Review*, and long celebrated as a tribune of popular politics,

education and science, had rejected the Church majority’s case out of hand. As he put it: “You had exerted all your energies in sweeping away the Old Sarums and East Retfords [the “rotten burghs”] of the constitution. Could I once harbour the suspicion that you had become tolerant of the Old Sarums and East Retfords of the Church!”³

However, it has to be said that it was the decisions of Scottish judges, in Scotland, which had lit the fires of the controversy. The legal challenge to the Veto in 1838, which came to be known as the Auchterarder Case, was masterminded by the advocate, John Hope, who had entered against it in 1834 no less than fourteen reasons of dissent. Hope, Dean of the Faculty of Advocates and a former Tory Solicitor-General, was a man lacking popular appeal but a formidably devious and mordantly effective political and legal operator – to his ecclesiastical enemies he was, “that crocodile Hope”. Though he was also the son of Charles Hope, Lord President of the Court of Session, who had long been a leading light of the Moderate party in the Church, the inveterate opponents of the Veto, Lord Hope was not the only member of a bench on which many of the judges had past allegiances in church politics, Moderate or Evangelical. So the Court of Session, in delivering a majority judgement in 1838 in favour of the pursuer patron, the Earl of Kinnoull, and his nominee, could be seen, and was seen by many, as making a judgement coloured by these old loyalties.

Of course it was, and is, not unique for national courts of justice to have the thorny task of making judgements on cases laden with political baggage, or to be thought by critics to be politicised. One has only to think, on a much larger and contemporary stage, of a crucial judgement of the United States Supreme Court in very recent times. For the Auchterarder Case, and its ever more convoluted successors, there was also much ecclesiastical and historical burden to carry. In the Court of Session, the eight majority judges concentrated on patronage as a property right established by the statute of 1712, and dealt with the Church as just one public institution among many. The minority of five looked with more favour on its unique constitutional status and its claims to what was later defined as a co-ordinate jurisdiction with the civil courts. But what ignited the fury of the disappointed defenders of the Church’s case was the tone and language of many of the majority judges.

In his *Letter* to Brougham Hugh Miller had shown more than passing knowledge of the contemporary revival of the historic claims of Presbyterianism, and appreciation of the historic capacity of the Kirk to resist the civil power. “Now my Lord, you should have known the Church of Scotland better. Consult her history”,⁴ he told the former Lord Chancellor. One particular product of a contemporary rediscovery of the roots of the Kirk in the sixteenth century Second Book of Discipline and the claims of the seventeenth century Covenanters, was a highlighting of the traditional opposition to state control, generally referred to in this context as Erastianism. The old enemy was represented *par excellence* by the patronage system: and the majority Court of Session judgements

appeared to its opponents to reek of that product. For example, Lord President Hope, in what was generally a carefully researched historical exposition of the majority view, was moved to define his opinion in starkly Erastian terms. While the Lord Jesus Christ, he stated, was Head of the Church in the proper sense as,

“founder of the Christian religion, the object of our worship, of our faith, of our hopes, and of our fears ...that our Saviour is Head of the Kirk of Scotland in any temporal or legislative sense, is a position which I can dignify by no other name than absurdity. The Parliament is the temporal head of the Church, from whose acts, and from whose acts alone, it exists as a national Church, and from whom alone it derives all its powers”.⁵

Another of the Court of Session majority, Lord Gillies, gave additional offence by speaking (contemptuously, to those who disagreed with his opinion) of the Church as merely one society among many: “it is said that the General Assembly is a legislative body. So is every corporation ... Thus its power is just that of making bye-laws, a privilege (properly speaking) of corporations”.⁶ The Church’s counsel, Solicitor-General Andrew Rutherford, (he was later to be Lord Advocate) was particularly horrified by the Gillies judgement – not least because Gillies had been a fellow-Whig. He wrote to Fox Maule, another member of the government and Evangelical supporter, that Gillies, “spoke in a tone most offensive to the Kirk and said things that will make them enraged – he uttered rank Erastianism ... He compared her to a corporation of tailors and shoemakers”.⁷

Therefore, we can say that the battle had been joined in a real sense before the House of Lords judgement, which had so fired up Hugh Miller. What the judgement of the Lords did do, as far as the Auchterarder Case was concerned, was to make it clear that no redress was to be obtained from the appellate court. Worse still, Chalmers and more conservative Evangelicals inclined to compromise were forced by the temper of the legal judgements in both Edinburgh and London to abandon some inclination they had shown earlier in the dispute to repeal the Veto Act and reinstate an effective congregational restraint by other means.⁸ The only avenue left for the Non-Intrusionists now was to use popular pressure to persuade Parliament to rescue them from the impasse into which they were fast drifting.

It was the case, however, that the terms and content of Brougham’s judgement significantly raised the temperature once again. What so offended Miller and other Evangelicals was not just Brougham’s advice to the Church that it should accept the existing law, and expect no rescue from the imperial legislature. If the Scottish bench had addressed the issue with due solemnity, Brougham seemed not only to belittle the General Assembly majority’s case, but to reject it with some personal passion. He held that any criticism of the still contentious Patronage Act of 1711 was “grossly indecorous” and “mocking the Legislature”,⁹ the kind

of comment that led his old critic, Lord Cockburn, to declare that he was treating with "contemptuous slightness" a serious constitutional issue: "... a case about a horse or a £20 bill of exchange would have got more thought ... it irritated and justified the people of Scotland in believing that their Church was sacrificed to English prejudices".¹⁰ A more modern commentator has described it as, "almost incredible ... at once superficial, jaunty and pontifical".¹¹ Though, reading it today, the Brougham judgement does not appear to lack considerable detailed argument, or knowledge of the issues and their historical background, it was certainly pontifical and sometimes very personal. It overshadowed the more restrained, but equally unfavourable judgement of his legal colleague, the then Lord Chancellor, Cottenham.

Whatever the legal merits or demerits of the judgement, they were overshadowed by its idiosyncratic content. No mean pleader in his day, Brougham seemed to slip back to this role. He dismissed the Veto of male heads of families, though as a Whig politician in 1834 he had welcomed it as a sound and desirable measure, beneficial to the Established Church: but now he asked: what about the rights of women – or lodgers? These were mere rhetorical fireworks: the hard legal point was his firm opinion that the Church was interfering with the clear legal rights of patrons, and the patron's presentation was call enough. As for the validity of the congregational call to a minister, it was a relic of a right repealed in 1711, "a mere ceremony or form".¹²

Brougham was proud of his Highland ancestry, and put down his success in life to the Edinburgh intellectual inheritance he had derived from his maternal family, the Robertsons.¹³ If it was family piety that led him to declare that he could see "the contempt, the scorn, the indignation" with which "my most venerable relation" his great-uncle, Principal William Robertson, would have met the contemporary Church majority's claims,¹⁴ this was a statement calculated to arouse particular fury among Evangelicals more radical now than those Brougham had known well, and professed to admire, in his youth. Even so, such a wordsmith could scarcely have been unaware of the implications of his utterances. Robertson had not only been a luminary of the Enlightenment; he had also been leader of the Moderate party in the Church. Brougham could be seen to be proclaiming, and glorying, in his inherited engagement on one side of the argument.

It certainly galvanised Hugh Miller's counter-blast; and what was more natural than to offer it as a contribution to the cause to his superior in Edinburgh, Robert Paul, Secretary and General Manager of the Commercial Bank of Scotland, whom he knew well already, from the days of his induction as a trainee banker, as a luminary of the Evangelical Party and a promoter of other religious good causes. In his covering letter on 13 June, dispatching his manuscript to Edinburgh, he wrote to Paul that, "... unless the people can be roused ... (and they seem strangely uninformed and indifferent as yet), the worst cause must inevitably prevail. They may perhaps listen to one of their own body ... who, though he feels

very strongly on the question, has no secular interest involved in it”.¹⁵

Paul was also deep in the counsels of the leading Edinburgh Whigs who espoused Non-Intrusion. We have it on the testimony of Lydia Miller and Hugh’s biographer, Peter Bayne, that Paul then gave the manuscript to another of the group and a rising Evangelical star, Robert Smith Candlish. When he finally got round to reading it, Candlish greeted it with “rapture”. “In a state of great excitement”, he hastened to show it to a leading figure among the Edinburgh Whig Evangelicals, the advocate, Alexander Dunlop, later to be author of that remarkable constitutional document of the Ten Years’ Conflict, the Claim of Right.¹⁶ Dunlop was equally impressed, the very successful publication of the *Letter* to Brougham followed, and a wider group pondering the establishment of a newspaper to represent their point of view settled on Hugh as their man. The traditional historiography of the Disruption has concentrated on the clerical leaders of the movement, rather to the detriment of the non-clerical element. This episode naturally redresses the balance as none of three principal actors, Robert Paul, Alexander Dunlop and Hugh Miller, were ministers.

However, the group as a whole were an interesting company: almost all were to be prominent in the controversies leading up to the Disruption and to become leading figures in the post-Disruption Free Church of Scotland. In addition to the persons noted above, they included Thomas Guthrie (later to be Hugh’s minister), William Cunningham and James Begg. It is unclear if Thomas Chalmers was much involved at this stage. He was later to be a very staunch supporter and admirer of Miller, but in 1839, though they acknowledged his essential leadership of the Evangelical coalition, in political terms he was rather alienated from many of this group. On the practical side, according to Guthrie, the subscribers had decided that a salary of £200 would be necessary to attract a good editor and that a capital fund of £1,000 would be required.¹⁷

The moves to persuade Miller to undertake the task began in late June, 1839. His reply to Robert Paul from Cromarty, dated 2 July, survives in the Paul Papers. He had just returned from a journey to Tain to collect bank notes and complained of tiredness “for my muscles I find are not the hard wiry sort of things they used to be when I was engaged in plying the mallet”. Though he accepted with some alacrity Paul’s invitation to visit him in Edinburgh, there is no reference to a hard proposal. Hugh’s chief preoccupation, expressed to Paul, was that Lydia Miller would be the better of a trip to Edinburgh to renew old acquaintances from her schooldays there, and to help her recovery from the death of their young daughter two months previously. Clearly, from what he said in this letter, the loss of his child had also deeply affected him: their bereavement may have been a factor that made Miller more receptive to an invitation to leave his native town and occupation. In fact, the only reference to Church politics in this letter is a final paragraph mentioning a follow-up pamphlet to the Brougham letter “tumbling about in my mind”.¹⁸ This was what became *The Whiggism of the Old School as Exemplified by the Past History and Present*

Position of the Church of Scotland.

Work on the second pamphlet postponed the trip to Edinburgh. Miller was still in Cromarty at the end of July when he wrote again to Paul promising to be in the city by the next Saturday.¹⁹ The Millers were back again in Cromarty on 15 August, when Hugh (and Lydia) wrote to thank Robert Paul and his family for their hospitality. By then, it is clear, he had been persuaded to accept the editorship. The crucial meeting, according to one of his biographers, took place at James Begg’s manse in Liberton. That he was engaged is also evident from his letter to Paul in which he admitted that, “I still find some sinking of heart when I think of the proposal of my Edinburgh friends; but I feel I must nerve myself to the task as I best can.”²⁰

There followed a hiatus in the process, which, clearly, caused an already apprehensive editor-designate great anxiety. It is clear that the *de facto* coordinator of the newspaper project was Alexander Dunlop. It was Dunlop who requested Miller to fashion a prospectus, and he also had to reassure the latter, who, reported Peter Bayne, had sent despondent expressions as to the risks run by the writer in undertaking the editorship. “His situation in Cromarty is, at least ... a certainty, a permanent certainty, and he requests information as to what he may expect in the event of the paper proving a complete failure”. Dunlop had to provide plenty of reassurance. He promised a guaranteed salary for three years, and, in the event of failure, his friends could secure Miller at least as good a position as he already held. But he was concerned also to boost Miller’s morale, declaring that, “when a man has an opening through which to do essential service to the cause of religion and his country, he may generally enter with confidence that he will not be a loser.”²¹

The promoters had drawn up resolutions embodying the principles that should govern the new paper. They were fairly broad and general, laying emphasis on piety and “scriptural and constitutional” principles. Interestingly, though most were Whigs, they also laid down that it should remain free of specific ties to one political party. This was sensible, for the Evangelicals had a need to appeal to all shades of political opinion. To Hugh Miller fell the task of compiling the actual prospectus, which he appears to have dispatched fairly promptly to Dunlop. He then waited for two months, with increasing apprehension for “tidings from the South”. By 20 November 1839 (Bayne mistakenly says September) he could abide the suspense no longer, and wrote to Paul, anxiously telling the banker that he had not heard from Dunlop since mid-September. In these circumstances, he told Paul, “I know not to whom to apply but yourself”. Furthermore, he had not seen his Prospectus in print, and he had heard rumours of,

“...some misunderstandings having taken place among the parties most interested in it... It is, I am afraid, a too certain fact that the more honest any party is, the surer it is of being ill organised and full of conflicting opinions ... I would feel myself, were the enterprise to fail, some-

what in the predicament of the luckless voyager who hoists anchor with the intention of entering some port upon the lee, and finds, as he nears the breakers, that there is no port to enter.”²²

According to Peter Bayne, Paul and Dunlop both thought that the other had been keeping Miller informed. Be this as it may, events now moved with some speed compared to the delays of the autumn as the first issue of *The Witness* was to appear only some eight weeks later, on 15 January 1840. Indeed, there had been some organisational difficulties, and Dunlop, with many of the other promoters, had been deeply immersed in business connected with the growing crisis in the Kirk. On the technical side, the printer-publisher, John Johnstone, who had published the *Letter to Lord Brougham*, had insufficient capital to divert from his main business until he was joined by Robert Fairley, who became subsequently, with Miller, the joint-proprietor of the newspaper.²³

By 20 December, Dunlop was able to tell Miller that all difficulties were resolved, “and we are now in a fair way to be launched *at latest* when Parliament opens. The sooner, therefore, you can be here the better”. On the title of the newspaper Hugh’s original suggestion had been set aside. In Dunlop’s words:

“The ‘Old Whig’ was thought to impart more political policy than was approved of besides creating opposition or distrust from two totally distinct parties, and ‘The Witness’ has been approved with a scripture motto as bearing testimony to the truth.”²⁴

Almost right up to his arrival in Edinburgh in the first week of January, Hugh Miller continued to express his fears as to the future of the *Witness* project. If we ignore its later success and look at the situation facing the promoters and editor in January 1840, we can see that his fears and doubts were very far from unfounded.

At a time, when they had a desperate need to rally popular support within the Church, the Evangelical party faced a large majority of the Scottish newspaper press which was hostile to their cause. Whig Evangelicals, like the promoters of *The Witness*, felt particularly vulnerable in this area, and were especially exercised by the urgency of the need to promote the cause of “Spiritual Independence”. In 1839, the press situation had worsened dramatically for the Evangelicals as support from Tory newspapers in Scotland dropped away as the result of a Conservative recoil from the General Assembly’s defiance of the civil courts. The Tories and their press allies in Scotland had strongly supported Chalmers’ Church Extension scheme, and his campaign for government endowment of over two hundred new churches created by voluntary subscriptions. On this issue the Conservatives could criticise and harass the Whig/Liberal government of Lord Melbourne and court Established Church electors. In this process, the Tory-leaning Chalmers, and not a few other leading Evangelicals, had allowed themselves to be seduced into too close an alliance with the Conservative leadership, which, naturally, did not endear them, or their cause, to the government.

However, this alliance with the Tories was becoming thoroughly ruptured by the close of the year. Chalmers was left in no doubt by the Conservative leaders, Sir Robert Peel, Lord Aberdeen and Sir James Graham, that their concerns for the Church of England and Anglican opinion would not permit them to support the Church of Scotland's attitude to the civil courts. Tory support for Scottish church endowment quickly melted away.²⁵

Whig Evangelicals tended to be more aware of the political realities. Dunlop, for example, always deep in the counsels of Scottish Whiggery, had been told by the historian, Thomas Babington Macaulay, that carrying abolition of patronage was “absolutely visionary”, considering the “notions and feelings” of English MPs on the subject.²⁶ Evangelical Whigs had been naturally sceptical of a Tory alliance with the Church, and they saw, with some political relief, recent Tory backsliding exposing the shallowness of their earlier support.

A sense of their comparatively weak position within the body of Scottish Liberalism was reinforced for our group by the rampant success of Dissenters from the Kirk, whose strength lay overwhelmingly with the growing and self-confident Presbyterian secession churches. Scottish Dissent had succeeded in capturing the attention of the government and its pressure had resulted in prolonged fence-sitting by the Whigs which had effectively destroyed the Established Church's campaign for state endowment of its new churches. This bid, not surprisingly, was one that the Voluntary Dissenters regarded as an unfair subsidy for ecclesiastical rivals. The major Secession churches (who were to form the United Presbyterian Church in 1847) were a powerful element in the Liberal coalition, respected and listened to by an important section of the Whig leadership in Scotland, and they had the support of a large proportion of the Liberal press. Most of all, they had the allegiance of the very successful *Scotsman* of Edinburgh, the flagship of Scottish Liberalism under its able founder-editor, Charles MacLaren; and *The Scotsman* had been a savagely effective critic of Thomas Chalmers and the Evangelicals. With a majority of the Tory and Liberal press tending to line up against them, the Evangelicals had every reason to feel badly under-gunned in the coming war of words and ideas.

Until the arrival of *The Witness*, the most prominent Evangelical newspaper had been the *Scottish Guardian* of Glasgow, directed by the Glasgow minister and later Free Church historian of the Disruption, Robert Buchanan; but the *Guardian's* success had been very limited. It concentrated, probably over-heavily, on ecclesiastical news and comment, and was overly identified with the Tories, who were very largely unpopular in urban Scotland. It strove hard, but lacked spark or bite. A historian of the Scottish newspaper press has commented that the swift popular success of *The Witness* was one that the *Guardian* had cause to envy, and may have had much to do with Buchanan's silence on Miller's vital services to the cause in his lengthy history, *The Ten Year's Conflict*.²⁷ However, it was Miller's friend, Thomas Guthrie, who had been the first to complain of

this neglect, writing pointedly that, “the ignoring of Hugh Miller, and the influence of *The Witness* newspaper there reminds one of the announcement of the play of *Hamlet* without the part of the Prince of Denmark.”²⁸

It is significant too, that, consciously or instinctively, Hugh Miller avoided many of the shortcomings of the *Guardian*. Even allowing for the sheer quality of his journalism, he was seen as a man of the people, and one well attuned to the pulse of his readership. While it became evident very quickly that he was more than fulfilling his remit to promote the Evangelical cause, his fine sense of topicality, not to mention his wide social and scientific interests, ensured a balanced coverage.

However, given the position of weakness from which the *Witness* project had started, Miller’s achievement appears all the more extraordinary. Its success probably stimulated the creation of new Evangelical newspapers in Aberdeen, Dundee and several other towns: the Aberdeen *Banner* (1840) and the Dundee *Warder* (1841), serving other populous and strategic regions, were the most successful. Led by example of *The Witness*, they served to report on public meetings and other measures to promote the cause: a crucial means of extending the popular base of the movement. *The Witness* had begun modestly in 1840 with a circulation of some 600-800. In the period of prelude to the Disruption, the first half of 1843, it had risen to 3447. At this high-water mark it was outselling *The Scotsman*, previously dominant in Edinburgh, by slightly over 1,000 copies.²⁹ While *The Scotsman* later recovered its lead, Hugh Miller’s newspaper was to remain during his lifetime a major force in Scottish journalism. One has also to bear in mind that newspapers at this time were comparatively expensive and real readership was likely to considerably exceed circulation.

The last word on this subject should be left to Hugh Miller himself. In 1847, fighting for the independence and integrity of his newspaper he recalled his feelings on receiving the call some seven and a half years’ previously:

“I need not remind some of the gentlemen whom I now address, that the place I occupy as editor of the *Witness* was not of my seeking, and that I entered upon its duties in weakness and great fear, thoroughly convinced of the goodness of the cause, but diffident indeed of my own ability to maintain it as it ought to be maintained against the hostile assault of well-nigh the whole newspaper press of the kingdom ... Once there, however, I found myself in my true place; and I trust I may be permitted to say, that I have striven to perform its duties not without reference to the Providence whose hand I recognised in the entire transaction. I have been an honest journalist.”³⁰

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MS.9.1.10; the comment quoted is appended to a letter of Jeffrey, 24 February, 1834. The author thanks the Trustees of the National Library of Scotland for permission to quote from material in their collections.

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5 C. Robertson, *Report of the Auchterarder Case* (Edinburgh, 1838), Vol. 2, p.10.

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The Religious and Political Background to the Disruption

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In this paper I intend to sketch the religious and political background of events and issues, culminating in the Disruption of 1843, which forms the setting for Hugh Miller's emergence onto the national Scottish scene as a journalist editing *The Witness* newspaper. I emphasise that I am here providing background material, so Hugh Miller himself will not figure prominently in the talk as an individual, and I also warn that I do not think there is anything wonderfully profound or revisionary in what I am about to say. But I hope nevertheless that by painting this broad canvas and offering a coherent narrative, it will help us to get a clearer and richer perspective on Miller's context and his religious allegiances and activities in the 1830s and 40s.

Hugh Miller belonged to the Church of Scotland, and the great religious fact in the national Church in the opening decades of the 19th century was the growth of the Evangelical party. The Evangelicals in the Church stood for and embodied a vibrant sense of the truth of their Church's confession of faith, the Westminster Confession, as against the tendency of the opposing party, the Moderates, to treat the confession as a historical document that was part of the Church's constitution, but not (as it were) a living breathing document expressing the eternal realities of the Bible in a systematic form. Among the doctrines of the confession particularly prized by Evangelicals were the absolute sovereignty of an omnipotent God over all life and over human salvation; the helpless bondage of human nature to sin and death; the necessity of a divine and supernatural work of the Holy Spirit in the soul if a sinner were to be saved; and justification by faith alone in the crucified Christ in order for the forgiveness of sins and eternal life. Evangelicals generally considered Moderates not as a valid alternative within the Church but as enemies of the Gospel; Hugh Miller, contemplating the coming Disruption of 1843, pronounced that "Moderatism will be left behind, weighed down with the guilt of perishing souls".

Alongside this theological commitment, most Church of Scotland Evangelicals also held strongly to a traditional Presbyterian view of church government, and especially the view that it was ultimately a congregation's right to have the final say in who its minister should be. For this reason they were sometimes known as the Popular Party, defending the rights

of the Christian people in the choice of their minister. This conviction had been stifled by the patronage laws passed in 1712 by an English-dominated Tory government: an act which caused untold damage to the peace of Scotland's Church life for 150 years. Patronage – the right of a local landowner (sometimes the Crown) to appoint the parish minister – had been abolished in 1690 by the Glorious Revolution parliament. The 1690 Act had vested the right to nominate ministers in the “heritors” (the landowning gentry) and the elders of a parish, while, crucially, the congregation was given the right to accept or veto any nominee. The Tory government elected in 1710, however, was determined to restore the power of the landowners, and carried this through without any consultation with the Church. The General Assembly of May 1712 protested vigorously and instructed the commission of the Assembly to do everything possible to have the Act repealed. This instruction remained a standing order to the commission every year until 1784. But it was in vain. The offending Act remained on the statute books, and caused unending ecclesiastical strife in Scotland. The first and second secessions of 1733 and 1761 were essentially over patronage.

It is important to see the deep historical background in the 16th century Protestant Reformation to these debates over patronage. In terms of Church-State relations, there were in fact *three* distinct streams of Reformation in the 16th Century:

(i) The nationalist Reformers, who transferred the powers of the papacy to the state (king, prince, parliament, city council), in order to secure protection for Protestants against the papacy and to uphold the medieval ideal of a Christian society. This approach produced what we might call a “Protestant statism”, often loosely termed “Erastianism”, after the Swiss theologian Erastus (1524-83), an exponent of this view. Lutherans and the Anglican Church would fit into this statist or Erastian pattern.

(ii) Those Reformers who remained committed to the ideal of Christianising society and culture, and therefore believed in the rightness of a Christian state, but insisted that the institutional Church must be independent of state control. This stream of Reformation life has been called the “Reformed Catholic” outlook; it was exemplified in Martin Bucer, John Calvin, and the Reformed Churches.

(iii) Those Reformers who abandoned the ideal of Christianising society and culture, rejected the notion of a Christian state, and saw the Church as an alternative society living in an irredeemably wicked and hostile world. These were the Radical Reformers (often called “Anabaptists”).

The anti-patronage Evangelicals in 18th and 19th century Scotland stood in stream two, the Reformed Catholic stream. We notice that it was not equivalent to the popular concept of “separation of Church and

State”, in which the two bodies are completely divorced, because Reformed Catholicity was committed to a working partnership between the two: not a free Church ignored by a secular state, but a free Church coordinated with a Christian state. This explains Hugh Miller’s antipathy to the Voluntary Churches in Scotland and the Dissenting Churches in England, which had moved in his view into stream three, the Radical Reformation stream, by their extreme distancing of themselves from the State and all its works.

The Reformed Catholic stream of thinking was pioneered by Martin Bucer, the Strasbourg Reformer. He dissented from the state control of the Church that had marked the Protestant Reformation up till then; for Bucer, the Church was a divine society, quite distinct from the State, and Christ was the Church’s only Lord and Head. Bucer believed that Christ exercised this Lordship and Headship in the Church through special offices of ministry which were set down in Scripture. Bucer was not entirely clear or consistent on the number of these offices, but he mentions most often the pastor, the elder, and the deacon, sometimes adding the teacher and the evangelist. Martin Bucer, then, lies at the fountain-head of what became the distinctively Reformed view of the Church and its government and ministries. He was not able to put much body on this vision in Strasbourg, but it was to be taken up and given a fairly full embodiment by Calvin in Geneva. Calvin built on Bucer’s understanding, articulated it with greater force and clarity, and put practical flesh on it.

This Bucer-Calvin view of Church and State, and the relationship between them, constituted a distinctive and powerful motif within the Magisterial Reformation. It saved most of the Reformed Churches from becoming merely Departments of State, politically controlled – the condition into which the “statist” Lutheran Churches had drifted. In Bucer’s and Calvin’s thought, as in Roman Catholicism, the Church once again stood forth as a divinely ordained, free, independent society, with its own God-given laws and officers. This time, however, the Church was a Protestant body, with no Pope, acknowledging Christ as its only Head, submitting to Scripture alone, and teaching justification by faith alone. In the Scottish context, Andrew Melville, the spiritual successor to John Knox, gave this view its sharpest expression, and from Melville’s famous pronouncement to King James VI it is often called the “two kingdom” theory: “There are two kings and two kingdoms in Scotland. There is Christ Jesus the King and His Kingdom the Kirk, whose subject King James the Sixth is, and of whose kingdom not a king, nor a lord, nor a head, but a member.” This ideal of Church and State, institutionally distinct but in alliance, was the vision that animated the Evangelical opposition to patronage in the Scottish Church in the 18th and 19th centuries.

As I said earlier, Evangelical strength grew steadily in the Church of Scotland in the early 19th century. This growth was nurtured under a succession of able leaders: Sir Henry Moncrieff Wellwood (1750-1827), minister of St Cuthbert’s, Edinburgh; Andrew Thomson (1779-1831), minister of St George’s, Edinburgh, and editor of the influential magazine, *The*

Edinburgh Christian Instructor which he founded in 1810; and Thomas Chalmers (1780-1847), Professor of Divinity in Edinburgh University from 1828.

Andrew Thomson in many ways spearheaded the triumph of the Evangelical party in the Kirk. In the General Assembly he was a formidable debater, especially on matters of Church law. Thomas Chalmers described him as a man of “colossal mind”, “wielding the weapons of spiritual warfare” with “an arm of might and voice of restless energy”. His power in the pulpit made St George’s Edinburgh a throbbing centre of Evangelical faith and activity in the Scottish capital. The magazine Thomson founded in 1810, *The Edinburgh Christian Instructor*, was instrumental in articulating an Evangelical viewpoint and stimulating an Evangelical consciousness in the established Church and indeed beyond in the Secession Churches. Among the causes championed by Thomson were opposition to patronage, anti-slavery, and the exclusion of the apocrypha from Protestant Bibles. He was also a keen musician; the psalm tune “St George’s Edinburgh” was written by him.

The most significant of the Evangelical leaders in the established Church, however, was undoubtedly Chalmers, one of the giants of 19th century Scottish history (not just Church history). A native of Anstruther in Fife, Chalmers went to St Andrews University at the age of 11. Initially attracted to maths, he went on to study theology and was licensed to preach in 1801. In 1802 he was inducted to his first parish, Kilmany in Fife, where it seemed possible to pursue an academic as well as a pastoral calling. Indeed Chalmers became assistant to the maths professor at St Andrews at the same time as being minister of Kilmany. His presbytery accused him of spending too much time at maths, and not enough at his pastoral duties. Chalmers told presbytery to mind its own business – five days of leisure per week were perfectly acceptable for a pastor. Chalmers at this stage was clearly a Moderate – Burleigh calls him “a Moderate of the Moderates”.

At some point in 1810/11 Chalmers was converted from Moderatism to an Evangelical faith. It came about through a succession of deaths in the family and a prolonged serious illness on his own part. He abandoned his belief in salvation by moral conduct for an intense belief in justification by faith. His conversion not only transformed his own outlook, it launched Chalmers to fame and influence in the Evangelical world and in society at large. His *Astronomical Discourses*, in which he considered Christian belief in relation to the most up-to-date astronomy of the day, were a national best seller. His preaching, now that he was an Evangelical, was electrifying: he would be perhaps the number one contender for the title of 19th century Scotland’s greatest preacher in terms of the effect he had on audiences. After Andrew Thomson’s death in 1831, Chalmers became the undisputed figurehead of the Evangelical party within the established Church.

The result of growth in Evangelical strength in the Church of Scotland was that in 1834, for the first time, Evangelicals had a majority in the

General Assembly. They used the opportunity to pass two important acts: the Chapels Act and the Veto Act. The Chapels Act gave full ecclesiastical recognition to Church of Scotland chapels. These were centres of worship outside the parish system, which had been erected by congregational subscription, usually in industrial areas. The chapels were not parish churches; they were purely spiritual organisations, whose ministers had no seats in any of the Church courts. The need for chapels had arisen because parish boundaries could be altered only by parliamentary act. The Assembly sidestepped this by simply investing chapels with full ecclesiastical status in their own right, even though they were not parish churches. These chapel ministers were now admitted to the Church courts – a great accession of strength to the Evangelicals, since most chapel ministers were of their party. By 1843 some 200 chapels had been recognised as being the equivalent of parish churches (by the Church, not by parliament). Technically the chapels were parish churches “quoad sacra” (for ecclesiastical purposes), but not “quoad omnia” (for civil purposes).

The Veto Act was the Evangelical answer to the patronage controversy. It left unaltered the patron’s right of presentation, and presbytery’s right of induction, but it gave to the male heads of households in the congregation the right to reject the patron’s nominee by a majority vote. The government’s legal advisers said this was permissible, and where the crown was patron the Act began to operate. It was a compromise; some ardent Evangelicals voted against the Act because they wanted to abolish patronage totally, not mitigate its effects. But many Evangelicals, including their leader Chalmers (who was a high Tory in politics), were suspicious of the popular election of ministers – it smacked of anarchism in the political climate of the 1830s. So most were prepared to opt for a balance between patron and congregation. The policy was known as “Non-Intrusion”: a patron could not intrude a minister on a congregation against its will. This was intended to achieve the aim of mitigating the bad effects of patronage without actually abolishing it altogether – patronage with a popular flavour, as it were. The leaders of the Non-Intrusion party in the Kirk (all Evangelicals) were Chalmers, Robert Candlish of St George’s Edinburgh, and William Cunningham of Trinity College Church, Edinburgh. Candlish and Cunningham were more radical than Chalmers in their opposition to patronage, and Candlish rather than Chalmers was looked upon as the real enemy by the Moderates.

The Moderates offered five main arguments in opposition to the Veto Act: (1) The most popular candidate is not necessarily the most suitable; the mob is fickle but patrons are reliable Christian gentlemen; (2) It could cause conflict between factions adhering to different candidates; (3) The Act interfered with property rights (patronage was a saleable commodity), and property rights were the concern of the state, not the Church. The Act could therefore alienate both the landowners and the government from the Church; (4) Prior to 1834, the right of veto had belonged to presbytery, not the local congregation; its transfer to the latter smacked of Independency and threatened the Church’s unity; (5) The negative form

of the call embodied in the Act was an innovation, contrary to the Scottish Protestant tradition.

The Church, then, was split over the Veto Act; and from its being passed in 1834, the ensuing conflict culminating in the Disruption of 1843 is known as the “Ten Years’ Conflict”.

After the Veto Act was passed there arose a series of cases where the patron and/or his nominee challenged a congregation’s use of the veto. Nominees were prepared to try to force themselves on an unwilling congregation because there was quite a surplus of aspiring ministers needing a congregation; and whereas a trained Church of Scotland licentiate could always become a tutor, that only brought in £20 per annum, as compared with £150 per annum, in the parish ministry. The first case of a nominee taking on an unwilling congregation was typical. The Earl of Kinnoull presented Robert Young to the parish of Auchterarder in Perthshire. The congregation vetoed him, whereupon the presbytery summarily rejected him. The Veto Act barred them from even examining a nominee’s qualifications if a congregation rejected him. In 1837 Young took his case to the Court of Session and argued that since he had been legally presented, presbytery was bound by parliamentary statute to examine his qualifications. The Court decided in Young’s favour by eight votes to five. This amounted to a declaration by a civil court that the Veto Act was illegal: the Church had no power to alter a parliamentary statute.

At this point, it was possible that the Evangelicals might have repealed the Veto Act and tried to find some other way of nullifying the evil effects of patronage. Chalmers was in favour of this approach. But it was rendered practically impossible by the speech made in the Court of Session by John Hope, Dean of the Faculty of Advocates. Hope (1794-1858) was the mastermind behind the opposition to the Evangelicals. He was a devoted son of the Church of Scotland, and hated the idea of schism which he believed the Evangelical Non-Intrusionists were promoting: hence his committed opposition to them. Hope argued in court that the Church as an institution was the creature of the state. The establishment of the Church by law meant that the Church derived all its rights and privileges from acts of parliament. Any idea that the Church could be an independent self-governing community existing by divine right and capable of entering into an equal partnership with the State, Hope dismissed as both absurd and anti-Christian.

Hope’s speech inflamed tempers beyond the possibility of reconciliation. The non-established Protestant Churches in Scotland that did not believe in the principle of establishment rejoiced triumphantly: Hope had torn off the mask and revealed the true meaning of establishment – namely, the slavery of the Church to the State! The Evangelical Non-Intrusionists in the Kirk were incensed. Instead of looking again at the Veto Act, they felt they had to challenge Hope’s interpretation of the establishment principle; and so they appealed from the Court of Session to the House of Lords to uphold the Veto Act. When the case eventually came before the Lords in March 1839, the law lords rejected the Veto Act

even more decisively than the Court of Session had done. They declared that rights of patrons were absolute and that no objections by a congregation were relevant. Damages of £15,000 were also awarded against the Church on behalf of the Earl of Kinnoul and Robert Young. This may also have tipped the balance in many Evangelical minds towards the idea of breaking away from the Church-State connection: could an established Church afford to pay such colossal damages, with another 39 disputed settlements scheduled for the courts?

It was of course the 1839 decision in the House of Lords that precipitated Hugh Miller into the struggle. As we know, he was particularly incensed by the remarks of one of the law lords, the ex-Lord Chancellor, Lord Brougham, who had dismissed the right of congregations to choose their own ministers as “an obsolete right which has not within the time of known history ever been exercised by any people”. Miller took up his pen and responded with his *Open Letter to Lord Brougham*, in which he vigorously took the Non-Intrusionist side of the debate: “I am a plain untaught man, but the opinions which I hold regarding the law of patronage are those entertained by the great bulk of my countrymen and entitled on that account to some respect.” He went on to condemn the patronage act of 1712 as “a deep and dangerous conspiracy against the liberties of our country”. Miller’s eloquence earned him the attention and gratitude of Evangelical leaders in the Church, with the result that towards the end of 1839 he was appointed editor of the *Witness* magazine, a periodical devoted to championing the Evangelical and Non-Intrusionist cause.

The arguments that followed the Robert Young case and similar cases centred on the idea of the “call” (what constitutes a man’s call to be minister of a particular congregation?). Evangelicals argued that an essential qualification in a minister was acceptability to the congregation he was to serve. Some Moderates went along with this, but the House of Lords had rejected it, ruling that ministerial qualification concerned only professional qualifications “in life, literature, and doctrine” and that a presbytery alone (not a congregation) was fit to judge these. The issue inevitably began to swing to Church-State relations. What right did the House of Lords have to pronounce on a Church matter? Three theories about Church-State relations emerged as being in conflict: (1) Evangelicals held to the traditional Presbyterian two-kingdom theory, classically stated in Scotland in the 16th century by Andrew Melville, where Church and State each have their own sovereign sphere, within which each is its own master. The precise boundaries between the two kingdoms must be determined by mutual agreement. (2) Moderates held that the State had the right to determine the boundaries between the two kingdoms. (3) The lawyers, led by John Hope, argued that there was only a single kingdom, the civil or political, from whose grace the Church derives any rights she may have as a subsidiary corporation within a unitary all-powerful state.

The Church of Scotland turned to parliament to repeal the Patronage Act of 1712, but circumstances were highly unfavourable for state action on the Church’s behalf. There were five reasons for this: (1) Whigs and

Tories were very evenly balanced; neither wanted to move too quickly in case they alienated sections of the electorate. (2) The Whig leader, Lord Melbourne, personally detested Evangelicals, especially Chalmers, who was a Tory. (3) The Tories, in power from 1841 under Sir Robert Peel, feared all change and saw the Veto Act as a manifestation of popular radicalism. (4) Some English observers saw in the patronage controversy the troubles of the Oxford Movement all over again (the movement within the Church of England led by John Henry Newman, Edward Pusey et al, which among other things aimed to assert the independence of the Anglican Church from state domination). Traditional Anglican Protestants who believed in state control of the Church were not about to countenance this sort of thing in Scotland when they opposed it so strongly in England. (5) There was a stubborn English inability to understand Scottish problems. In a last-ditch parliamentary attempt in 1842-3 to stop the Church of Scotland splitting, Scottish MPs in Westminster voted largely in favour of new proposals aimed at keeping the Evangelicals within the established Church, but they were defeated by an English majority.

An episode that helped to alienate the politicians was the so-called "Reel of Bogie". At Marnoch in Aberdeenshire, in the presbytery of Strathbogie, the patron's nominee John Edwards was rejected by the congregation. But he got the backing of the civil courts. Of the 11 ministers who constituted the presbytery of Strathbogie, seven were Moderates who went ahead with the induction in obedience to an edict of the Court of Session. The General Assembly suspended and deposed them. Of course this looked bad in the eyes of parliament because the Church had deposed the seven ministers for obeying the law of the land! By March 1842 there were two rival churches and two rival kirk sessions in Marnoch, and two competing presbyteries in Strathbogie. The result was that most politicians were finally alienated by this action. Further, it precipitated the rise of a mediating group of Evangelicals led by Norman Macleod of Loudoun (1812-1872) and Matthew Leishman of Govan (1794-1874). They constituted the so-called Middle Party, who were Non-Intrusionist in principle but not ready to disrupt the Church for the sake of that principle.

The Evangelical case was summed up in their manifesto, the Claim of Right, prepared by the Evangelical lawyer Alexander Murray Dunlop and published in May 1842. The Claim accused the state of usurping the power of the keys (the Church's power of internal discipline). Traditional warcries from the era of Andrew Melville and of the Covenanters were used unsparingly – "the sole headship of Jesus Christ in His Church", "the crown rights of the Redeemer", "spiritual independence". The Claim was ratified by the General Assembly of May 1842, and the Evangelical majority called on parliament to accede to its demands, including the immediate abolition of patronage (Evangelical demands had become more radical since 1834).

The Moderate counter-case against the Claim of Right had four main points: (1) The Veto Act had been declared illegal by the lawcourts of the land, and the law must be obeyed until it is changed; (2) Of course Christ

is spiritually and in principle the one head of the Church, but what this means in down-to-earth practice is another matter. It does not necessarily conflict with patronage; (3) The pre-1834 ways of keeping out bad ministers are efficient enough; and besides, what right does a local congregation have to reject a candidate accepted by the whole Church?; (4) Bad as the situation may be, it is not bad enough to justify schism. By 1843 a significant number of Evangelicals, the Middle Party of MacLeod and Leishman, were agreeing with this fourth point.

In November 1842, there was a great meeting of Evangelicals in Edinburgh. They pledged themselves to secede from the Church if the Claim of Right were not accepted. Chalmers outlined a brilliant plan for organising a Free Church of Scotland.

In January 1843 the Court of Session declared the Chapels Act illegal. The vast majority of Chapel ministers were Evangelicals; so if their chapels were not legally churches, they had no right to vote in the 1843 Assembly. Thus when the Assembly met on May 18th in St Andrews Church, Edinburgh, the Evangelicals found themselves in a minority for the first time in 10 years. The Moderator was Dr David Welsh, Evangelical professor of Church history at Edinburgh University. The Assembly was not formally constituted. Instead, after prayers, Welsh read out a protest subscribed by over 200 of the Evangelical ministers and elders present. The protest said that since the State had rejected the Claim of Right, a free Assembly of the Church of Scotland was impossible. Under such conditions, the signatories to the protest could not in conscience continue their connection with the state. These conditions were subversive of the 1690 Revolution settlement and derogatory to the Crown Rights of the Redeemer. When he finished, Welsh laid the protest on the table and left the Assembly, followed by Chalmers, Candlish, Cunningham, and the other signatories. Three abreast, they marched arm in arm down George St and Hanover St to Tanfield Hall. The planned march was expected and crowds lined the streets to cheer the Disruption fathers with great enthusiasm. In Tanfield Hall, Welsh took the chair, to mark the continuity with the General Assembly in St Andrews Church – this was not a new Assembly, but the same one now free of state connection. However, a new Moderator was elected – Chalmers.

The Church of Scotland lost about a third of its entire membership in the Disruption, and that included almost all its more active and committed members. It lost 474 ministers (out of 1226). In the Highlands, almost the entire population abandoned the parish churches. Virtually all the Church of Scotland missionaries went over to the Free Church. The typical pattern of the Disruption at grass roots level is illustrated by what happened in three Highland parishes: Tain, Strath, and Portree. In the parish of Tain, which encompassed a prosperous little town, a fishing village, and a country district, the minister Charles MacKintosh, an Evangelical, and almost his entire congregation, seceded from the established Church and went into the Free Church. In Strath, a rural parish on the Isle of Skye, the minister John MacKinnon, a Moderate, and almost

all his congregation remained within the established Church. In Portree, a parish made up of small rural communities, also on Skye, the minister Coll MacDonald, a Moderate, remained within the established Church, but was deserted by almost the whole of his congregation, who seceded and joined the Free Church. The same story was repeated across the parishes of Scotland. All Moderate clergy stayed in the established Church; sometimes they retained the loyalty of their congregations, sometimes they did not; most Evangelical clergy left the established Church, and they took most of their congregations with them. When a congregation with a Moderate minister abandoned him and joined the Free Church, it was very likely the result of Evangelical influence: e.g. in Portree, the congregation had been deeply affected by the preaching of Roderick Macleod, the Evangelical minister of Snizort, just north of Portree.

So there we have the religious and political backdrop of the Disruption as the context of Hugh Miller's life and work as a Churchman in the 1830s and 40s. I hope the narrative has been both coherent and succinct, and that it has helped us to anchor Miller a bit more firmly in the events and issues of those eventful times.



The Procecion from Saint Andrews Church, George Street, Edinburgh, 18 May 1843.

Robert Buchanan, *The Ten Years' Conflict* Edinburgh: Blackie & Son 1867, Volume II, facing page 443

Understanding the Politics of Hugh Miller

Revd David Robertson, Minister of the Free Church, Dundee

The historian always has to be aware of a certain amount of subjectivism analysing any historical character. I confess to be guilty in this respect as regards Hugh Miller, but I am sure you will forgive a certain amount of subjectivism in this paper for it is a subject that is very close to my heart. I am from Easter Ross. I was brought up in this area. I lived on top of the Nigg cliffs and many times swam off Nigg beach or climbed the cliffs looking towards Cromarty. I was fascinated by the rocks and the stones found in the quarry on top of Nigg. As a boy I was aware of Hugh Miller and the fact that he was someone famous from this area. When I read *My Schools and Schoolmasters* I not only recognised many of the places and descriptions but could also identify with much of what Miller experienced as he discovered the Footprints of the Creator.

Having gone to Edinburgh University and then the Free Church College, I then returned to the North as Free Church minister of Brora. There I came into contact with living history. I met a man whose grandfather had told him of his personal experiences in the Clearances. I read of Gordon Ross, the tragic SSPCK schoolmaster of Clyne – whose child was killed in the Clearances. Each time I return to my parent's home at Portmahomack I sit and look out the window across the Dornoch Firth to that monstrosity of a statue celebrating the Duke of Sutherland. Again reading Hugh Miller was a thrilling experience. Here was a man who understood, and who was able to campaign on behalf of the poor and the oppressed. Being from Easter Ross, being a Free Church minister you will thus forgive a certain amount of identification with the one founding father of the Free Church who came from this area.

I have been surprised in recent days to read accusations that Miller was in essence a political conservative – someone who belonged to a church which acquiesced in, if not supported the Clearances. This paper will demonstrate that that view is at best a misunderstanding of Miller's politics. Many is the time I have had to listen to those who, with very little knowledge, have pontificated on how the church acquiesced in the Clearances – either by supporting the landlords or by being so pietistic that they discouraged any kind of resistance. This is more often something that is assumed rather than proven. As we shall see from Hugh Miller it is an assumption that is largely without warrant. His politics have often been misunderstood. Was he the scourge of the landlords – the radical? Or was

he the upholder of a conservative order which ultimately opposed the poor?

In looking at Miller's politics we need to be careful of both a 21st century subjectivism and chronological snobbery. We also need to realise that interpreting Miller through the lens of a Marxist, or indeed anti-Marxist, historiography is not helpful in terms of understanding him. Therefore what I will do in this paper is present you with the evidence from Miller's own writings on a wide range of political subjects. Only then will we be in any kind of position to judge. It is interesting to see how these impact on current affairs - Iraq, the Falklands, Council house sales, the Countryside Alliance and the European Court to name but a few! It should also be borne in mind that Miller's views were filtered through his Highland experiences and above all, his religious convictions.

The sources for this overview of Miller's political views – especially as regards the Clearances are the essays, *The Witness*, and a pamphlet written by Miller and published in 1843 *Sutherland as it Was and Is*. In this pamphlet Miller cites earlier sources such as General Stewart of Garth, Sismondi and Cobbett. It itself was widely used as a source by John Prebble and Alexander Mackenzie. There is a copy in the National Library of Scotland.

The land and the landowners

Miller begins by citing Sismondi: “a count or an Earl has no more right to expel from their homes the inhabitants of his county, than a King to expel from his country the inhabitants of his kingdom”. Miller is bitter about the economists in his own country and praises Sismondi for his essay on the late Duchess of Sutherland. It is interesting how widely read Miller was and how aware of the politics of other countries. For example he contrasts the law in Switzerland which protects the peasant whereas the law in Scotland protects the landlord. He laments that the English doctrine of property has replaced the Highland system so that, whereas the chief was once leader of his clansmen, now he regards them as hired labourers.

As regards the Sutherland Clearances Miller points out that 15,000 people had been removed from their “snug inland farms”. Certainly the population had increased in Sutherland overall – but that was mainly on the coasts. The Sutherland Highlanders were now a “melancholy and dejected people, that wear out life in their comfortless cottages on the seashore”.

There are those who argue that Miller had too romanticized a view of the pre-clearance conditions. This is an argument that Miller himself was well aware of. He declares that the Highlands was indeed a different culture and in some ways was a thousand years behind. But he argues against assuming that the poverty of the glens was any worse than the poverty of the Central Belt industrial areas. He also points out that one should not assume that the Highlands were poor because the people ate nettle broth and black pudding, any more than one should assume the poverty of the

French because they ate frogs' legs, or the Italians because they ate snails!

Miller argues that there had indeed been a significant change in the Highlands but this was because the Highlanders no longer had capital (in the shape of cattle), because of the detrimental effects of the introduction of the potato and because of emigration – the best people leaving.

Miller's solution to this? Greater land ownership; "The first thing to improve the labouring man is to hold out to him the prospect of an independent position, which he may hope to attain by prudence, economy and honest labour". This greater land ownership is also necessary in order to improve food production. As the land has been concentrated in the hands of fewer and fewer individuals in the Highlands, this has, unlike England, led to lesser rather than greater food production.

Housing

Miller notes that in the rapidly industrializing Lowlands, as manufacture increased so the quality of housing declined. In the Highlands the introduction of the Bothy system was also a detrimental step. He was deeply concerned about this because he regarded housing as being crucial to social well being, human dignity and the prevention of crime. For that reason he believed strongly in private ownership but also advocated planned housing. The housing market should not be left to the hazards of "avaricious speculation" – something applicable to our current housing market where properties are increasingly viewed as a financial investment rather than a home.

Crime and punishment

The basic principle here was that people should be governed according to the laws that they themselves, or at least their representatives, had made. It was not for 15 "irresponsible judges chosen by the Monarch" to make law. The Court of Session was there in a judicial capacity (to interpret the law), it was not there in a legislative capacity (to make law). Above all judges must not go against laws that are made by the representatives of the people.

Miller notes that there are laws which turn people into criminals. He asks what would happen if all red heads over 6ft tall were to be made illegal? Would they not start behaving like criminals? Likewise with the recent spate of "gamekeeper murders". Not that this would justify murder, but if the laws on game are unjust then surely it will make those who break them act more like criminals. He writes: "There are few things more truly natural to man than a love of field sports". The Countryside Alliance might love that but have more difficulty with his other observation concerning "the mere idle amusements of a privileged class, comparatively few in number, and who have a great many other amusements fall within their reach". He is puzzled as to the laws which make hares property but not rabbits. And why are the birds of the air and the fish of the sea for all, and yet not the salmon? In a lengthy and humorous satire he castigates the

Court of Session for declaring that the Cromarty and Dornoch Firths are not sea, but rather rivers. “Yes, gentle reader, it has been legally declared by that ‘infallible civil court’ to which there lies an appeal from all the decisions or our poor ‘fallible church’, that Scotland possesses two rivers of considerably greater volume and breadth than either the St Lawrence or the Mississippi.” Miller then goes on to comment that the Cromarty Firth is in open rebellion against the Court of Session. It continues to think it is a sea, refuses to produce fresh water and carries on producing its ocean products. What should the Court of Session do with this flagrant rebellion? It should seek to bring it to the Bar – perhaps Canute-like, it should rebuke it from the North Shore!

“The Lords of Session must assuredly either bring the rebel to its senses, or to be content to leave their legislative wisdom sadly in question. For ourselves, we humbly propose that, until they make good their authority, they be provided daily with a pail of its clear fresh water, drawn from depths not more than thirty fathoms from the surface, and be left, one and all, to make their toddy out of the best of it, and to keep the rest for their tea”.

As well as ridiculing the Court of Session and arguing for just laws Miller suggested that rather than send criminals to Australia, Britain should establish a penal colony on the Falkland Islands.

Religion and politics

Miller would not have recognised the argument that religion and politics do not mix. It was obvious to him that Christianity affected everything – including politics. This was especially clear in his comments on the Sutherland Clearances. He argues that a major factor was the antagonism of the Duke of Sutherland to the Free Church. And why was the Duke so opposed to the Free Church? Because he was scared that the Church would expose his evil and unjust dealings. There was a great inconsistency in the Duke of Sutherland, who in order to protect the Establishment, persecuted the Free Church. Yet he himself did not belong to the Establishment. Thus he denied his tenants a right he took for himself. Miller was scathing in his sarcasm and denunciation.

In terms of political action Miller argued for the power of the pen – the power of persuasion. The battle must be fought in the area of public opinion. He was vehemently anti-Chartist because of the violence involved. But that did not mean he was a political pietist. Rather he argued for matters such as the Clearances to be raised in Parliament, the General Assembly of the Free Church and all bodies of evangelical dissenters. He wanted public meetings throughout Scotland and in London and America. It was the duty of the Church. “The case of the poor must be wisely considered, or there will rest no blessing on the exertions of the church”.

This is a far cry of the image of the evangelicals so often presented by

some writers. Fiona MacColla in her novel *And the cock crew* suggests that the guilt for the Clearances was shifted by the ministers to the sin of the people and the minister's message of submission to God. Yet this was not the message. It is easy to pontificate from a distance about offering violent resistance - but what would have been the practical effects of so doing? Miller argued that the Scots should not go the route of the Irish. He argued for passive resistance and proves that there was such. We should be thankful that, given the subsequent history of Ireland and Scotland, Miller's message of non-violent passive resistance was largely heeded. It surely says something about the Scottish psyche that we laud those such as Gandhi and Martin Luther King who preached such a message, but when it is an evangelical Presbyterian who advocates this position, he is condemned as a conservative collaborator!

War

Miller was not however a pacifist. Far from it! His fascination with guns was to have fatal personal consequences. However he did have some interesting comments to make on the various Peace Societies that were all the rage in the late 1840s. He remarks that these societies even seem to be making a mark on "the American mind, albeit naturally a war-breathing mind, combative in its propensities and fiery in its elements".

Rousseau's idea of a European Court of Arbitration was a good one but how was it possible with despotic governments? We must first of all be pure then peaceable. However he did have a great deal of sympathy with the peace movement - "that dislike of war which good men have entertained in all ages is, we are happy to believe a fast spreading dislike".

"And of course, the more the feeling grows in any country, which, like France, Britain, and America, possesses a representative Government, the less chance there will be of these nations entering rashly into war. France and the United States have always had their senseless war parties. It is of importance, therefore, that they should also possess their balancing peace parties, even though these be well-nigh as senseless as the others. Again in our own country, war is always the interest of a class largely represented in both Houses of Parliament. It is of great importance that they also should be kept in check, and their interest neutralised, by a party as hostile to war on principle as they are favourable to it from interest".

Poverty

Miller accepts that poverty is often attended by vice and crime. He was opposed in principle to the Poor Law legal assessment and yet gave evidence in favour of it for the Highlands out of sheer desperation. His objection to the law was that it would "of necessity widen that gulf, so perilously broad already, which separates the upper from the lower classes". As regards the effects of pauperism Miller argues that it is easier to deal with the effects than the causes. He cites the example of twenty workmen

who were young and two thirds of whom were irreligious. They were paid fortnightly on the Saturday night and some took until the following Wednesday to return to work. On the other hand Miller observed a poor labourer who received half the wage and yet managed to support his mother and to save money. This man attended church and thus received the motivation and teaching necessary. Perhaps this would suggest that Miller believed that poverty was self inflicted. However that was not the case. He recognized that there were people who were poor through no fault of their own – indeed he argued that it was the duty of the State to maintain “the heaven ordained poor – the halt, the maimed etc”. He also believed in the right and duty to work – “of all non-theological things, labour is the most sacred, of all non-ethical things, labour is the most moral”.

Chartism and nationalism

Miller, like most in his day, had a dread of universal suffrage. Even if it were attainable it would be useless. It would lead to the poor oppressing the poor. It is for this reason that he was so opposed to the Chartists – “And it is according to our experience that there is more of this injustice and tyranny among that movement now known as Chartists”.

Those who want to argue for Miller’s “conservatism” point to his attitude towards strikes. “Strikes”, he wrote “are unquestionably great evils”. They hand power to the rabble and the moral character of their leaders has to be called into question. However Miller was not opposed in principle to strikes – more to the practical results of them. “And yet, disastrous as strikes almost always are, it cannot be questioned that the general principle which they involve is a just one – quite as just as that of the masters who continue to resist them”. One of the major difficulties and injustices in industrial relations was that legislators and employers in Britain were synonymous. Miller felt that the reconciliation of capital and labour was a major concern. He argued that the capitalist’s version of striking was to refuse to employ labour and he upheld the right to strike. “If men strike at all let them strike for the Saturday half holiday”.

Miller was a great Scottish patriot – from the days he first heard as a child about William Wallace. Although he had a great pride in his country it was not the kind of nationalism which depended on hatred of others, although he had no great love for the English aristocracy – especially the Staffordshire family. He explained the apparent heartlessness and indifference of the Duchess of Sutherland as being due to the fact that she was brought up in the South of Scotland “away from her clan and the influence of the Sutherland religion”.

Conclusion

It is impossible to understand Miller’s politics without understanding his view of the Highlands and his deep Christian faith. He believed in human dignity, hard work, education, social justice, good housing, private

property, greater land ownership and the state/church partnership. He believed that changing laws did not change people yet he also believed that it was the responsibility of government to provide just laws. In some ways his views seem quaint and outdated, yet in many others they seem contemporary and relevant. They are certainly a fine example of a Christian mind wrestling with the great social and political issues of the day and making a considerable impact. We have much to learn from him.



Preaching Tent and open-air Service, at Duthill, in Strathspey.

Rev'd Thomas Brown, *Annals of the Disruption* New Edition Edinburgh 1893, facing p. 242.

“ A hotbed of bigotry” and “a sea of difficulties”: the Free Church in Hugh Miller’s Scotland

Hugh Cheape, National Museums of Scotland, Edinburgh

This title draws on two contemporary phrases, the words respectively of individuals expressed at the time, representing antipathies and dilemmas and unequivocal – or unequivocating – attitudes of the period of the Disruption of 1843. They are the *verba ipsissima* of people involved in and at the forefront of events in the Highlands in the early nineteenth century. They represent views which do not on the whole hold the same appeal today but it is significant for our topic that they were at this time robustly held and vigorously articulated. They reflect on the one hand, how people saw and reacted to some of the problems of confrontation, and on the other, how they faced the challenges which they had set for themselves. These were not words uttered or penned by Hugh Miller himself but they are words and sentiments the force of which he well understood.

In point of fact, the first phrase, “a hotbed of bigotry”, is drawn from a manuscript notebook in the collections of the West Highland Museum, Fort William, kept by Rev Archibald Clerk, the Church of Scotland minister of Kilmallie, and described for him the neighbourhood of Strontian on Loch Sunart, a stronghold of evangelicalism, of dissent and of the Free Church.¹ The second phrase, looking at the contemporary world from the point of view of the Free Church, is drawn from comments made by Dr Alexander Beith in describing the “Highland Tour” undertaken in 1845 by the leading churchman of the Free Church, Rev Dr Robert Candlish, to seek solutions for the enormous problems facing the Secessionists in the Highlands and Islands.² This paper examines some of the background of these views and the situation of the emerging Free Church in the Highlands in the early nineteenth century. From the point of view of Hugh Miller himself, the period leading up to the Disruption was more significant and formative than the years after 1843. In terms of the often complex history of this period, a limited selection of topics only can be treated within the space available; they are chosen for their intrinsic significance and in view of their sparse treatment in many accounts of the emergence of the Free Church.

The Disruption of May 1843 was arguably the most momentous single event of the nineteenth century in Scotland and its repercussions were felt in all areas of Scottish life. About a third of the ministers of the Church of Scotland quit the Establishment when 451 clerical members withdrew

from the General Assembly and reconvened in Tanfield beyond Canonmills to sign the Act of Separation and Deed of Demission.³ The arguments concerning principles of church government which led to it, political and with a firm spiritual and theological underpinning, were conducted in the General Assembly, in the Courts and in Parliament. The Church’s claims for the restoration of congregational rights and counter-claims of dogmatism were launched with particular vigour from 1834, when the judgement of the House of Lords in the Auchterarder Case initiated a period known as the “Ten Years’ Conflict”.⁴ Though modern Scottish ecclesiastical and religious history may seem pedantic and perverse, even impenetrable, to the modern mind, and has in the past attracted scorn and caricature, the issue at the time was simple and the response rational. The final outcome however gave much cause to question rationality since it had such dramatic personal repercussions. The individual experience was one of often painful self-sacrifice in giving up parish, manse, glebe, stipend and all means of bodily support.

The matter of church government was central to Scotland’s Reformation in 1560. The principle of a congregational right to select their ministers had been enshrined in the Book of Discipline prepared by the Reformers in 1562 and had been eroded by the Crown in the seventeenth century and the State in the eighteenth century. By the terms of the Treaty of Union, the rights of the Church of Scotland as re-established in the Revolution Settlement of 1690 were guaranteed, and thus the subsequent Patronage Act of 1712 was a clear and direct breach of the Treaty. This Act restored the rights of patrons to present ministers to parishes although it nodded in the direction of safeguarding congregational rights; a majority of a congregation had the right to dissent from a “call”, leaving the matter to be resolved by the Presbytery. The General Assembly annually tabled a protest against the statute but the growing ascendancy of the Moderates with their reluctance to offend patrons ensured that ultimately this was dropped. The heritors, the lairds and gentry, and the Scottish aristocracy were, as the century progressed and with the rise of so-called “political management”, effective rulers who generally distrusted or disliked the claims of kirk congregations.

The question of patronage, that is the presentation of nominee ministers to parishes, which had been firmly laid aside at the Reformation, became one of the “great conditioners of Scottish ecclesiastical, cultural and social history in the eighteenth and nineteenth centuries”.⁵ Secessions invariably arose such as in 1733 and 1752 from the refusal by congregations to accept presentees and the support in the General Assembly of the small band of adherents to the 1690 Settlement and the Covenants. These were the “Evangelicals” whose most extreme position was to call for adherence to the Covenants of 1638 and 1643 and to accuse the clerical establishment of “Erastianism”, that is an unacceptable subjection of the church to the state. When Rev Ebenezer Erskine, the minister of Stirling, re-formed his congregation in 1733, his words to the Assembly concerning the Act anent Calls were compelling and politi-

cally challenging: “I can find no warrant from the Word of God to confer the spiritual privileges of His House upon the rich beyond the poor, whereas by this Act the man with the gold ring and gay clothing is preferred unto the man with the vile raiment and poor attire.”⁶ Presbyterian dissent on these issues of lay patronage and the suspicion and fear of “Erastianism” and the freedom of the church from the state grew particularly in Central and Southern Scotland, the areas of significant economic change. These were the areas which were experiencing the greatest impacts of growth of population and of conurbation in the new industrial towns, and prompted the pragmatic response in a process of “church extension”.

The process of urbanisation was very rapid in Scotland, developing dramatically in the second half of the eighteenth century from a relative stagnation in the seventeenth century, a population estimated at just over one million at the time of the Union, and a weary acceptance of the vicissitudes of famine and strife. These were the topics on which Hugh Miller’s journalistic skills were honed and these were the seedbeds of opposition to the Established Church as well as of the movements for political reform and democracy. To describe, as textbooks do, late-medieval and early-modern Scotland as a subsistence economy would not do justice to what was for most communities a self-sufficiency and a modest surplus. An early-seventeenth century writer, Sir Thomas Craig, described Scotland’s “rough plenty” and a traditional interdependency in too frequent experience of dearth when it was considered normal that: “Should there be a bad harvest, the Highlanders are able to supply us with cheese, which is often used, and without any injury to health, when the supply of cereals is short”.⁷ But this interdependency and balance between arable and grazing economies, between Highlands and Lowlands, was fatally shattered across Scotland for example in the “Ill Years” of the 1690s. The so-called “industrial revolution” drew the bulk of the population into the central belt of Glasgow and Edinburgh and a demographic structure which reflected the old interdependency and balance of the “rough plenty” was shattered. Rev Alexander Webster’s survey of 1755 shows that the population of Scotland was more evenly spread with more than fifty percent living north of the Tay and probably about thirty percent of the total belonging to the Gaelic-speaking Highlands and Islands.⁸ By 1850 therefore, measured on a statistical datum of percentage of population living in settlements of at least 100,000, Scotland was second only to England as the most urbanised nation of Europe.⁹ The pace and extent of change was traumatic.

The experience of the Highlands and Islands was substantially different though no less bruising and traumatic, and the region evolved into the desolate wilderness or romantic landscape – depending on taste and standpoint – which we occupy today. They had suffered more critically in the wake of the Jacobite Wars of 1689-1746, and the political adversity of the eighteenth century was replaced by economic depression, clearance, famine, epidemic and emigration on a catastrophic scale. Ingredients in

this destructive process which have a particular bearing on the Disruption and the fortunes of the emerging Free Church were that Highland landlords' powers were more absolute and their hold on the people more rigid; evangelical views were strong in many areas but there was much less representation of Secession churches than in the Lowlands and in the burghs. Highlanders tended to sustain the older Scottish tradition of rejection of schism and sectarianism, and not regarding themselves as a distinct religious communion if they differed from the Establishment. The refusal of congregations to accept presentees, which grew more common by the end of the eighteenth century, tended not to be so evident in the *Gàidhealtachd* but yet a more than proportionate number of congregations, about two hundred, left the Establishment in May 1843. The Protestant population of the Highland and Islands almost unanimously went with the Free Church; it was thus a mass movement and a profoundly and thoroughly popular movement.

Given the social and economic conditions in the Highlands and Islands such as a hierarchical structure of society and the growing poverty of the mass of the people, a virtual class conflict had emerged with, on the one hand, an evangelical opposition to and resentment of landlord control of patronage and, on the other, obstruction and harassment of Secessionists and dissenters by the landlords. The missions of the Haldanes and the much publicised religious “revivals” created an evangelical strength buoyed up also by the Separatists' dislike of the Moderates; they spoke openly against what they characterised as “the dark cloud of Moderatism” and the “midnight of the Church of Scotland” whose ministers “ate the bread of orthodoxy and in practice trampled on the doctrines and precepts of the Church”. Feelings ran high against the Moderates who were openly despised as a class and generally vilified by the Highland and Hebridean Evangelicals. This was one obvious manifestation of the alienation between people and clergy who as *ministearan an arain* or “bread ministers” were condemned wholesale in spite of their many good qualities and some clearly outstanding individuals.¹⁰ But the reaction of evangelicals against the Established Church clergy was social as well as religious. Duncan Campbell (1827-1916) of Glen Lyon in Central Perthshire, later editor of the Inverness-based *Northern Chronicle*, wrote that the Moderate ministers were described as “lazy workers in the vineyard and lovers of loaves and fishes”.¹¹ In general in the Gaelic context they were condemned for being large-scale farmers, since Highland glebes were generally large, because they pursued agricultural improvement at the expense of their pastoral duties, for their preaching which was considered poor, and they were frequently being accused of good living, one or two being openly described as addicted to alcohol. The popular Skye preacher, Rev Roderick MacLeod of Bracadale and Snizort – known still to tradition as *Maighstir Ruairidh* – when describing his own conversion experience in the mid-1820s, wrote:

“During the first three years of my ministry, I was an entire stranger to the Gospel scheme of salvation; and no wonder, for the staple theology of

Skye preaching in those days was nothing better than scraps of Blair's Sermons or some other equally meagre stuff, so that I have often thought that I scarcely ever heard the Gospel till I began to preach it myself ..."¹²

In the face of likely retaliation, revelations of clerical drunkenness tended to remain "underground" in the oral tradition and it is unusual to unearth them. A neat example has been preserved by Neil MacLeod, the Glendale Bard (1843-1924), whose collection *Clàrsach an Doire* was published in 1883 and includes an essay on the Skye "fool", *Gilleasbuig Aotrom* ("Giddy Archie?"), whose biting satire in Gaelic song had electrified his contemporaries and raised the ire of the establishment. *Gilleasbuig* lampooned the learned minister of Duirinish, the Aberdeen-born John MacGregor Souter (c.1785-1839), also sometime factor on the MacLeod Estates, for his bad Gaelic and his consumption of whisky and also for the fact that he could only with difficulty be understood:

*Nuair a thèid thu do'n chùbaid,
N' thu ùrnaigh bhios gleusda.*

.....

"When you come into the pulpit,
You deliver a prayer that will be well-prepared.
Some of it will be in Gaelic,
And some in English.
Some of it will be in Hebrew,
In French and in Greek.
And the portion that the rest won't understand of it
Will make the Laird of Gesto laugh."¹³

But outstanding among the Moderates for example was the Rev Norman MacLeod (1783-1862), praised by his own and succeeding generations for his efforts to raise money for famine relief and his pioneering writing and publishing ventures to raise standards of learning and literacy for Gaelic. Known as *Caraid nan Gàidheal* ("The Friend of the Gael"), he was one of the first to put on record and to publicise stridently the sufferings of island communities during the famine years.¹⁴ Some pieces of his prose however may appear sinister to historians who would find in their author an apologist for the landlord class, for clearance and for enforced emigration. His own standpoint was that emigration had become by 1840 a distasteful but unavoidable expediency and that a self-assumed role was to educate would-be emigrants to recognise the lies and falsehoods of the emigration agents; to this end he founded his own monthly Gaelic periodical in 1840, *Cuairtear nan Gleann* ("The Visitor of the Glens") to inform and instruct about North America, Australia and other destinations. It has been a theme in the historiography of this period to attribute to the clergy, both Moderate and Evangelical, a material part in the collapse of Gaelic society in the era of the Clearances, particularly in

terms of intensifying the psychological despair and confusion which naturally emanated from Highland and Island communities.¹⁵ Consistently, it has been said, ministers “comforted” their flocks with the doctrine that their sufferings were the consequences of their sins and worldliness and that emigration was the punishment meted out by the avenging Deity. This message comes across in some of MacLeod’s writings. In an essay *Long Mhòr nan Eilthreach* (“The Emigrant Ship”), the Rev Norman MacLeod describes in vivid terms the scene on board a ship anchored at Tobermory on the point of departure for North America. The misery of the emigrants is described and they are allowed lamentations such as “... *latha ar dunach!*” (“the day of our ruin”), but the Minister who has joined them on board to bid them farewell and hand out Bibles stifles their cries. He gives out the unequivocal message that emigration is God’s will and rebuffs them briskly: “*Bithibh ‘nur tosd. Na chuinneam a’ leithid seo de chainnt*” (“Silence! Let me not hear such language”). His conclusion seems a grim rebuke and hardly calculated to bring sympathy and comfort to his audience:

“You are indeed leaving the place of your birth, the island where you were nourished and reared. You are certainly going on a long journey, and it need not be concealed that there are hardships awaiting you, but these do not come unexpectedly on you; you may be prepared to meet them. And as to leaving our country, the children of men have no permanent hold of any country under the sun. We are all strangers and pilgrims, and it is not in this world that God gives any of us that home from which there is no departure.”¹⁶

The brothers Robert and James Haldane of Airthrey preached in the field to counter the effects of radical politics and atheism perceived as destructive forces released by the French Revolution. They organised missions to the growing populations of the industrial towns and they founded foreign missions. They also founded the Society for Propagating the Gospel at Home in 1797-98 and the “Haldanite” field preachers who travelled in the Highlands in the closing years of the eighteenth and first decade of the nineteenth centuries were largely responsible for the “revivals” that ensued.¹⁷ The best documented of these were in Arran and Bute around 1804, in Skye in 1805, 1812 and 1827, in Breadalbane in 1816-17, in Lewis in 1823 and in Harris about 1829.¹⁸ These revivals or “religious awakenings” as they might often then be called were usually associated with the celebration of Communion and the fervent preaching and spiritual preparation that was so characteristically a feature of eighteenth and nineteenth century Scottish Presbyterianism. The Breadalbane revival for example reached its climax at a Communion at which the “Apostle of the North”, Rev John MacDonald of Ferintosh, preached to an outdoor congregation estimated at over 8,000. In this case MacDonald - *Fear an Toiseachd* - was an Established Church minister whose wide-ranging intellect had taken in the 1805 enquiry into the character and

authenticity of the poems of Ossian. The “itinerants” (as they were then called – *triallairean* in Gaelic) were lay preachers and non-ordained men, working outside the Establishment and often of Congregational or Baptist persuasion. The Disruption and subsequent emergence of the Free Church has tended to overshadow their work but in certain areas such as Sutherland, the Aird and Strathspey, and in Lochaber, they were undoubtedly key to the support for the Free Church on its emergence. A Haldanite preacher in Strathspey, Peter Grant (1783-1867), for example, might not be remembered beyond his own locality but for the publication of his Gaelic prayers and songs in successive printings and editions from about 1809.¹⁹ It was they for example who inspired Dr Archibald Clerk’s testy dismissal of Strontian as a “hotbed of bigotry”. Itinerants such as Donald MacGillivray and John MacMaster created a considerable reputation for themselves in Lochaber where they were said to have made “the first definite break in the ranks of home heathenism” and by their account, this state of gracelessness was considerable. It was said that when a traveller knocked on a door one night at Dochanassie by Fort William, his question “Is there any Christian living here that will give me a night’s quarters?” was answered by: “No, there are no Christians living here. They are all Camerons”.²⁰

The indifference or hostility which they faced in this area or the scale of their mission was put in perspective by one of the great figures of the evangelical movement, Rev John MacRae of Lochs and Carloway, when he commented: “I should prefer one man in Lochaber that kept family worship to sixty in the North Country that would speak to the Question”.²¹ He was here alluding to another feature of the evangelical revival of the period, to the popular movement in Highland Caithness and Sutherland of the Fellowship Meetings which had grown up round the Communion Seasons. These Meetings, customarily on the Friday before a Communion Sunday, were led by those styled “The Men” and often referred to in Gaelic as *Latha nan Daoine* or the “Day of the Men” – otherwise *Latha na Ceist* or “Question Day”. The “Men” were austere and charismatic catechists and teachers who would be called on to “speak to the Question”; they would be highly regarded in their communities for their powers of extemporaneous prayer, exposition of Bible texts and allegorical use of Scriptures, but equally they would be distrusted and disliked by Moderate ministers and landlords. Such was the identity of these unofficial teachers that they were even described as having a uniform or badge of a long blue cloak and a spotted cotton handkerchief bound round their heads.²² The missionaries and “the Men” of the dissenting movement severely challenged moderate ministers and the heritors of the Established Church since it was protest within the church, and their careers foreshadowed and accelerated the events of 1843. Dr Alexander Beith of Stirling later put this in perspective:

“Two hundred Gaelic-speaking congregations in the Highlands and Islands adhered to the Free Church. Nothing like separation from the

Established Church had ever before been known; and neither had anything like the bitterly hostile opposition which such separations have always occasioned, ever before been experienced. The southern regions of Scotland had been acquainted with ecclesiastical separations for more than a century. The north had never known any. That which had occurred there recently had proved a great revolution”.²³

Significantly in Gaelic the Disruption was and is referred to as *Briseadh na h-Eaglais*, the “Breaking of the Church”, or *Sgaradh* for a “tearing apart”. Officially also it is called *An Dealachadh* or “The Separation” or *Am an Dealachaidh* (the Disruption Time). Hugh Miller of course was at the centre of these events and had joined in contemporary polemic against the Moderates in the church as objects of contempt and enemies of the people; these attitudes as we have seen were particularly strongly marked in the Highlands. Miller was the observer and commentator on ecclesiastical politics in the new national newspaper, *The Witness*, which adopted a markedly sympathetic attitude towards Highlanders. He addressed the readership from his self-assumed standpoint, setting out a journalistic stall as a “plain working man, in rather humble circumstances, a native of the north of Scotland, and a member of the Established Church”.²⁴ *The Witness* was set up as a newspaper to champion the cause of the spiritual independence of the Church and to highlight contemporary issues such as the law of patronage as the evil and root cause of all the troubles. Miller who had dedicated himself to the evangelical party cause of Non-Intrusion in the Established church was asked to be its editor in the wake of his *Letter to Lord Brougham* in 1839, the text reprinted in *The Headship of Christ*. This was written as a response to Miller’s reading Lord Brougham’s speech on the Auchterarder Case when the House of Lords’ judgement reasserted patronage by denying the Church’s spiritual independence and its rights in selecting ministers. When Miller’s *Letter* was read by Candlish and others, they immediately contacted him. The first issue of *The Witness* appeared on 15 January 1840 and the paper continued until 1864. Circulation was limited and its style and presentation were not perhaps to our eyes populist, but Miller’s material certainly aroused public opinion and publicised the main issues.²⁵ Miller’s approach was distinctive including intense appeals to Scots’ sense of history and nationhood. For example the Non-Intrusion case of a congregational right to choose their own ministers was presented as deriving from the principle of free election stated as the “fourth head” of the First Book of Discipline and, typically, Miller’s powerful advocacy of this derived from his reading of the Scottish Reformers, particularly John Knox whose work was then currently enjoying considerable attention in the biographical studies of Dr Thomas McCrie. When the Disruption came as depicted in D. O. Hill’s magnificent composite painting in the Free Church offices, literally and metaphorically Hugh Miller was centre-stage.

In June 1845 the General Assembly of the Free Church debated the circumstances of the Highlands and Islands and, in their words, “the evils

under which the Gaelic-speaking population groan.” There was a sense in their deliberations of a rallying in support of those who had backed the new Free Church in view of the large-scale movement in the Highlands for the Free Church at the Disruption. It was said that 101 ministers of Gaelic-speaking charges had left the Establishment. They adjourned to reconvene at a meeting in Inverness appointed for late August in the same year. The Assembly identified particular circumstances which had been taking up a more than proportionate amount of their time and business “in the present emergency of the Highlands and Islands, considering how much of the time and attention of the Assembly have been occupied with the affairs of that district of the country, as regards both the oppressive measures adopted against the ministers and members of this Church, and the destitution of the means of grace which prevails”.²⁶

Deputations of ministers and elders were appointed to visit the northern districts and to report to the Inverness Assembly and Dr Robert Candlish, minister of St George’s Free Church, took a leading part. Their concerns were for the welfare, both material and spiritual, of the people, particularly in view of the widely known hardships of recent years, for example the cholera epidemic of 1831-32 and famines of 1836 and 1837 which had hit the Islands so hard. They wished to identify gaps in the coverage of the new Free Church ministry and to identify the so-called “site-refusers and persecutors” and to appeal to them and reason with them. With feeling but colourful irony Hugh Miller wrote in *The Witness* on 23 July 1843 about his own people in Cromarty:

“I awoke several times during the night to hear the gush from the eaves and the furious patter on the panes, and I thought of the many poor congregations in Scotland who will have to worship today in the open air. I do begrudge the Moderates our snug comfortable churches. I begrudge them my father’s pew. ... But yonder it lies empty, within an empty church, a place for spiders to spin undisturbed, while all who should be occupying it, take their places on stools and forms in the factory close”.²⁷

Most Free Church congregations were without churches or any sort of building for worship. It was not uncommon for services to be conducted on the foreshore and a tent to be set up on the intertidal. Due to the hostility of the heritors, an expedient was to conduct worship whilst afloat and one of the most celebrated and best-remembered of these instances was the “Iron Church” or “Floating Church” of Strontian, built on the Clyde and anchored in Loch Sunart from 1846 until 1873.²⁸ Hugh Miller’s *Cruise of the Betsey* is the account of the ministry in the Small Isles of his boyhood friend, Rev John Swanson (1804-1874), who when denied a church site moved to Isle Ornsay in Skye and conducted his ministry from a “floating manse”, his small sailing vessel, the “Betsey”. Miller made reference to the drunkenness and adultery of the former Moderate minister, to Swanson’s efforts as a non-Gael to educate and promote literacy (including his printing press on the “Betsey”), and he described the

difficulties of community worship in Eigg after the Disruption.²⁹ To supply ministers and preachers to the scattered communities of the islands, money was raised to build a boat to achieve this. The schooner *Breadalbane* was built at Fairlie for the Free Church and one of its first tasks was compassionate. The hardships and dearth of earlier years were almost nothing to what was to occur in 1846 with the failure of the potato crop and famine, followed by the typhus epidemic of 1847-48. £15,000 was rapidly raised and disbursed for famine relief and relief work.³⁰

The circumstances in 1846 were now in many areas no less than traumatic. From artificial highs about 1803, prices had fallen and then tumbled when severe depression set in after the Napoleonic Wars. Rents remained high since the demand for land in wartime had pushed them up and increasingly desperate measures were resorted to in order to settle rent payments; these ranged from seasonal migration to seek work and additional income, to sale of stock and emigration. This process of growing destitution is described impressively by Hugh Miller in *My Schools and Schoolmasters* where he accounts for changes in the Highlands since his boyhood when, for example, a population spread evenly over the country

“now exists as a miserable selvedge stretched along its shores, dependent in most cases on precarious fisheries that prove remunerative for a year or two and disastrous for mayhap half-a-dozen; and able barely to subsist when most successful, a failure in the potato crop or in the expected return of the herring shoals at once reduces them to starvation”.

This displacement was due, as he described, to the “introduction of the extensive sheep-farm system into the interior of the country” but he takes an analysis further to describe in some detail the consequences of loss of capital in the form of small stocks of animals, loss of employment with the failure of the kelp industry, and loss of the staff of life itself with the failure of the potato crop.³¹

Though the worst was still to come, the Free Church ministerial deputation had to consider more than “site-refusers and persecutors” when they left Glasgow on 29 July 1845. But the welfare of the people may have sunk so low that it had come to be recognised as a lamentable status quo and little space is given in the account of the “Highland Tour” to pragmatic matters or humanitarian needs. This is an essentially self-serving account for the new Free Church ministry in its “sea of difficulties”. Addressing communities in Islay, Kintyre, Kintail, Glenelg, Balmacara and Skye, they preached and explained from their Non-intrusionist standpoint for example why the Disruption had taken place and their message went directly to Highland congregations in those particular localities when they spoke of

“the oppression to which the Church had been subjected, by the unconstitutional interference of the civil power with the inalienable spiri-

tual liberties which she holds from Christ himself. That this interference touched the matter of the appointment of ministers and other office-bearers, made the evil all the more easily apprehended and all the more sternly resented.”

As an illustration of earlier hostility suffered at the hands of Moderatism, Dr Beith describes at great length the “Bracadale Case” and the suspension and treatment of the “Bishop of Skye”, Rev Roderick MacLeod at the hands of the Skye Presbytery in the 1820s. When Henry Cockburn defended MacLeod before the General Assembly, he gave the Presbytery of Skye a tongue-lashing as a “troop of foxhunters who had not much to occupy them and who agreed to keep a fox bagged up at which they might have a run when they wanted a hunt”. He was regarded as a champion of the people but, as a grandson of MacLeod of Raasay, his social equals came to regard him as a traitor to his class. The site-refusing stance of Lord Macdonald and his factor in Skye is further scrutinised by revealing a number of instances of tenants being evicted for their adherence to the Free Church.³²

No churches or sites on which to build were one weakness but a shortage of ministers was another. Education was the priority in this matter but, especially in the Highlands and Islands, the extension of schooling had been an issue above and beyond the Disruption. Miller’s journalism described some of this process and especially the so-called “College Controversy” which began in 1848 and which polarised opinion in the Free Church camp; this was the case for the Free Church putting all its resources into a single teaching institution which should become an academic centre of excellence for the ministry. An alternative strategy was to follow the pattern set by the Established Church of creating church colleges in all the main academic centres. Candlish who took over the leadership of the Free Church from Thomas Chalmers proposed having colleges in Aberdeen and Glasgow as well as Edinburgh. Miller was strongly opposed to the idea financially and intellectually as unsustainable, but his writings in support of his case began a subtle process of his alienation from those who had been his enthusiastic patrons a decade before. Following the Disruption therefore, Miller’s influence was much less in Free Church matters; they were largely matters of policy and strategy and were deliberated by the clergy themselves. This diminution of Hugh Miller’s role and standing must be reflected in the surprising fact that there is no single mention of Miller in the massive and detailed account by Dr Robert Buchanan, *The Ten Years Conflict, Being the History of the Disruption of the Church of Scotland* published in 1849. Miller seems to have become relatively isolated after the Disruption as the policies of the leading clergy such as Candlish were opposed to his. He vigorously opposed the attempt by the Free Church leadership to bring *The Witness* more under their control from being an independent paper. A consequent isolation is surely reflected in his omission from Buchanan’s *Ten Years Conflict*, yet he continued with his massive self-imposed workload that

probably then became unendurable. His death seems to have been rooted in personal illness and depression rather than the intellectual collision between religion and science. Miller “had dreamed of a church of Covenanters, of Renwicks and Pedens and Guthries, enthusing the manhood of Scotland and winning its working classes for Christ”.³³

On the wider issue of the provision of schools, the Free Church set up a scheme to raise £50,000 for education and to create 500 schools. In spite of the inherited ambitions of the Reformers, educational provision in the Highlands and Islands fell far short of adequate and had suffered for pursuing the politically motivated elimination of the Gaelic language and of the apparently too-prevalent “popery and ignorance”. The situation of *a priori* hostility began to be mended with the founding of the Edinburgh Society for the Support of Gaelic Schools in 1811 with the principal aim of teaching Highlanders to read the Scriptures in their own tongue. A by-product of this effort was that the most notable itinerant and unofficial preachers of the pre-Disruption years were “Gaelic School” teachers. This contribution to the Hebridean evangelical cause was couched in a vivid analogy by Rev John MacRae of Lochs and Carloway: “So long as white milk comes from a black cow, the people of Lewis shall not forget the Gaelic Schools”.³⁴ The Free Church account of educational provision perhaps gives less space to the *triallairean* than they might although their “Edinburgh Ladies Highland Association” formed in 1850 was remarkably successful in the pre-1872 Education Act years and left, as the *Sgoil na Leddies*, a reputation which survives still.³⁵

In conclusion, for those involved, ministers, elders, and congregations, the Disruption of 1843 was an heroic event albeit, as commentators have pitched it, a peculiarly Scottish affair by which a determined, persistent, sometimes intransigent stand was adopted to defend a democracy against hierarchy and establishment. As Henry Cockburn commented in his *Journal* in 1843 with a strong sense of occasion:

“For the present, the battle is over. But the peculiar event that has brought it to a close is as extraordinary, and in its consequence will probably prove as permanent, as any single transaction in the history of Scotland, the Union alone excepted.”³⁶

The new Free Church, “national and free” as its proponents then perhaps too simplistically termed it, in the course of a few years and in the face of often fierce opposition, raised funds to build about 700 churches and manses, 600 schools and three theological colleges, with still enough to fund missions in India, Africa and Canada. Even the landscape of Scotland was subtly changed and the evidence is still for the most part there today. In the Highlands, the Free Church provided the services of ministers and education on a scale unknown hitherto. But it has not come out of this epic unscathed. There has been a predominant discourse in Scottish Historical Studies that poses the thesis that the evangelical movement in the Highlands and Islands, in the trauma of social and economic

collapse and in the social and psychological consequences of this, weakened the resilience and resolve of Gaelic communities. St Kilda is sometimes proposed as an extreme instance of this process. Furthermore it has been suggested that the large scale popular response to the “revivals” was not so much a sign of strength or unanimity but a symptom of destitution, spiritual and material, and that the stance and contribution of the clergy such as Rev Dr Norman MacLeod – the “Taskmasters of Egypt” as they were dubbed – fed a growing psychological despair.³⁷ Doubtless the divisions and infighting of the Establishment sapped will and stamina to deal with contemporary social and economic problems, but in terms of the longer term picture of oppression of Highland culture it may be that the church in effect offered a lifeline to it. That the social and economic circumstances of the early-nineteenth century were grim is beyond doubt, but the preaching of missionaries with their visions of a new order and a New Heaven and New Earth was compelling and energising, the often huge gatherings of the Communion Seasons offered invigorating opportunities for social life and political fraternising, and the use of the Gaelic language as the medium of preaching, teaching and communication and the Gaelic Schools movement did more than anything to preserve Gaelic culture.

The role of evangelicalism and of the Free Church therefore must have then been more vital than destructive. It compares well with the poor showing of the church and clergy in the radical politics of the late-nineteenth century, in the period when the Church of Scotland was known for its “apathy and commonsense” and the Free Church for its “piety and hypocrisy”; both the Free Church and the Church of Scotland openly disapproved of the Highland Land League with its campaign for land reform and crofters’ rights and, for example, opposed the events of 1882-1883 and the “Battle of the Braes”.³⁸ From the period when the Free Church’s stance chimed with the movement for political reform in so many ways, by the 1880s it was no longer overtly anti-landlord and certainly had little wish to disturb the social order. There was in fact a partial reversal in the earlier roles of the Free and Established Churches.³⁹ Some at least were beginning openly to turn away from their adherence to the Free Church and to reject the black message of gloom which was said to characterise evangelical sermons. If Mary Macpherson of Skye can be taken as a measure of the popular voice in the radical politics of the *Gàidhealtachd* at this time, her words are highly significant and insightful:

*Tha an sluagh air fàs cho iongantach
 ’S gur cruithneachd leotha bròn,
 ’S mur teid thu ann am faochaig dhaibh,
 Chan fhaodadh tu bhith beò.*

.....

“The people have become so strange
That sorrow to them is wheat,
And if you don’t go into a whelk-shell for them,
You may not stay alive.

We will not go into a whelk-shell for them
And we may stay alive,
Although we shall not put on long faces
Or wear a look of gloom”.⁴⁰

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Views of the Highlanders and the Clearances in the Scottish Press, 1845-1855: *The Witness* in context

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In this paper I will look at how the Scottish press depicted the Highlanders in the mid-19th century, and what place Hugh Miller and *The Witness* held in the context of the larger newspaper scene. I will argue that in comparison with other critics Miller was far from being a true radical when it came to the crisis of the Highlands.

During the 1840s and 1850s, the Highlanders were perceived in essentially three different ways: with deep contempt, paternalistic sympathy, and rosy romanticism. In the 1840s the views of contempt were by far the most dominant, denouncing the Gaels as “inherently”, thus “irredeemably” lazy, and “racially inferior”. This was a new tone and thinking arising in the 19th century, in the so-called “Age of Progress”.

Race was now considered as a fundamental cause of the destitution in the Highlands. Newspaper reporters and editors as well as readers started to blame the Highlanders themselves for their misery by arguing that the Celts were *by nature* lazy, slothful, altogether inferior, and thus brought the famine on themselves. The *Scotsman*, the *Glasgow Herald*, the *Inverness Courier* and several local papers believed that the problem of destitution was essentially rooted in the nature of the Gaels, and not in the land policies or the proprietors’ management.

The *Scotsman*’s “special commissioner”, James Bruce, a well-known journalist at the time, wrote a long series of letters from the Highlands in 1847, in which he described the Gaels as “an indolent, ignorant, and *dirty race*, steeped in such wretchedness as never yet fell on a whole people”.¹ In his view the destitution arose from “no temporary calamity, but of the degradation, the deep ignorance, and the *real barbarism* of the people.”² To him the inferiority of the Celts was a fact, and the solution he proposed was “racial intermixture”. Bruce put it quite remarkably:

“Yet it is a fact that morally and intellectually they are an inferior race to the Lowland Saxon – and that before they can in a civilised age be put in a condition to provide for themselves and not to be throwing themselves on the charity of the hard-working Lowlander, *the race must be improved by a Lowland intermixture*; their habits, which did well enough in a former stage of society, must be broken up by the force of Lowland example...”³

The theme of “indolence” and “racial inferiority” of the Gaels was repeated again and again across the Scottish press in the 1840s. The argument that the destitution was exaggerated and the charitable public had therefore been deceived grew into a virtual campaign. Some papers went as far as proposing to let people perish. This is what an editorial said in the *Fife Journal* in 1847, also printed in the *Perth Constitutional*:

“This wholesale robbery for the purpose of maintaining vicious idleness must be put an end to – the large sum of money on hand must be kept for some really benevolent purpose; and let it be known throughout all the lands and islands, from Oban to Lewis, that the industry and means of the Lowlands are no longer to be taxed to support the laziness of the Highlands. *Let those who will not work starve – their doom is just and righteous, and for the benefit of the society.*”⁴

This was pure Social Darwinism at its extreme, which makes one shudder today.

Starting in 1849, a feeling of frustration concerning the failure of relief efforts began to pervade relief officials, landlords and public opinion. A sense of giving up on Highland improvement set in, and led to a further radicalisation of the perceptions of the Gaels. While at the beginning of the period they were regarded as inferior but ultimately “improvable”, a few years later, after the often racist campaigns of the *Scotsman* and other papers, the Highland Gaels were increasingly seen as incurably inferior, and therefore hopeless of any improvement. The only solution suggested from the early 1850s was to get rid of these “burdensome” and “useless” people. “Emigration as the only permanent remedy” was the new “magic formula”. A rather harshly put contention from a pamphlet in 1851 by a certain Mr. Burton summed up this view well: “Collective emigration is, therefore, the removal of a diseased and damaged part of our population. It is a relief to the rest of the population to be rid of this part.”⁵

The pamphlet was also printed in the *Scotsman* with editorial endorsement, and by the 1850s it was far from being a marginal view. Many other newspapers and their readers, landlords and relief officials shared the same view. The Highland Gaels were increasingly pronounced as a “surplus” and “useless” population best to be driven off the country.

Against these views of contempt stood a few emerging voices of sympathy. Those sympathetic journalists who first went into battle with the ruling opinion were sharp and scathing critics, attacking both the contemptuous opinions and the landowners’ policies.

The Glasgow *Argus* was one of the first newspapers to react fiercely to the attacks in the press in 1846/47 against the alleged inferiority of the Celts. Its numerous editorials strongly criticised the existing land laws, and put the blame for the Highland destitution on the shoulders of the landlords. As early as 1846, the *Argus* said that Highland peasants were no more than “serfs”, who were degraded by the “unequal distribution of the soil”.⁶ It called the feudal land system “a black nightmare pressing on the

energies of the Highlands".⁷ The paper was among the first to call for the abolition of the law of entail, and for new land laws.

The editors strongly argued against those who perceived Celtic indolence to be the cause of all evil, and said that the people of Celtic Ireland and Scotland "were naturally just as laborious and intelligent, and independent as any other people on the globe."⁸ Sadly, with this democratic conviction, the *Argus* stood quite alone in the Scottish press scene at the time.

After the Glasgow *Argus* had to shut down in 1847, the defence of the Gaels was mostly taken up by Hugh Miller and *The Witness* for a while. During the 1840s, Miller became one of the leading critics of Highland land policies. Under Miller, *The Witness* reached a circulation of over 2,500 copies, making it the third largest Scottish paper, and having the highest circulation of any papers sympathetic to the Gaels.

Eric Richards vividly described in his keynote address how Miller wrote about the clearances in 1843 in a pamphlet entitled "Sutherland As It Was and Is". Two years later, in 1845, Miller went on a tour of the Hebrides with a Free Church minister, and was faced with the appalling conditions existing there. He described his "outrage" in his book entitled the *Cruise of the Betsy*, originally written for *The Witness*. Here Miller again had strongly criticised the Clearances and the landlord policies, but he was at his sharpest when the Great Famine worsened the crisis from 1846 onwards. He devoted a great deal of energy and space in *The Witness* to the causes of the destitution and to criticism of the clearances. He blamed the landlords for driving the peasantry into "reluctant exile", and proposed a more "caring" management which would give long term leases to the tenants.

Miller was fully aware that he had to convince public opinion that the starving Highlanders were indeed worthy of sympathy. In several articles Miller argued that the people became dependent on the potato not because they were lazy but because of the circumstances forced upon them by the bad management of their landlords.

Miller also adamantly refused any allegations of Celtic racial inferiority. In a sarcastic passage, Miller ridiculed the London *Times* correspondent and those Scottish papers which endorsed the *Times* articles in 1847. This kind of vitriolic style made Miller's writing particularly colourful and is worth quoting:

"[The Highland Celts] have been quite aware for some time past that they are far from being a wealthy people, and the failure of the potato crop has cost them many fears; but they deem it cold comfort to be told that their depressing poverty arises, as a necessary consequence, out of their inherent peculiarities as a race, and that if they were not Celts they would be quite able without assistance to get over the loss of their potatoes. They derive no solace from being informed, in their hour of calamity, that, were they Saxons like the English, they would almost all, on a smaller or larger scale, be capitalists, and in circumstances to live comfortably during one

bad season on the hoarded stores of previous good ones".⁹

The most comprehensive series of articles on the Highlands in *The Witness* appeared in September 1849, most likely from the pen of Miller himself. Under the title of "Depopulation of the Highlands", it consisted of four lengthy articles in consecutive issues. We can only presume that it was written by Miller since no name was given and Miller normally wrote most of the articles himself. The collective "we" for editorials was also frequently used in these articles.

The first part focussed on the general condemnation of the clearances and depopulation. As Miller has done before, the article warned that the clearances would eventually lead to the "extinction" of the Gaels from the Highlands. To give more weight to this statement, it drew a parallel with oppressions committed in Europe. I was amazed when I discovered that *The Witness* referred to the Hungarian freedom fight and its eventual and brutal ending by the Austrians with Russian assistance. It drew a parallel between the tragedy of that failed Hungarian revolution in 1849, and the danger of depopulation which was threatening the Gaels with "complete extinction"¹⁰ in the Scottish Highlands.

This article rejected the current arguments of overpopulation calling them a "gross delusion", and argued that "ten times the present population could be maintained by the soil under a proper system."¹¹ It also said that any charge of indolence merely served to divert the attention from the real causes. In the end, the solutions which the series of articles suggested included the abolition of the laws of entail and primogeniture, and to have all property under the control of the law. In its closing remarks, *The Witness* assured its readers that it spoke "in the spirit of the truest conservatism", and envisaged the changes being carried out constitutionally.¹²

This was the last time that *The Witness* devoted considerable space in its pages to the Highland crisis. After the autumn of 1849 the Highlands virtually disappeared from the pages of *The Witness*. Until December 1850 no further article dealt with the Highlands in any form. Meanwhile, the battle between the views of contempt and sympathy became ever more fierce, as a new type of "crusading journalist" emerged on the scene.

Robert Somers, Thomas Mulock, Donald M'Leod, and Donald Ross were passionately angry critics, hammering away at the landlords, at the government, and at other papers like no one had done before. Their newspapers, mainly the *North British Daily Mail*, the *Inverness Advertiser* and the *Northern Ensign*, maintained a loud and persistent campaign for the Highlands, with numerous articles in almost every issue, often spreading on several pages throughout the first half of the 1850s.

Robert Somers was one of the sharpest and most vigorous critics of the Highland policies, yet his works, at least until recently, remained rather undervalued. At the start of his career, he briefly edited the *Scottish Herald*, which then merged with *The Witness*, thus making Somers a colleague and assistant to Hugh Miller. Once Somers took up the editorship of the *North British Daily Mail* in 1847, however, the new paper quickly

overtook *The Witness* in its devotion to the Highland cause.

In October 1847, Somers took off in person for a “Tour of Inquiry” of the Highlands and wrote no less than 27 articles, which were later published as a book entitled *Letters from the Highlands*. This series became one of the most comprehensive and longest-standing critiques of the Highland land policies. With powerful arguments and passionate language, Somers put forward often radical proposals and demands. He called the clearances the “heartless extirpation” of the people, and a “policy of barrenness and barbarism.” He compared the process to a “race for life”, where the “old and tender have been left to die.” He blamed the landlords for bad management, which turned the crofters into simple slaves and who thus had no interest in effective work. Somers was convinced that only giving people leases or more land would bring a lasting solution to the Highland crisis. No improvement was possible without “a new distribution of the soil”, he insisted.

Somers and the *North British Daily Mail* campaigned especially vigorously when the M’Neill report was released in 1851, prescribing extensive emigration as the only remedy. Every second issue of the paper, – which meant every second day, – contained a long editorial concerning the report, tearing it to bits, and vehemently protesting against its conclusions. The paper now argued even more strongly for a radical re-distribution of the soil:

“If the land in the possession of the people is too small for their support, a portion of these sheep grazings should be opened up to them; and if this is a measure against which landlords and graziers revolt, we cannot see how they can escape from the alternative of supporting the poor and able-bodied destitute out of the profits of that favourite system, upheld for their interest, and against the interests of the people”.¹³

What was at conflict here in Somers’s view was the capitalist interest of the landlords and their responsibility to take care of those at whose expense their profit was made. In the value system of the *North British Daily Mail*, the interests of human beings came before the interests of capital. This notion was widely shared by all the other missionary journalists at the time. We may thus argue that the thinking of Robert Somers, and the other crusading journalists were moulded by early Socialist ideals.

After the end of 1851 the *North British Daily Mail* reduced the intensity of its campaigning, but it was soon continued by other newspapers. The *Inverness Advertiser* and the *Northern Ensign* were primarily established in order to fight “oppression”, to advocate “human rights”, and to deal with the Highland question. They were literally “dedicated to the Highlands”. These two papers also provided a forum for all the most radical critics of the Highlands. There were times when in one single issue, the *Ensign* ran articles from Thomas Mulock, Donald M’Leod and Donald Ross. It was like a revelry of fierce Highland criticism and a concentrated attack of crusaders against Highland landlordism. The main argument of these jour-

nalists was not that the people were too numerous but that the land was too limited for them, and they urged radical land redistribution.

While all the crusading journalists ardently opposed emigration (which they simply called deportation), there came a point when they were overcome by bitter disillusionment. First Thomas Mulock concluded that he was fighting in vain. The landowners and the government were so determined on the emigration scheme that nothing would change their minds. Mulock now advised the Gaels to abandon the land which did not want them. Donald Ross arrived at the same conclusion in 1855 after long years of dogged campaigning against injustices and brutal clearances. Ross now also advised his fellow native countrymen to “escape for their lives” to more appreciative continents: “...Highlanders idolise their native soil and hills, and nothing but dire necessity could force them from it. As matters now stand the Highlander has no alternative but to starve in or fly from his native land”.¹⁴

In the light of other sympathetic writers on the Highlands, I would argue that Hugh Miller’s role should be re-evaluated. In his stance over Highland issues Miller is usually described as “radical”, a “crusading” editor, and “a scourge of landowners”. Indeed, his criticism of the Highland policies was strong, and his defence of the Highlanders impassioned.

By the 1850s, however, *The Witness* lagged behind all the other radical and crusading papers, when it went almost completely silent during times of worsening destitution and the most brutal clearances. While the paper did pick up the Highland issue in 1851 at the time of the M’Neill report, - it again went completely silent in 1852 and for the most part of 1853 and 1854. While other papers ran several crusading articles in each of their issues, *The Witness*, with the largest circulation and its weighty influence, remained silent. And some of the most brutal clearances, as in Knoydart and Greenyards, were not even reported.

Thus, we have to raise the question of just how “radical” Hugh Miller and *The Witness* were on Highland issues. How much of a “crusading editor” was Miller when he kept the debate on the Highlands out of his pages at a time when the crisis and the debate were hottest?

One can merely speculate on the reasons for this silence as Miller did not give any clear explanation for it. Did perhaps Miller foresee what the others realised only years later? Did he become disillusioned much earlier, seeing no prospect of any radical change? Or was he suspicious of the crusading type of journalism, fearing it to be mere propaganda?

Perhaps one vague explanation was offered in an editorial in *The Witness* in December 1850: “We are aware that many of our readers look upon this continuous cry of Highland destitution somewhat in the light of that of ‘Wolf, wolf’, while the wolf never came”.¹⁵

In any case, whatever the true reasons may have been, it remains a fact that the Highlands did not form a central issue on the pages of *The Witness*. Hugh Miller himself was far from a truly radical critic and a consistently missionary journalist for the Highland Gaels. That battle was fought by others.

References

- 1 The *Scotsman*, 10 February, 1847.
- 2 Ibid.
- 3 Ibid. All italics are mine in the passages quoted.
- 4 *Fifeshire Journal*, 23 September, 1847. Reprinted in the *Perth Constitutional* 29 September, 1847.
- 5 Quoted in the *Scotsman*, editorial, 26 July 1851.
- 6 *Argus*, editorial, 7 December 1846.
- 7 *Argus*, Destitution in the Isle of Skye, 15 February, 1847
- 8 *Argus*, 14 January, 1847
- 9 “The Times’ Commissioner”, *The Witness*, 21 October 1846.
- 10 The Depopulation of the Highlands, *The Witness*, 12 September, 1849
- 11 *The Witness*, 15 September, 1849.
- 12 *The Witness*, 19 September, 1849.
- 13 *North British Daily Mail*, August 9, 1851.
- 14 *Northern Ensign*, 8 February 1855.
- 15 “The Barra refugees”, *The Witness*, 18 December 1850



CLOSING PLENARY SESSION

Chaired by Dr James Hunter CBE,
Chairman of Highlands and Islands Enterprise

From Miller to the Millennium

Professor James A. Secord, Professor of History and Philosophy of
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“Everything earthly must have its last day”. – Hugh Miller

My text comes from one of Hugh Miller’s essays, first published in *The Witness* newspaper.¹ For us his words have many associations. To begin with, they might simply refer to the fact that this is the last day of a lively and interesting meeting; the last day we have to put Miller back together. Bringing things into perspective is usually on the agenda of final plenary sessions, but is especially appropriate in this case. For when people discuss Miller today, they often use words such as contradictions, controversies or conflicts. We wonder how someone can be a profound writer, but write for the newspapers; how someone who is in many ways associated with the Highlands, can also be so closely identified with the Lowlands. In some contexts, Miller appears as a leading light of urban literary culture in Edinburgh; in others, as a small-town boy from Cromarty. Miller is famous as a leading scientific geologist; but is also recognized for his forthright virulence in political and religious controversy. These things just don’t fit together very well for us.

Consider how a meeting like this has to be divided up into different sections held simultaneously, with lots of speakers and many different people. I’ve wondered, while listening to the papers, what on earth Miller would have done during the past few days. He would have wanted of course to hear all the papers, and like us he would have been frustrated because he wouldn’t have known which ones to have attended.

Of course the real danger is that the most interesting bits are left out on the streets—literally, in informal conversations as participants walk between the different buildings where the sessions are being held.

Accordingly, my aim is to put Miller back together again. In this we can return to my epigraph. For there’s another and a much deeper sense in which the last days matter not only for Miller, but for many people today. Within Christian eschatology, the millennium isn’t just a slogan, or a way

of selling computer software or holiday cruises; for Miller the last days have real religious and theological content, and that's of course what Miller was referring to in this quotation. And that's what I want to focus on: I want think about what he thought about the future and indeed how his life and work might help us to contemplate our own futures. Because if history has any real purpose beyond harmless diversion, it can help us to understand our own situation and where we fit in that larger pattern that Miller was so good at describing.

A Vision of the Railroad

As many of you will have done many times, I travelled to this meeting in an overnight sleeper from Euston Station. I was reading an early American edition of *First Impressions of England and its People* (1847), a fascinating book in which Miller records the results of his first rail trip across the length and breadth of England. I was of course travelling the wrong way across the Tweed: he was ready to get his first impressions of the English, I anticipated my first impressions (not of Scotland, where I've been many times before) but of Cromarty. Border-crossing is a very Milleristic experience. Miller loved travelling by the railway, which he saw as a great symbol of what the future held in store for humanity. In *First Impressions*, he eloquently reflects on how the railway had transformed England, making distances a tenth of what they had been during the mid-eighteenth century. The whole sense of space and time had been transformed, all was hurry and bustle. As Miller writes in another of his essays, *The Two Conflicts*:

“We have had occasion oftener than once to remark the great celerity of movement, if we may so speak, which characterizes the events of the present age. It would seem as if the locomotive and the railroad had been introduced into every department of human affairs,—as if the amount of change which sufficed in the past scheme of Providence for whole centuries had come to be compressed, under a different economy, within the limits of less than half a lifetime. . . . One seems almost justified in holding that the great machine of society is on the eve of being precipitated on some all important crisis, and that the rapidity with which the wheels revolve marks the sudden abruptness of the descent”.²

Right here we have a sense in which Miller can begin to be identified as someone that we can learn from, for it has become a commonplace that the pace of daily life moves faster and faster all the time. If I had been returning home from a meeting five or ten years ago, there might have been about four or five letters waiting for me; but now there will be eighty e-mails, perhaps more. That's a real, if rather obvious, change in communication that we live with in a variety of ways today.

Miller was fascinated by developments that pointed towards the future. Everyone is familiar with those wonderful calotypes in which he posed as a stonemason, and which have provided the basis for the banners adver-

tising this conference. He was of course interested in photography, a new technology in his day, and he provided the first public discussion of the work of David Octavius Hill and Robert Adamson. Miller was thus at the forefront of interest in new ways of representing the rapid changes in the world around him. To be photographed as a working stonemason, when he was actually a leading man of letters, might be seen as nostalgic; but in fact his portraits embraced the latest technological possibilities.

Other aspects of contemporary science and technology fascinated Miller too. He was a great enthusiast for Rowland Hill's newly invented Penny Post, which over Miller's lifetime revolutionized the number of letters sent and the numbers of people who sent them. Like many contemporaries, he keenly followed the progress of telegraphy, which from the late 1830s onwards greatly speeded up the reporting of news. In many ways, however, Miller saw the most significant symbol of progress as the rise of industrial publishing. Take this quote from *The Witness* in 1853:

“Unquestionably in our day the Press is the mightiest of mere human agencies. Armies, unfortunately, are still very powerful; Parliaments, at least constitutional ones, are not declining in influence; Steam, with its innumerable applications, is daily unfolding its exhaustless powers benefiting the world; but greater than all of these is the Press”.³

The biblical resonance from Saint Paul, as so often in Miller's writing, is clear; but it is combined with the apotheosis of the steam-powered presses that could print newspapers like *The Witness*. It is at one level a technological prediction, but tied up with a much wider vision of where humanity is going. Miller was far less ambivalent towards progress and industry than is often thought. As a political and social liberal (a “Whig of the Old School” as he put it), he believed in the advancement of knowledge, in learning where the world came from and where it was going. Technology and science could transform everyday life for the better.

Miller, however, only supported technological and scientific progress when they went hand in hand with evangelical religion. We can see this with particular power in my favourite of all his essays, “A Vision of the Railroad”, which was published in *The Witness* in 1843. This unveils an Edinburgh of the future, an Edinburgh of ruins: a landscape surrounded by burnt villages, mangled track lines, rusting engines and neglected churches:

“It seemed as if years had passed – many years. I had an indistinct recollection of scenes of terror and of suffering – of the shouts of maddened multitudes engaged in frightful warfare, – of the cries of famishing women and children, – of streets and lanes flooded with blood, – of raging flames enwrapping whole villages in terrible ruin, – of the flashing of arms, and the roaring of artillery, – but all was dimness and confusion. The recollection was that of a dream remembered in a dream. The solemn text was in my mind, – ‘Voices, and thunders, and lightnings, and a great

earthquake, such as was not since men were upon the earth, – so mighty an earthquake and so great;’ and I now felt as if the convulsion was over, and that its ruins lay scattered around me. The railway, I said, is keeping its Sabbath!”⁴

This nightmare future is indebted not only to *Revelations 16: 18*, but to Count Constantin-François Volney’s celebrated *Ruins of Empires*. First published in the 1790s in Paris, the book was translated into English and widely read among circles of people in the middle and working classes whom Miller would have known. Volney chronicles the collapse of civilisations, in a way reminiscent of Paul Kennedy’s best-selling book on *The Rise and Fall of the Great Powers* (1989).

Among the many notable features of “A Vision” is Miller’s unwillingness to attribute the catastrophe of post-railway civilisation to an underlying economic cause. Rather than a failure of technology, he sees it as a failure of faith, and specifically of Sabbath-breaking. The nightmare arises when the link between human invention and God’s word is broken. For Miller these things had to go together. He saw the alternative to Scripture-based progress on his trip to England. At Oxford, he described popery, Puseyism, a wasted anti-scientific desert of Anglo-Catholicism; and in the northern industrial towns, he lamented the spread of secularism, atheism, a materialistic world without faith. Miller, like most Scottish evangelicals, believed that true religion and industrial progress were necessarily united.

The newspaper man

To understand Miller’s attitude, it helps to realize that his entire career was bound to the ideal of religiously grounded industrial progress. In effect, Miller himself became a cog in the wheel of the new technology of the evangelical newspaper. He wrote about geology, theology, geography, folklore, and so forth: but during the most important part of his life he identified himself as a newspaper man. This can be seen at its most compelling in terms of the way that he spent his working hours. He existed for his original public, and continues to exist for readers today, because of his total immersion in newspaper journalism. Notably, he emerged from an active newspaper culture in the north of Scotland during the early decades of the nineteenth century. To be an editor at this time was a great thing. Many of the important Scots who appear on the national stage began their careers in journalism.

Miller is no exception. At the age of eighteen he produced the *Village Observer*, a manuscript sheet of Cromarty news. This young man was so keen that he was actually producing a newspaper before he had a printing press! At the age of twenty-three, five years later, he wrote several issues of a newspaper called *The Trifler*, which imitated Addison and Steele’s *Spectator*. At twenty-seven he began to write for the *Inverness Courier*, one of the most important papers in the north of Scotland. Within a few years he was also providing occasional articles for *Chambers’ Edinburgh Journal*, one of the leading popular weeklies in the kingdom. And then in 1840,

when he was in his late thirties, Miller became the founding editor of *The Witness*. This was his great life work. The significance of newspaper writing for Miller's development is clear. "‘Quarterlies’ and even ‘Monthlies’", he wrote of the 1830s, "appeared too infrequently..." Powerful writing of a kind which if employed on subjects of permanent interest might in the past have fixed itself in the literature of the country, passed from the Review and the Magazine into the newspaper,—at first in casual articles, and then diurnally. Newspapers, not reviews or magazines, became the creators of opinion.⁵

I want to underline this point, because there's been a residual embarrassment about Miller as journalist. What do you do with a literary figure of real talent whose main collected works are a set of bound copies of a newspaper – those massive volumes of *The Witness* found in a handful of major libraries? By the way, if you've ever used them (or seen copies at Miller's cottage here in Cromarty), they are absolutely gigantic, about twice the size of a modern broadsheet. What do you do with someone who left their collected works in such an unwieldy and ephemeral form? Today we tend to know Miller mainly through his books, but these were mostly collected from the back newspaper files and often appeared after he died. Many of his best essays, as Michael Shortland has shown, have never been republished.⁶

Writing for newspapers affected Miller in all sorts of ways. It profoundly shaped his pugnacious literary style, a point underlined by his wife Lydia Miller's own testimony. More subtly, Miller was very much a newspaperman in his interest in immediate local situations; he was instinctively drawn to controversies and tactics of battle. Miller just seems to get into theological and scientific controversies wherever he goes. Thus even in his travel books, he debates with fellow passengers in his railway carriage. In reading Miller, you're right there with him: on the train in England, sailing on the *Betsey*, exploring the seashore around Cromarty, hunting for fossil fish in the Orkneys. This sense of immediacy is the product of a writer who is reporting information from many different places and uniting it through a continuously compelling narrative.

Miller, as is well known, had longer-term goals for his scientific work, notably a definitive *magnum opus* on the *Geology of Scotland*. It is, however, difficult to imagine this grand project ever being completed, for he never wrote much that was in the passive-voiced, comprehensive style of a scientific monograph. The essays collected for his *Sketch-book of Popular Geology* (1959), as Ralph O'Connor showed in his paper, employ vivid imagery and active dialogue with the reader. That strong authorial voice doesn't sit well with a research project aimed at producing something akin to one of the regional monographs of the British Geological Survey. In many ways Miller knew how to play to his strengths; and those strengths came through daily engagement with his newspaper. This activity permeated his entire existence, as is shown by a letter he wrote soon after he moved to Edinburgh and assumed control of *The Witness*. "It is considerably past midnight, I have been engaged every moment since daybreak

with my pen. And I snatch from sleep the portions of time I shall have to devote to my letter. I pass weeks at present in which I can hardly call half an hour my own".⁷ But of course those hours were his own, for a newspaper writer is effectively what he had become.

Now I've said that we may find the form of Miller's literary output somewhat awkward, but it is true that many of his contemporaries harboured similar reservations. As Miller himself said, "The newspaper editor writes in sand when the flood is coming in".⁸ The leading London geologist, Roderick Impey Murchison, regretted that someone with Miller's literary skills had been chained to the schedule of a bi-weekly newspaper. But in many ways Murchison and his friends were missing the point, certainly in considering Miller as a geologist. To understand we need first to realize that Miller was not, despite what is commonly said, a good "popular geological writer". Now of course he wrote wonderfully and his works are accessible; but he did not see himself as a popularizer of other people's ideas—not even those of Murchison, to whom he dedicated *The Old Red Sandstone* (1841). Miller is not willing to confine himself to telling simply a geological story that was told elsewhere in a more complex and original form; he doesn't water things down to make them less technical. To talk about Miller as a "popularizer", in short, is to see him in the same subsidiary position that Murchison and his friends at the Geological Society of London would have wished him to occupy. They could praise Miller as a fine writer and populariser, supremely good at making their own works attractive to a broad audience. In an analogous way, they tended to treat him as a skilled fossil collector, who would discover specimens and send them to the metropolis for processing. In both cases Miller becomes an underlabourer or a "hand" – a mechanical device to communicate something when the essence of it is going on somewhere else. I don't think this view does Miller justice.

Miller had a different vision of what geological science could be. It combined writing and the possibilities of what science could offer in a new kind of fusion; and he could do this because the Murchisonian ideal of science, more specialized and run by metropolitan experts, was not universally accepted. Geology, like all the sciences in this period, was very much in flux, and so Miller was offering one of the many different possibilities for what the enquiry into the earth might look like. It's rather curious that Miller's fellow Scot, Robert Chambers, the anonymous author of *Vestiges of the Natural History of Creation* (1844), had in certain respects an analogous vision of what geology ought to be. Chambers believed that the real task of science was to speak to big issues: to the largest cosmological, theological, religious and political questions.⁹

From this perspective, shared by the two men, geology was not a narrow research subject. Of course you couldn't have two more different views of what the contents of that general vision of geology should look like. When Chambers authored *Vestiges*, he was undermining virtually all of Miller's most heartfelt beliefs. *Vestiges* moves through the formation of the solar system, describes the history of earth and life upon it, with new

animals and plants coming onto the scene through a process of universal gestation. Finally this developmental process brings forth human beings, the human mind, the human soul, and perhaps in the future a higher form of being. Although this process of development has affinities with enlightenment materialism and radical developmental theories of the 1840s, *Vestiges* is explicit in seeing God's hand working in the universe through law. For Miller this desolating vision could not stand. Lawful development, even development foreseen by God, is not enough, human progress is not enough, there has to be something else. The last day will come, but not through the evolution of higher angelic forms, but rather through the final resurrection of Christ and his judgement upon a sinful humanity.

Miller attacked *Vestiges* in his *Footprints of the Creator* (1849) with such power that in the later half of the nineteenth century, his polemic sold even better than the work it was intended to demolish. Partly this was because after 1859 *Footprints* began to be read as an antidote to Darwin's *Origin of Species*. Miller saw faith in evolutionary progress as a false, delusional religion:

“As for the dream that there is to be some extraordinary elevation of the general platform of the race achieved by means of education, it is simply the hallucination of the age, – the world's present alchemical expedient for converting farthings into guineas, sheerly by dint of scouring. Not but that education is good: it exercises, and, in the ordinary mind, develops, faculty. But it will not anticipate the terminal dynasty”.

That terminal dynasty is of course the final coming of Christ to institute the kingdom of the future. “Man,” Miller said, “must believingly cooperate with God in the work in preparation for the final dynasty, or exist throughout its never-ending cycles as a lost and degraded creature....”¹⁰ As these passages make clear, to understand Miller's vision, we must recognize how he perceives the last days. Humanity progresses forward, he says, and we hope the world improves; but in the end the perfection that humanity could achieve is as nothing compared to what God could provide. Indeed, Miller believed that the final consummation in the last days is entirely beyond our imagination, beyond the measure of human technological and scientific progress.

Lessons for the future

In many ways our own time seems distant from Miller's. One of the pleasures of his writings is that they take you back, as I was taken back last night on the train when reading *First Impressions*, to a world that really does seem lost. Of course, it is obvious that our lives have much in common with the early and mid-nineteenth century, such as railways and newspapers; but the changes in the way they work (or don't work) are obvious. Not least, there's the huge rush of new kinds of information, which means that we face temptations that Miller would have abominated. Phenomena such as globalisation, although in some vague sense pre-

sent in Miller's day in the form of free trade imperialism, were not so penetrating and invasive as they are today. Moreover, nothing in Miller's world really compares to international terrorism, nor to much of what we watch on our television screens. In many obvious ways, Miller does seem to live in a different world. Relating to the often grim circumstances of early Victorian Scotland can sometimes seem as difficult as reconstructing the era of the Old Red Sandstone, with its bizarre armoured fish.

But there's another sense in which Miller and his contemporaries do have much to teach us. As a historian, I would suggest that this isn't in relation to specific scientific discoveries which he made, although he made many. It doesn't have to do with the way in which Miller's pioneering researches in folklore are useful to modern researchers, although clearly they are; and it doesn't have to do with whether Miller's theological doctrines are correct, although millions of people hold similar views today. What Miller has to teach us is something quite different.

Perhaps it's by chance, but it is certainly appropriate that the bicentenary of Miller's birth has occurred in 2002, in an era when a lot of people feel that the secure boundaries that they lived with for many decades are gone. It is in this sense, in facing a sudden historical transformation, that we share something in common with Miller and his generation. Like many people, I began to be struck by this sense of irrevocable change after the fall of the Berlin Wall and the collapse of the Soviet Union. The lecture notes on the history of modern science I'd been using for several years had to be thrown away or rewritten. The Cold War, the principal feature of the political landscape that I'd grown up with as a child, was gone.

The boundaries are also shifting at a much more fundamental and personal level. If people once worked in jobs that their fathers and grandfathers had held, this is now no longer likely to be the case. The sense of continuity in community, here in the North of Scotland as in other parts of Europe and the United States, has been shattered. We share this sense of a loss of bearings with Miller's generation. As Miller said, "however difficult it may be to estimate the true tendencies of a present age, it is all-important that they *should* be estimated; just as it is all-important to the voyager in the storm that he should know where he is, and to what coast he is driving. And it is peculiarly important in an age like the present, when the powers of good and evil seem as if mustering their forces for some signal struggle".¹¹

So in conclusion, I'd like to examine three lessons that Miller might teach us. The first of these is for me, personally, the most daunting and unfamiliar: how can we reconcile a spiritual and religious life with the material world of modern science-based technology? For people like myself, a secular liberal American academic living in England, the most awkward feature of Miller's writings is their pervasive theological doctrine, which cries out to be taken seriously. It's certainly the challenge that Miller would give us if he was standing here right now (although he would doubtless think that in a church such messages should best come from the

pulpit). Of course, it's vital to understand Miller's religion historically, but he poses the issues in a way that also asks us to consider the relevance of spiritual life to the modern world and our own lives.

The second lesson involves knowledge. I used to think that in the late nineteenth and early twentieth century, fairly secure boundaries began to be drawn around the scientific community. As part of this development, new forms of popular science were created, akin to those that we have today. But I'm increasingly convinced that this simple picture will not hold. All you need to do to disprove it is to turn on the radio, watch television, read a newspaper, or walk into a laboratory. What you find is expert knowledge, folk knowledge and popular knowledge criss-crossing back and forth together in all sorts of different contexts. This occurs at many different levels. For example, research scientists – not least in the earth and life sciences – face commercial constraints of an unprecedented scope and scale. These pressures are rapidly obliterating boundaries that scientists had become accustomed to in the immediate post-war years. The sense of security and continuity has disappeared.

That loss is also apparent in the way that the old dividing line between popular science and expert science is becoming less and less obvious. Who, after all, can you trust when knowledge seems so esoteric and hard to understand, and yet subject to intense economic and military pressures? In consequence, we now face a situation where the definition of science is up for grabs, just as it was in the nineteenth century. That's exactly the kind of issue that Miller was concerned with, which is why his writings are an intervention, not only in disputes about fossils or evolution, but also in debates about what science is, who it's for, how we're supposed to learn about it, and what kind of role it should play in the future.

And finally I want to return to Cromarty. Miller's work and career, in its focus on this small town on the northeastern coast of Scotland, calls into question a fundamental issue about what it means to come from a place and to be local. The issue is epitomised for me in a comment from Robert Chambers, who read some of Miller's early essays for possible inclusion in *Chambers' Edinburgh Journal*. Great writing, Chambers said in his capacity as editor, really happy to have them, but in future could Miller please write about something other than his beloved Cromarty? For modern readers, in contrast, Miller is significant precisely because he stresses his local origins, and goes on to use them in answering larger questions about God and nature.

During Miller's lifetime, Cromarty became more and more on the periphery, particularly after it was left off the line of railway expansion in the 1840s. Only in recent decades has it been able to reinvent itself as a location for the oil industry and tourism. This process of reinvention and revitalisation is in turn part of a much larger process that many people are engaged in right now, which involves rethinking what the relationship between centre and periphery, the local and general. Globalisation, as many scholars have pointed out, doesn't just mean that everything is submerging under a bland uniformity; it also means that places like Cromarty,

with their strong traditions and local histories, acquire a unique significance. Rather than becoming quaint backwaters, they provide ways of thinking about locality and place that are widely applicable, even to places that are much less often thought of as “local”. Take Cambridge, where I have taught for the last decade. Cambridge may have a prosperous economy and an illustrious university, but it is simultaneously a peculiar local place, with idiosyncratic and distinctly provincial concerns at the heart of its most famous institutions. The new view of the local provides possibilities for rethinking intellectual and economic geography, and how different places relate to one another. Without some such change in perspective we are in danger of forcing the new situation into old categories, just as we tend to take for granted what the “popular” is, what the “expert” is, what the “spiritual” is, what the “technological” is, and so forth. As with the other issues I have discussed, the established definitions do not hold.

Miller’s messages are not easy messages. Sometimes publishers from London ask me for the titles of classic scientific works from the nineteenth century to reprint as trade paperbacks, and of course I always suggest *The Old Red Sandstone* or another of Miller’s books. The editors, although intrigued, typically find too much that would have to be edited out for a modern readership. They are, I think, too timid, but it is true that Miller is not a man of easy messages and he’s not a particularly easy man. I don’t know whether I’d like him or not, but I do know he would know whether he liked me. Miller resembles the fossils he used against *Vestiges*: he’s a hard, an incontrovertible, fact. And only by considering the fact of the man as a whole can we understand those aspects of his life, work and world that seem most strange and uncomfortable. Only then can Miller, like any other figure from the past, challenge us to think differently.

References

- 1 This essay is based upon my conference talk at the West Church in Cromarty. I am especially grateful to Dr Ian Russell for undertaking the difficult task of preparing a transcript of my remarks. I have retained some of the informality of the original oral presentation.
- 2 “The Two Conflicts”, *The Witness*, 25 May 1842, republished in Hugh Miller, *The Headship of Christ, and the Rights of the Christian People* (1861), pp. 386-396, at p. 386.
- 3 “The Press – How to Use It”, (ibid) *The Witness*, 10 Sept. 1853.
- 4 Hugh Miller, “A Vision of the Railroad”, in Peter Bayne (ed.), *The Life and Letters of Hugh Miller*, 2 vols (1871), vol. 2, pp. 224-230, at p. 227. This essay first appeared in the *Witness*, 4 Mar. 1843, and in an altered and abridged form in George Rosie, *Outrage and Order* (1981), pp. 174-178.
- 5 Quoted in Michael Shortland, “Hugh Miller’s Contribution to *The Witness*: 1840-56”, in Shortland (ed.), *Hugh Miller and the Controversies of Victorian Science* (1996), pp. 287-300, at p. 293; I am indebted to this article throughout this section.
- 6 Michael Shortland’s bibliography of Miller’s contributions to *The Witness* in *Hugh Miller and the Controversies of Victorian Science* (1996) is very useful; however, the criteria used for attribution are nowhere stated, and it is clear that a number of the articles listed are not by Miller himself.
- 7 Quoted in Shortland, “Hugh Miller’s Contribution to *The Witness*: 1840-56”, at p. 294.
- 8 Hugh Miller, *My Schools and Schoolmasters or the Story of My Education* (1889, first published 1854), p. 554.
- 9 See James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation* (2000).
- 10 Hugh Miller, *Footprints of the Creator: Or, the Asterolepis of Stromness* (1849), p. 311-312.
- 11 “Tendencies”, *The Witness*, 24 Dec. 1842, p. 398.

Brief Biographies of Contributors

Councillor Dr David Alston

He was born and brought up in the Highlands and since 1991 has been Curator of Cromarty Courthouse Museum. He studied Philosophy and Law at Aberdeen and Oxford Universities and, having turned to History, has recently completed a PhD at Dundee University. He is the author of "Ross and Cromarty: A historical guide" and has also published articles on Hugh Miller's folklore and on the social and economic history of the Cromarty area. Since 1999 he has represented Black Isle North on the Highland Council.

Revd Dr Frank Bardgett

He is Parish Staffing Administrator for the National Mission of the Church of Scotland. He taught secondary history and then entered the ministry of the Church of Scotland, becoming Assistant Minister at Avoch with Fortrose and Rosemarkie, Parish Minister at Strathy & Halladale, and Community Minister in Orkney. He holds a PhD on the Scottish Reformation in Angus and has written on the Church of the North Coast and in Orkney.

Dr Lester Borley CBE

He is a Trustee of the Cromarty Arts Trust. He was the first Chief Executive of the statutory Scottish Tourist Board in 1970, and was subsequently Chief Executive of the English Tourist Board (1975-1983). He then became Director of the National Trust for Scotland until 1993. He also served for four years as Secretary General of Europa Nostra, a federation of 200 heritage organisations in 30 European countries, of which he remains a Council member. He was also Chairman of the Cultural Tourism Committee of ICOMOS-UK for ten years.

Dr William Brogden

He is Reader in Architecture in the Scott Sutherland School of Architecture of Robert Gordon University. He took his Bachelor of Architecture Degree at North Carolina State University at Raleigh, and his PhD at the University of Edinburgh in 1973. He has been involved in academic teaching both at the University of Edinburgh, the Edinburgh College of Art and at the Robert Gordon Institute of Technology. He was a member of Council of the National Trust for Scotland and past Chairman of the Scottish Group of the Garden History Society. From 1983 to the present he has also been involved in private architectural practice and consultation.

Dr Lucille Campey

She is Canadian but lives in Britain, with over 30 years experience as a researcher and author. She gained a doctorate at the University of Aberdeen in 1998 with a thesis entitled "The regional characteristics of Scottish emigration to British North America 1784 to 1854". Her first book on Scottish emigration to Canada "A very Fine Class of Immigrants: Prince Edward Island's Scottish Pioneers 1770-1850", was published in Canada in 2001.

Mr Hugh Cheape

Educated in Scotland and England, he completed two degrees in the University of Edinburgh, and joined the staff of the National Museum of Antiquities of Scotland in 1974, and worked on the establishment of the Scottish Agricultural Museum. He moved into the Applied and Decorative Arts side of the National Museum in 1982, heading the Scottish Modern Section. After the amalgamation of the Royal Scottish Museum and the National Museum of Antiquities in 1985, he joined a newly created Department of History and Applied Art. In addition to his responsibilities within the National Museums, he is currently on the Executive Committee of the National Trust for Scotland, the Council of the Royal Celtic Society, the Lord Lyon's Advisory Committee on Tartan, and is a Member of the Guild of Scholars' International Association of Tartan Studies (USA).

Professor Michael Collie

He is Professor Emeritus of the Department of English at York University in Toronto and is a bibliographer, biographer, editor and historian of science. His recent publications include books about Henry Maudsley, T H Huxley, Roderick Murchison and George Gordon, the Minister of Birnie in Morayshire. He is currently one of three supervisory editors for the Geology section of the Dictionary of 19th century British Scientists to be published by Thoemmes in the United States.

Professor Edward Cowan

He is Professor of Scottish History at the University of Glasgow and taught at the University of Edinburgh in the Scottish History Department from 1969-1979. Thereafter he was Professor of History and Chair of Scottish Studies at the University of Guelph, Ontario, until 1993, when he accepted the appointment to Glasgow. He is the author of numerous articles on various aspects of Scottish history. He is a prolific writer and his most recent book is "For Freedom Alone: the Declaration of Arbroath 1320".

Dr Krisztina Fenyö

Educated in the USA and Hungary, she completed her MA at Budapest University with a thesis on the Highland Clearances. She then received a scholarship from the University of Glasgow for a PhD in 1993, and her thesis was on the Scottish press and the Highlands. This was published by Tuckwell Press in 2000 as "Contempt, Sympathy and Romance: Lowland perceptions of the Highlands and the Clearances during the famine years 1845-1855". She lives in Budapest and works as a freelance writer and has also worked for the BBC since 1991 as a contributor on current affairs and historical documentaries.

Mr David Forsyth

He is currently Curator, Museum of Scotland International, within the National Museums of Scotland. This is an initiative which seeks to increase the knowledge of the Scottish diaspora, particularly in its material culture, which is achieved through exhibitions, research and collaboration with colleagues overseas. Working closely with the Otago Settlers' Museum of Dunedin, he evolved the exhibition "Altogether a Delightful Country: the Scots in Otago". Recent exhibition work includes a travelling kist exhibition in Canada looking at Scottish immigration, and co-curating a major exhibition examining Highland emigration to North America and Scottish-indigenous connections.

Mr Ian Fraser

He was born in 1941 in Gairloch and educated at Dingwall Academy and later took an Honours Degree in Geography at the University of Edinburgh. He was a member of the staff of the School of Scottish Studies from 1965-2001, in charge of the Scottish Place-Name Survey (1970-2001). He has undertaken research into all aspects of Scottish place-names with extensive fieldwork in the Gaelic speaking area, and having a specialised interest in Norse place-names, and names from oral tradition. He was Chairman of the Scottish Place-Names Society from 1996-2000, and was President of the Society for Name Studies in Britain and Ireland 2002.

Mr Michael Fry

He was educated at the Universities of Oxford and Hamburg, and has been a Visiting Fellow at Strathclyde and Brown Universities. He is a historian and journalist who has dabbled in Scottish politics. His books include "Patronage and Principle, a political history of modern Scotland", "The Dundas Despotism" and "The Scottish Empire". He has contributed to most major Scottish and British newspapers and has been a regular columnist for The Scotsman, The Herald and The Sunday Times. He has stood as a Conservative candidate for the British and Scottish Parliaments.

Mr Philip Hamilton-Grierson OBE

Born in Inveresk in 1932, was educated at Rugby School and Corpus Christi College, Oxford. Following service in the Royal Air Force, he pursued a business career and became Deputy Chairman of Highlands & Islands Development Board 1988-91 and was on the Board of Highlands & Islands Enterprise 1991-93. He was also Chairman of the Highland Hospice from 1988-94, Chairman of the State Hospital, Carstairs, 1991-97. He has also been on the Board of Cromarty Firth Port Authority from 1998-96, the Board of Made in Scotland 1997-2002, among many other public appointments.

Professor Christopher Harvie

Born in Motherwell in 1944 and brought up in the Scottish Borders, he studied History at the University of Edinburgh, gaining his PhD in 1972. He subsequently taught in the Open University, and was appointed Professor of British Studies in the English Seminar at Tuebingen University in Germany in 1980. Professor Harvie lectures widely in other universities and for the British Council, and is a prolific writer and broadcaster. His latest book is "Scotland, a Short History", published by the Oxford University Press (2002). Since 1990 he has been closely involved with the annual Freudenstadt Colloquia on regional politics and culture for the Friedrich-Ebert Stiftung.

Miss Lizanne Henderson

She is a freelance Folklorist. She has BA double Honours in History and Fine Art from the University of Guelph in Ontario, and an MA in Folklore from Memorial University of Newfoundland, St John's. She is currently completing a PhD at the University of Strathclyde on "Supernatural belief in 18th century Scotland". She is co-author with Professor Cowan of "Scottish fairy belief: a history", published by Tuckwell Press 2001, and has published numerous articles on this subject. She has taught part-time at the Universities of Strathclyde and Glasgow and has lectured on Scottish folklore in Europe, America and Australia. She is editorial assistant of the distinguished journal *Folklore* and a committee member of the Folklore Society (London).

Professor John Hudson

Born in Hove in 1934, he was educated at the University of Cambridge and took a PhD in 1962 on Jurassic rocks of the Inner Hebrides. He was subsequently at Caltech in Pasadena, California, the University of Oxford, and the University of Leicester where he became a Professor in 1990 and Emeritus Professor in 1999. He received the Lyell Medal of the Geological Society of London in 1985 and the George Medal of the Geological Society of the University of Glasgow in 1999. He has worked for many years on Jurassic rocks and fossils in Scotland, following in Miller's footsteps.

Dr James Hunter CBE

A prolific writer and historian, he was educated at the Universities of Aberdeen and Edinburgh. He was the founding Director of the Scottish Crofters' Union, and since 1988 has been Chairman of the Board of Highlands and Islands Enterprise. He has also been a member since 1999 of the BBC's Broadcasting Council for Scotland, a member since 1996 of the Convention of the Highlands and Islands, and a member since 1995 of the prospective University of the Highlands and Islands.

Dr Philippe Janvier

He is Director of Research at the Centre National de la Recherche Scientifique (CNRS) and works in the Palaeontology Department of the Muséum National d'Histoire Naturelle in Paris, which he chaired from 1996 to 2001. His career has been devoted to research on the earliest known vertebrates, ranging from about 470 to 365 million years, and in particular on Devonian fishes. He mainly works on the anatomy of the fossil, armoured jawless fishes, or "ostracoderms", and the origin of the jawed vertebrates.

Dr Simon Knell

He is Director and Head of the Department of Museum Studies at the University of Leicester. His research interests draw upon the material culture of science and the activity of collecting, from which he derives readings regarding the nature of "social practice" (the way things are done) in various historical and contemporary contexts. Recent publications in this area include "The Culture of English Geology 1815-1851: A science revealed through its collecting" (2000), and a major paper entitled "Collecting, Conservation and Conservatism: late 20th century developments in the culture of British geology", in David Oldroyd's "The Earth Inside and Out" (2002).

Dr Deryck Lovegrove

A Fellow of the Royal Historical Society, he has written extensively on matters relating to religious dissent, itinerant preaching, the church and war, and the development of English and Scottish evangelicalism. He has recently retired from teaching Church History at the University of St Andrews. He is the author of "Established Church, Sectarian People: Itinerancy and the Transformation of English Dissent, 1780-1830" (CUP 1988)

Professor David Lowenthal

Emeritus Professor of Geography and Honorary Research Fellow at University College, London, is a Gold Medallist of the Royal and the American Geographical Societies, and a Senior Fellow of the British Academy. He was previously Secretary of the American Geographical Society, has taught at a score of universities on both sides of the Atlantic, and has been a Fulbright, Guggenheim, Leverhulme and a Landes Fellow. Among his books are "West Indian Societies" (1972), "Geographies of the Mind" (with M J Bowden, 1975), "Our Past Before Us: Why Do We Save It?" (with Marcus Binney, 1981), "The Past is a Foreign Country" (1985), "Landscape Meanings and Values" (with E C Penning-Rowell, 1986), "Politics of the Past (with P Gathercole, 1989), "The Heritage Crusade and the Spoils of History" (1996), and "George Perkins Marsh, Prophet of Conservation" (2000).

Rt Hon Lord Mackay of Clashfern KT

Formerly Lord High Chancellor of Great Britain 1987-1997. Created Privy Councillor and a Life Peer in 1979, and a Knight of the Thistle in 1997. He was educated at George Heriot's School, Edinburgh, and graduated from the University of Edinburgh, the University of St Andrews, and Trinity College, Cambridge. He has been honoured by fifteen other universities.

Dr Margaret A Mackay

Director of the School of Scottish Studies Archives, Department of Celtic & Scottish Studies, University of Edinburgh, since 1974. Born in Regina, Canada, and a graduate of the University of Toronto and the University of Edinburgh. A descendant of families in Sutherland and Inverness-shire who emigrated to Canada via Cromarty.

Revd Professor Andrew McGowan

Professor McGowan is Principal of the Highland Theological College in Dingwall, a constituent academic partner of the UHI Millennium Institute. He is a graduate of Aberdeen University and of the Union Theological Seminary in New York. A Minister of the Church of Scotland, he served for 16 years in various parishes before the College was founded in 1994. He is an Adjunct Professor of Theology at Reformed Theological Seminary and a Visiting Professor of Theology at Westminster Theological Seminary. He is also Vice-President of the World Reformed Fellowship.

Mr Iain Maciver

He is a manuscripts and archives curator and historian and was born in Stornoway, Isle of Lewis in 1943. After historical studies and research at Aberdeen and Edinburgh Universities, he became an Assistant Keeper of Manuscripts in the National Library of Scotland in 1968, and has been Head of the Manuscripts Division of the Library since 1998. He is the author of several essays and academic articles on various aspects of Scottish political and religious history in the first half of the 19th century. His interest in Hugh Miller dates back to his research years in the 1960s when he was a frequent reader of the files of *The Witness* and correspondence of the various church leaders behind its foundation.

Dr Alison Morrison-Low

She has been Curator of Historical Scientific Instruments and Photography at the National Museums of Scotland since 1980. In 1981 she helped to organise the bicentenary symposium celebrating the work of Sir David Brewster. She has recently completed a doctorate on the manufacture of scientific instrumentation in provincial England during the Industrial Revolution. She has collaborated with R H Nuttall on many occasions since their joint paper "A Note on Early Fossil Wood Sections from the Allen Thomson Collection" in 1984.

Revd Dr Nick Needham

He is a Lecturer in Church History and joint coordinator of postgraduate research in the Highland Theological College in Dingwall. He took 1st class honours in Church History at New College, Edinburgh University, and in 1992 achieved a Diploma in Pastoral Studies at the Scottish Baptist College. Formerly he was a Lecturer at New College, Edinburgh, and has also lectured on Church History in Nigeria, as well as having served as an Assistant Pastor in the Central Baptist Church in Walthamstow, London before joining the Highland Theological College. He is currently involved in a writing project aimed at producing a five volume history of the Christian Church.

Dr John Nightingale of Cromarty

A medieval historian at the University of Oxford, where he is a Fellow of Magdalen College. His mother's family was based in Cromarty in the time of Hugh Miller and his family has owned Cromarty House since the early 1960s. He is Chairman of the Cromarty Arts Trust which organised the Hugh Miller Bicentenary Conference and related events.

Dr R H Nuttall

Now retired, he was Director of the Science and Technology Forum of the University of Strathclyde. He enjoyed a long association with the National Museums of Scotland and is currently an Honorary Research Fellow with a particular interest in the history of the microscope and its application in the various sciences. He is author of some 40 papers including surveys of the origins of geological microscopy and the instruments used by the geologist Henry Clifton Sorby. Current interests are in the early achromatic period (c. 1830-1850) and more recently in the history of the Zeiss Company.

Mr Ralph O'Connor

He is a Research Fellow at St John's College, Cambridge, where he is currently completing his PhD thesis on "Popular Geology Writing in Early 19th Century Britain". He has published articles on geology's influence upon Lord Byron, Byron's influence upon geologists, the fossil collector Thomas Hawkins, and Irish and Icelandic folklore and saga literature. He has recently brought out a book on Icelandic sagas in translation "Iceland's histories and romances".

Professor Eric Richards

Born in Wales and educated at Nottingham University, he has been Professor of History at Flinders University in Adelaide since 1975. He has written about Highland history and also published on Australian social and economic history. His most recent work has been on the British Diaspora, and his books include "The Leviathan of Wealth" (1973), "A History of the Highland Clearances" (1982 and 1985), and "The Highland Clearances: People, Landlords and Rural Turmoil" (2000 and 2002).

Revd David Robertson

Born in 1962, he was brought up in Easter Ross, attending Tain Royal Academy. He studied History at Edinburgh University and took a postgraduate Diploma at the Free Church College. He was the Minister of Brora Free Church, and has been at St Peter's Free Church in Dundee since 1992. Currently doing a PhD on Robert Murray McCheyne at the University of Edinburgh. He serves as Chaplain to Dundee Football Club and is Associate Chaplain at the University of Dundee.

Dr Ian Russell

He is Director of the Elphinstone Institute of the University of Aberdeen, where his research is focused on the traditional culture of northeast Scotland, including sacred singing, flute bands, free reed instruments, verse recitation and the role of individual singers. Prior to this he conducted extensive fieldwork into the singing traditions (including Christmas carolling) of South Yorkshire and North Derbyshire. He has also researched traditional drama, dance and humour. He was a former editor of *Folk Music Journal*, 1980-1993, and contributed the entry on "England: Traditional Music" for the 2001 edition of *New Grove*.

Professor James Secord

He was educated at Pomona College, California, and Princeton University, New Jersey. He became a Professor in the History and Philosophy of Science at the University of Cambridge in 2002 and directed studies in that subject at St John's College, Cambridge. Awarded the Sue Tyler Friedman Medal of the Geological Society of London in 2000, and has been a member of the International Commission on the History of Geological Sciences since 1998. He has published extensively, most recently "Victorian Sensation: The Extraordinary Publication, Reception and secret authorship of 'The Vestiges of the Natural History of Creation'".

Mr Gavin Spratt

Born in Dundee in 1943, he graduated MA in Scottish Historical Studies at Edinburgh University in 1970. He then joined the Country Life section of the National Museum of Antiquities of Scotland in 1972, and has worked in various capacities since in what has become the National Museum of Scotland. He is currently Head of the Department of Social and Technological History. His main work in recent years has been the creation of the new Museum of Scottish Country Life at Kiltockside in Lanarkshire.

Mrs Elizabeth Sutherland

She has published thirteen books, both fiction and factual, numerous articles, reviews and stories. As a result of her particular interest in early Scottish history she has published "In Search of the Picts, The Pictish Trail and Five Euphemias", a multiple biography of medieval Highland women. Her interest in Hugh Miller dates from 1970 when she published "The Black Isle: a Portrait of the Past". Her latest publication (2002) entitled "Lydia, Wife of Hugh Miller of Cromarty" was written in conjunction with Marian McKenzie Johnston, a great great granddaughter of Hugh Miller.

Dr Michael Taylor

He is the Curator of Vertebrate Palaeontology at the National Museum of Scotland in Edinburgh. After a doctorate in Jurassic plesiosaurs at Oxford University Museum, he worked in museums in the south-west of England and in Leicestershire. He was Curatorial Coordinator for the *Beginnings* Gallery in the Museum of Scotland, which opened in 1998. More recently he has worked on the "Testimony of the Rocks: Hugh Miller 1802-1856" bicentenary exhibition, as well as several Miller-related publications. His other interests include marine reptiles and mammals.

Mr Sandy Thomson

A former Senior Lecturer in Strathclyde University's Faculty of Education. His area of interest there was Adult and Vocational Education, but his first degree was in Economic History. Since retiring to Cromarty, he has been involved in local historical research and was for three years the Convener of Cromarty History Society. He is involved in several aspects of community development, including being the chair of the Cromarty Adult Learners Group.

Dr Peter Tilbrook

He was a research scientist for the British Antarctic Survey for 14 years, initially in the South Orkney Islands, and later led the British Antarctic Survey Research Programme in Terrestrial Ecology. He joined the Nature Conservancy Council in Inverness in 1975, subsequently becoming Regional Officer and then Director of Scottish Natural Heritage for Northwest Scotland. Since retiring in 1996, he has undertaken contract work on conservation/land management, and voluntary work for NGOs. He is now a Council member and Convener of the North Region Committee of the Scottish Wildlife Trust, Trustee of the John Muir Trust and a member of the Forestry Commission's North Scotland Regional Advisory Committee.

Professor Hugh Torrens

He was educated at the University of Oxford, taking a degree in Geology in 1965, and subsequently a PhD at the University of Leicester. He was on the teaching staff of Keele University, and became a Professor in 1998. From 1996-2000 he was President of the International Commission on the History of Geological Sciences and has been a visiting Professor to several foreign universities including Budapest, the University of California and the University of Saskatchewan. He was made Professor Emeritus at Keele University in 2000, the year in which he received the History of Geology Award from the Geological Society of America.

Dr Nigel Trewin

He began his interest in geology at the age of ten as a fossil collector. He gained an Honours BSc in Geology from Bristol University in 1965 and a PhD from Keele University in 1968. He then moved to a lectureship at the University of Aberdeen, where he now holds the post of Reader in Geology. One research interest is the palaeoecology of the Rhynie chert, and the Old Red Sandstone. Others include the Permian of the Falkland Islands, and early terrestrial trace fossils from the Lower Palaeozoic of Western Australia. He has written over 100 academic papers and general articles relating to Scottish geology.

Professor Roger Wheeler OBE FRSE

Chairman of Council of the National Trust for Scotland. He was Deputy Chairman of Scottish Natural Heritage, and was Director of the Royal Scottish Zoological Society, 1972-1998. Previously he was for ten years the Chief Warden of the Murchison Falls National Park, and latterly Director of the Uganda National Parks.

A selective list of works by or about Hugh Miller and contemporary events

His own works

The Old Red Sandstone

The Cruise of the Betsey, with Introduction by Michael Taylor, NMS (2002)

Scenes and Legends of the North of Scotland, B & W Publishing (1994) edited with an Introduction by Dr James Robertson

My Schools and Schoolmasters, or the Story of my Education, B & W Publishing (1993), edited with an Introduction by Dr James Robertson

A Noble Smuggler and Other Stories (from the Inverness Courier) edited with an Introduction by Martin Gostwick, Inverness Courier (1997)

Biographies and related material

ed Lester Borley: *Hugh Miller in Context*, Cromarty Arts Trust (2002)

W M Mackenzie: *Hugh Miller, A critical study* (1905)

Charles Waterston: *Hugh Miller, the Cromarty Stonemason*, NTS (1966)

George Rosie: *Hugh Miller, Outrage and Order*, Mainstream Pub. (1981)

Michael Shortland: *Hugh Miller and the Controversies of Victorian Science* OUP (1996) (includes an important bibliography)

Charles Waterston: Hugh Miller (pp.160-169) in *The Enterprising Scot* edited by Jenni Calder, Royal Museum of Scotland HMSO (1978)

Elizabeth Sutherland: *Lydia, wife of Hugh Miller of Cromarty*, Tuckwell Press (2002)

General Interest

David Alston: *Ross & Cromarty, a historical guide*, Birlinn (1999)

S M Andrews: *The Discovery of Fossil Fishes in Scotland up to 1845*, Royal Museum of Scotland (1982)

Stewart J Brown & Michael Fry: *Scotland and the Age of the Disruption*, Edinburgh University Press (1993)

Krisztina Fenyő: *Contempt, Sympathy & Romance* (Lowland Perceptions of the Highlands & the Clearances during the Famine Years 1845-1855), Tuckwell Press (2000)

James A Secord: *Victorian Sensation* (The Extraordinary Publication, Reception and Secret Authorship of Vestiges of the Natural History of Creation), University of Chicago Press (2000)

List of Delegates to Hugh Miller Bicentenary Conference, Cromarty, 10-12 October 2002

Mrs Rosemary	Airey	Knebworth, Herts
Cllr Dr David	Alston	Cromarty
Mrs Itsuko	Alston	Cromarty
Dr Lyall	Anderson	Edinburgh
Mrs Myrtle	Anderson-Smith	Aberdeen
Rev Dr Frank	Bardgett	Edinburgh
Mr Peter	Beattie	Dingwall
Rev Archie	Black	Inverness
Dr Lester	Borley CBE	Edinburgh
Mrs Mary	Borley	Edinburgh
Mr Douglas	Bremner	Edinburgh
Dr William	Brogden	Aberdeen
Mr Anthony	Bryant	Fortrose
Mr Peter	Burman MBE	York
Dr Gerhard	Cadee	Netherlands
Dr Lucille	Campey	Salisbury
Mr Hugh	Cheape	Edinburgh
Professor Michael	Collie	Nottingham
Mrs Anne	Conlin	Nairn
Professor Robert	Cormack	Inverness
Professor Edward	Cowan	Glasgow
Mr Robert	Crerar	Anstruther
Dr Stephen	Cribb	Beaulieu
The Earl of	Cromartie	Strathpeffer
The Countess of	Cromartie	Strathpeffer
Dr Peter	Crowther	Belfast
Mr Michael	Cunliffe	Edinburgh
Mrs Lonna	Davidson	Cromarty
Mr Robert	Davidson	Peterculter
Mr Clifford	Davison	Dingwall
Mrs Lilah	Dowsett	Balblair
Dr Krisztina	Fenyo	Budapest
Mrs Lucy	Fergusson	London
Mr David	Forsyth	Edinburgh
Rev Arthur	Fraser	Inverness
Mr Ian	Fraser	Edinburgh
Mr William	Fraser	Cromarty
Mr Michael	Fry	Edinburgh
Dr Janet	Fyfe	Cromarty
Mr John	Gerrard MBE	Edinburgh
Miss Anna	Gordon	Edinburgh
Mrs Bright	Gordon	Cromarty
Mr Martin	Gostwick	Cromarty
Mr Ernest	Gregson	Perth
Mr Philip	Hamilton-Grierson OBE	North Kessock
Mrs Jill	Hamilton-Grierson	North Kessock
Professor Christopher	Harvie	Tuebingen, Ger.

LIST OF DELEGATES

Mr Colin	Heape	Avoch
Mrs Jane	Heape	Avoch
Miss Lizanne	Henderson	Glasgow
Dr John	Henry	Edinburgh
Mr John Raymond	Honan	Rochester, N.Y.
Professor John	Hudson	Market Harborough
Dr Norah	Hudson	Market Harborough
Dr James	Hunter CBE	Beauly
Dr Philippe	Janvier	Paris
Mr Julian	Jocelyn	East Kilbride
Mr Paul	Jordan	Edinburgh
Mr Richard	Kindersley	London
Dr Simon	Knell	Leicester
Mrs Renate	Krebbs	Inverness
Mr Alexander	Lindsay	Inverness
Mrs Alison	Linklater-Betley	Edinburgh
Dr Deryck	Lovegrove	Kilry, by Alyth
Professor David	Lowenthal	Berkeley, California
Miss Lyndsay	Lunan	Glasgow
Mrs Anne	McCarter	Dalkeith
Dr Colin	McFadyen	Edinburgh
Rev. Professor Andrew	McGowan	Dingwall
Mrs Heather	McHaffie	Edinburgh
Mr Iain	Maciver	Edinburgh
Mr Donald	Mackay	Edinburgh
Miss Sena	Mackay	Inverness
Lord	Mackay of Clashfern	Peddieston
Mrs Catherine	Mackay	Edinburgh
Dr Margaret	Mackay	Edinburgh
Mr William	Mackay	Edinburgh
Miss Lisa	Mackenzie	North Kessock
Mr Ian	Mackenzie	Culloden Moor
Mrs Margaret	Mackenzie	Culloden Moor
Mrs Janey	McKenzie	Dingwall
Mr Henry	McKenzie Johnston	London
Mrs Marian	McKenzie Johnston	London
Mr John	McNaught	Cromarty
Mr Ian	McCrae	Cromarty
Mr Ewan	McVicar	Linlithgow
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Ms Christine	Matheson	Drumnadrochit
Mrs Betty	Matheson	Inverness
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Dr Alison	Morrison-Low	Edinburgh
Mrs Griselda	Munro Ferguson	Evanton
Miss Eleanor	Murray MBE	London
Mr Richard	Myers	Cannich
Rev Dr Nick	Needham	Dingwall
Dr Roy	Nelson	Fortrose

Mrs Katie	Nelson	Fortrose
Mr Alexander	Nightingale	Dunbar, E. Lothian
Mrs Fiona	Nightingale	Dunbar, E. Lothian
Mrs Hilary	Nightingale	Sittingbourne, Kent
Dr John	Nightingale	Oxford
Miss Rachel	Nightingale	Isle of Wight
Mr Ralph	O'Connor	Cambridge
Rev Kenneth	Pattison	Ross & Cromarty
Mr Alleyne	Reynolds	Cromarty
Mrs Helma	Reynolds	Cromarty
Professor Duncan	Rice	Aberdeen
Professor Eric	Richards	Adelaide, Australia
Rev David	Robertson	Dundee
Dr Ian	Russell	Aberdeen
Mrs Norma	Russell	Aberdeen
Dr James	Secord	Cambridge
Mrs Susan	Seright	Rosemarkie
Professor The Lord	Sewel CBE	Aberdeen
Mrs Anne	Short	Cromarty
Mr Thomas	Skinner	Edinburgh
Dr Gavin	Sprott	Edinburgh
Mr Leo	Standon-Batt	Culbo, by Dingwall
Professor William	Stevely	Aberdeen
Dr Sara	Stevenson	Edinburgh
Mr Lachlan	Stewart	Fearn
Mrs Annie	Stewart	Fearn
Captain Roderick	Stirling, Lord Lieutenant	Muir of Ord
Mrs	Stirling	Muir of Ord
Mrs Elizabeth	Sutherland	Rosemarkie
Rev John	Tallach	Cromarty
Mrs Isobel	Tallach	Cromarty
Dr Michael	Taylor	Edinburgh
Mr Sandy	Thomson	Cromarty
Dr Peter	Tilbrook	Cromarty
Professor Hugh	Torrens	Keele
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Mr Edwin	Wakeling	Aviemore
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Dr Charles	Waterston FRSE	Edinburgh
Mrs Marjorie	Waterston	Edinburgh
Professor Roger	Wheater OBE FRSE	Edinburgh
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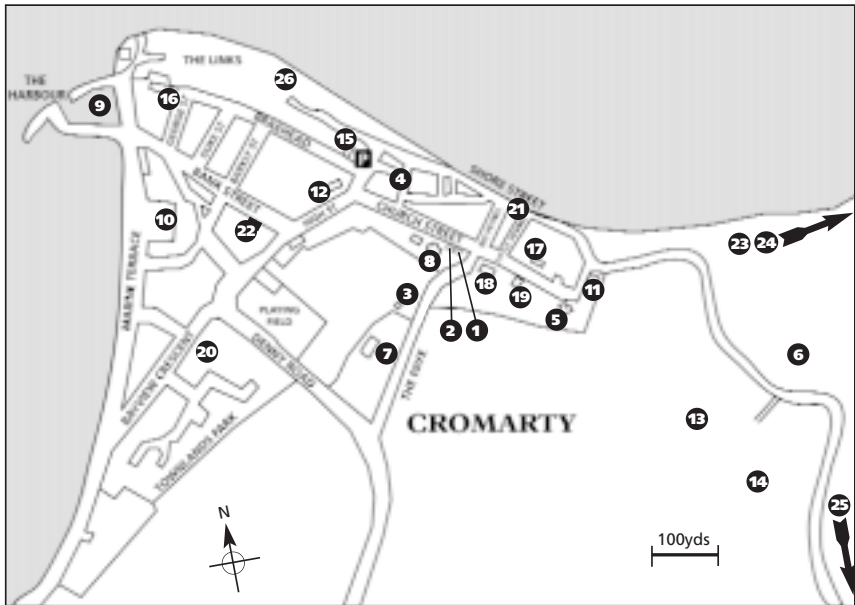
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The Hugh Miller Cromarty Trail

Cromarty, on the Black Isle just to the north east of Inverness, retains the atmosphere of an 18th century seaport. This is where Hugh Miller was born on the 10th October 1802, and where he lived and worked until January 1840, when he moved to Edinburgh to become the editor of *The Witness* newspaper.

1 Hugh Miller's Cottage, Church Street

The birthplace of Hugh Miller, 10 October 1802. Cottage built in 1711 by John Fiddes, his great-great-grandfather, using his prize money as a sailor on the Spanish Main. Cottage interior features a "hanging lum", a chimney canopy of wood and daub, used for smoking fish. In the care of the National Trust for Scotland.

2 Miller House, Church Street

Built by Hugh Miller's seafaring father about 1800. Later lived in by Miller and his wife Lydia when he was employed as an accountant by the Commercial Bank in Cromarty, before leaving for Edinburgh in January 1840, to become the editor of *The Witness*. In the care of the National Trust for Scotland.

3 Hugh Miller Memorial, off the Paye

The monument which towers above his birthplace was erected in 1859, following Miller's death in Portobello on 24 December 1856. The column is topped by the statue of Miller carved by Handyside Ritchie, and is a favourite perch for seagulls. The Paye, a steeply cobbled lane, was once the main entry into Cromarty, leading to "the King's Ferry", an important part of the route north to the shrine of St Duthac in Tain. James IV is said to have used the ferry eighteen times, the last just weeks before he died at the Battle of Flodden in 1513.

4 The Former Parish School, Shore Street

This single-storeyed building (The

Anchorage, now a private residence) was once the school attended by Hugh Miller. He vividly describes his early years in *My Schools & Schoolmasters*, referring to the cock-fighting which was condoned, and the fact that he was expelled following a brawl with the schoolmaster. However, Miller was largely self-taught, having access to the books of his uncles and others who took an interest in him. Samuel Smiles, the author of *Self Help*, used Miller as an example to others.

5 The Old Parish Church (the East Church), Church Street

A 16th century building of national importance, now in the care of the Scottish Redundant Churches Trust. Hugh Miller worshipped here. Its unaltered 18th century interior reflects the development of Presbyterian worship. The galleries, or lofts, were added for the growing congregation. The Cromartie Loft of 1756 contains a fine hatchment with the arms of George Ross of Pitkerrie and Cromarty. Miller, as editor of *The Witness*, the newspaper of the evangelical wing of the Church of Scotland, had a major influence on public opinion which, in May 1843, led to the Act of Separation (popularly referred to as “The Disruption”), and the establishment of the Free Church of Scotland. Miller’s work as a stonemason can be seen in some of the gravestones in this churchyard.

6 The Old Graveyard of St Regulus, Castle Brae

A short grassy path leads to the old graveyard. It is the site of the medieval Chapel of St Regulus. There are some interesting table-tombstones and the Ross of Cromarty family crypt. Hugh Miller’s infant daughter, Elizabeth Logan, lies buried here. The small scalloped stone marking her grave was Miller’s last known work as a stonemason.

7 The Gaelic Chapel, Kirty Brae

Now a picturesque ruin, it was built by George Ross, the improving laird, in 1783 to provide a chapel for the Gaelic-speaking worshippers from neighbouring parishes. The many sailors who perished on the *HMS Natal* when it exploded at anchor on 30 December 1915 lie buried here. It is possible to reach this chapel from the Denny Road, following a path known as the Stroopie Road to the Paye.

8 The Courthouse (or Town House), Church Street

Built between 1771 and 1773 also by George Ross, using funds from the Commissioners of

the Annexed Estates (lands forfeited after the unsuccessful 1745 Jacobite Rising). The building was used for the sittings of the Sheriff Court and for other official purposes. The high perimeter wall and the cell block were added in 1847. The Town Council and the Burgh Magistrates continued to use the building until the 1960s. It was later restored as an award-winning museum in 1991, and is run by a locally based Trust. The Museum presents the social history of Cromarty in a most imaginative way.

9 The Harbour

Cromarty’s trading boom in the 18th century owes much to William Forsyth, who saw the potential to serve the wider Cromarty Firth. Forsyth’s enterprise laid the basis after 1772 for the town’s development by George Ross, which included the construction of the harbour by John Smeaton between 1781 and 1784. It was in this period that Cromarty assumed its present appearance, reflecting its economic prosperity. In 1828, Invergordon improved its harbour piers and, with direct access to the rich hinterland of the Cromarty Firth, it prospered at the expense of Cromarty.

10 The Old Ropeworks and Hempworks, Marine Terrace

This extensive red sandstone building is one of the earliest examples of a factory building in Scotland, built by George Ross about 1775 for hempwork and later ropemaking introduced in 1805. Since the 1980s, it has been adapted to provide local authority housing, when a central building was taken down.

11 The Old Brewery, Burnside Place

Established in 1776, this was another of George Ross’s enterprises, intended to wean the populace away from whisky. It was converted in 1989 by the Cromarty Arts Trust as a residential study centre and community facility. It is leased to Robert Gordon University of Aberdeen, and its modern facilities are used by many groups for educational or professional courses.

12 Forsyth House, High Street

Built in 1772, reflecting William Forsyth’s position as the leading merchant of the town. The fine pinned (or Aberdeen-banded) red sandstone frontage is particularly noteworthy, as are its 20 windows, which were an indication of Forsyth’s wealth.

13 Cromarty House

The Cromarty estate was owned by the Urquhart family, Hereditary Sheriffs of Cromarty, from the mid 14th century. Sir Thom Urquhart, (1611-60), a soldier, writer and translator of Rabelais, lived in a substantial towerhouse on this site. George Ross demolished it, building the neo-classical Cromarty House in its stead in 1772. The architect is unknown, but it has similarities to Culloden House near Inverness. An unusual feature is the servants' tunnel which leads to the main road, opposite St Regulus graveyard. The house is not open to the public.

14 Cromarty House Stables

This fine U-plan building, contemporary with the house, has a lofty plaster-vaulted interior supported on elegant Tuscan columns. This was restored by the Cromarty Arts Trust and is used as a space for artists working in many media, with a spacious conference and exhibition area on the upper floor.

15 The Ice House and Salmon Bothy, The Links

A 19th century vaulted building with a round-ended gable is set into the slope of Braehead, and turfed over to preserve an even temperature. It was used for the summer storage of ice needed to pack the salmon netted locally. On the shore nearby stands the salmon bothy, formerly used by the fishermen. The Links to the west were at one time also used for processing herrings, which was subject to seasonal fluctuation. The shore to the east was used by the inshore fishing boats and was the site of the old fish market. Miller's literary reputation was established when, as the Cromarty correspondent to the *Inverness Courier*, he wrote five vivid letters (articles) on the herring fishing, which were republished in pamphlet form.

16 Lighthouse and Keepers' Cottages, George Street

This was established in 1846 to the design of Alan Stevenson, one of a long line of lighthouse engineers drawn from the same family (related to Robert Louis Stevenson, the writer). The stumpy tower is flanked by Egyptian-style Keepers' Cottages, now used by the University of Aberdeen as a base for the scientific study of the seal and dolphin populations of the Moray Firth, which attract much international interest.

17 St Ann's, Church Street

A narrow three-storey house built for a Colonel Gordon in 1807. Its red sandstone frontage is galleted (or cherry-pointed) with fragments of contrasting dark slate. It is said to have been built to spoil the outlook of Bellevue House.

18 Bellevue House, Church Street

An impressive mansion of 1797, built for Adam McGlashan, who had prospered in Newfoundland. It was subsequently acquired by a family with West Indies connections, when its "pleasure grounds" were developed. It is now divided into three separate dwellings.

19 The Retreat, Church Street

A substantial 18th century merchant's house of L-plan design, featuring crow-stepped gables and rounded dormers, which are building elements to look out for on many other Cromarty buildings.

20 West Church, High Street

Following the Act of Separation in May 1843, when a large number of ministers followed Thomas Chalmers and other leaders out of the Church of Scotland, to form the Free Church of Scotland, there was an urgent need for new churches, manses and parish schools. The West Church was originally built as the Free Church. It was rebuilt in 1866 around the grave of Alexander Stewart, the first Free Church Minister in Cromarty, and again restored in 1932 following a fire. The church is now the principal parish church, although the Old (or East) Parish Church is used for occasional services.

21 The Vennels of Fishertown

The medieval core of Cromarty lay at the foot of the Causeway to the east, and the cluster of small houses to the west of Burnside form the nucleus of the later Fishertown. The narrow lanes or "vennels" are worth exploring for their variety of building styles and the sense of a close community. Photographs of 1900 show very little change in the pattern of building. The former cobbled streets are now mostly covered by tarmacadam. The wives of fishermen no longer sit at their open doors baiting the fishing lines with mussels.

22 Bank House, Bank Street

This double-fronted house was the location

of the original agency for the Commercial Bank (later the National Commercial and ultimately the Royal Bank of Scotland). The first agent, Mr Ross, recruited Hugh Miller to become its accountant, and later his deputy. Between 1835 and 1840 Miller thus gained an insight into business affairs which was later to be useful when he became editor of *The Witness*. In 1839, Miller composed his Open Letter to Lord Brougham against the judgment regarding Patronage (or the Intrusion of Ministers). He sent a copy of his letter to Mr Robert Paul, the Commercial Bank Manager in Edinburgh with whom he had trained. Paul was a staunch member of the evangelical wing of the Church of Scotland, which led to the invitation to Miller to become the first editor of *The Witness*, which took him to Edinburgh in 1840, and his subsequent fame.

23 The Fish Fossil Beds, Shore Path

Trained as a stonemason, Hugh Miller developed his lifelong love of natural history into a highly focused study of geology, which led him to the discovery of the “Fish beds”, an argillaceous (shale) rock containing fish-bearing calcareous concretions of Middle Devonian age on the Cromarty shore. He described these fossils in his famous book *The Old Red Sandstone* which first appeared as a part-work in *The Witness*, awakening the interest of many people in natural history. The fish fossil site along the shore path opposite the Reeds Park is now a Site of Special Scientific Interest. The shore path forms part of the 90-mile Black Isle Path Network.

24 The South Sutor

One of the two outstanding headlands which form the entrance to the Cromarty Firth. Miller, in his *Scenes and Legends*, refers to the two shoemakers (or sutors) who threw tools to each other across the Cromarty Firth. In reality the Sutors are prominent hills of resistant psammitic granulite shot through by Caledonian intrusions of granite and earlier metamorphosed igneous dykes. The woodland cliff path (100 Steps) to the South Sutor may be approached from the shore path beyond Reeds Park. The South Sutor provides spectacular views, especially to Morayshire where the Old Red Sandstone also occurs. Miller conducted a fascinating correspondence with fellow naturalists such as Patrick Duff, the Town Clerk of Elgin, who was responsible for many similar fossil discoveries in Morayshire.

25 Eathie Foreshore and Fishing Station

This is a key site for Miller’s fossil discoveries, with many locations along the shore northwards towards the Eathie Burn and the Old Red Sandstone outcrops. The Eathie foreshore is reached from the main road to Rosemarkie, turning left at Newton Farm and then continuing past Eathie Farm to a well-signed track with a small carparking space. The Eathie Haven on the southeastern shore of the Black Isle contains fault-bounded Jurassic sediments of Kimmeridgian Age. These lie within the crush-zone of the extension of the Great Glen Fault, the same structure which defines the location of Loch Ness further to the southwest. The well-constructed path which leads down to the foreshore gives good views of the coastline. The path leads to an old salmon bothy, once used by Cromarty fishermen when salmon-netting off this shore. Now a Site of Special Scientific Interest, ammonites and belemnites of the Jurassic measures can still be seen, and the variety of seabird and other flora and fauna make the excursion well worth the effort. Walkers need to be suitably dressed and reasonably fit for this strenuous walk.

26 The Emigration Stone

Cromarty was one of the main ports for Highland emigration to the New World in the 1830s. At least 40 ships are known to have sailed from here, and their names are recorded on the 4.45 metre Caithness flagstone. Hugh Miller’s renown as a stone letter carver prompted the Cromarty Arts Trust to commission this work from Richard Kindersley, one of the finest letter carvers in the world today, using Hugh Miller’s vivid description of the departure of the emigrant ship *Cleopatra*.