



# Hugh's News

Magazine of  
The Friends of Hugh Miller

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## OLD RED – A TIME FOR CELEBRATION

by Lara Reid

How wonderful it is to be bringing this special edition of Hugh's News to you, our readers and dedicated membership! We are delighted to celebrate the new edition of Hugh Miller's *The Old Red Sandstone*, edited by Ralph O'Connor and Michael Taylor, recently released by NMSE Publishing. Hopefully, many of you will have ordered your copy – ideally with our exclusive discount code (details on page 8!). If not, perhaps this bumper edition of our newsletter will entice you to do so.

Here, we welcome brand new pieces by James Robertson, Sidney Johnston and Kenny Taylor. We have poetry commissioned especially for this edition of Hugh's News, from poets including our own Jim C. Mackintosh and palaeontologist and writer Elsa Panciroli. We weave our way through the Devonian and back to the present day, following in Miller's footsteps and seeking out his beloved fossil fish. We tread carefully in sandstone caves and holy places, tiptoe through fossil beds and crack open a few nodules, all the while seeking joy in tiny, intricate details.

I'll leave you with a few words from Ralph's long-time friend and fellow writer, Robert Macfarlane, award-winner author of *Underland* (and many more books besides):

*"I still remember, half a lifetime ago, being introduced to Miller and The Old Red Sandstone by you, Ralph, and the sudden, vertiginous feeling induced by reading Miller's densely formed prose, and the impossibly ancient vistas it opened up. The great gates of time swung open in these annals of the former world; and they've never really closed for me. What a thing it is that you and Michael have accomplished in bringing this edition to print. Thank you, old friend, for your patient and painstaking work on behalf of Hugh, our 'Old Red'."*



Sea pinks on sandstone. Lara Reid

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# *The Old Red Sandstone: A clarion call for us all?*

Book review by Lara Reid

Many of our readers will be no strangers to Hugh Miller's classic 1841 book, *The Old Red Sandstone, or New Walks in an Old Field*. To those of you who have never ventured into its pages, with any luck this new edition published by NMSE Publishing will encourage you.

I have waited many years to hold this new edition in my hands. I remember Martin Gostwick proudly telling me that Miller's beloved *ORS* would soon be republished – this was back in 2016. In total, Michael Taylor and Ralph O'Connor have spent 15 years on this project, and their dedication and commitment is to be applauded. This two-volume edition is a comprehensive, fascinating, and hugely valuable contribution to Miller's legacy and to the wider corpus analysing Victorian science writing and the history of the written word and book printing at that time.

This edition comes in two volumes – volume one is a critical study examining Miller's process and the historical backdrop against which *ORS* was originally written. Within the second volume is Miller's own original book, recreated faithfully with all illustrations and notes intact.

Much as Hugh Miller himself aimed to do with his writing, Taylor and O'Connor neatly offer an overview that will be of interest to people across multiple disciplines from all different backgrounds. There is detail enough here to absorb geological experts, interested non-specialists, historians and students of literature alike. Taylor and O'Connor's meticulous yet engaging prose in the critical study makes for an easy and entertaining read – I particularly enjoyed the background detailing the reasons why Miller came to write *ORS* in the first chapter.



Periodically throughout his original book, Miller lays out his fossil specimens in front of us – “I have placed one of them before me”, followed immediately by “Imagine...”. He asks that we visualise fish scales as roof tiles, bone structures as a vaulted cathedral roof, teeth bent like the beak of a hawk, fish laid out like brushes – head and shoulders as the handle, the clustered fins forming the bristles. We follow his puzzlement, work through problems, fit his and our knowledge together like a jigsaw. Because we work alongside him, *we as readers are Miller's equals*. He actively, famously, encourages learning and his own thirst for knowledge remains infectious.

To my mind, the *ORS* has as much to show us today as it did when it was first published. In fact, this book demonstrates what may now be needed in terms of new works that aim to examine, understand and repair our human-tarnished natural world. I often wonder what Miller would make of the Anthropocene. Imagine the fossil fish of the distant future, dug up or exposed with coloured plastic fused into their skeletons. What would the discoverer make of them?

Miller wrote a ‘literary tour de force which amounted to a clarion call for the new vision of Earth's history’ (Prelude, A21, Vol.1). We need to nurture the same level of detailing, encouragement, and new ways of thinking in our writings about the natural world today.

See Page 8 for a special discounted price on *The Old Red Sandstone* for the Friends of Hugh Miller

# The Dwarfie Stane

by James Robertson

I am writing this in Orkney, which I first visited as a teenager and to which I have returned often in the intervening half-century. When Hugh Miller came to the archipelago in 1846 he went fossil hunting on the coastline around Stromness. The Orkney Natural History Society had already been in existence for nine years and had formed the Stromness Museum, one of Scotland's oldest independent museums, which is well worth a visit, either in person or online at <https://stromnessmuseum.org.uk>

Miller was made an honorary member of the Society and one of the Museum's prize exhibits is *Homosteus Milleri*, named after its collector, and according to the Museum's website 'a flat, heavily armoured placoderm fossil ... found within the Old Red Sandstone sediments of the Sandwick Fish Bed'. It was the discovery of this fossil which led Miller to write his book *The Footprints of the Creator, Or, the Asterolepis of Stromness*.



The Dwarfie stane. © Bruce McAdam cc-by-sa 2.0

Thirty years ago I was steeped in Hugh Miller's writing, having recently prepared new editions of *My Schools and Schoolmasters* and *Scenes and Legends of the North of Scotland*. So, I knew of his Orcadian connections but not all the details. In 1994, I was in Orkney for a week's holiday and one day our party went to Hoy. En route to Rackwick through the valley of the South Burn we stopped and walked across the moor to see the Dwarfie Stane.

This huge block of Old Red Sandstone is an erratic deposited by the ice which carved out the valley. It is 8.6 metres (28 ft) long, 4 metres (13 ft) wide and up to 2.5 metres (8.2 ft) high, but what makes it really special is that it is the only example of a Neolithic chambered tomb in Orkney fashioned entirely from an existing stone, possibly the only one in Britain. Various legends are associated with it: it was thought to have been the home of giants and later of dwarfs, hence its name, and Sir Walter Scott refers to it as the haunt of 'Trollid, a dwarf famous in the northern Sagas' in his novel *The Pirate* (1821). More information about it is readily available on line.

When I lay in one of its two compartments, I saw that people in the 18<sup>th</sup> and 19<sup>th</sup> centuries had recorded their visits in graffiti. To my surprise and delight, clearly and neatly inscribed in the rock were the initials H.M. and the date 1846.

As soon as I could do so, I checked and found that Miller had indeed been there before me, wondering about the 'lettered-over' names of those who had preceded *him*. The following passage comes from his *Rambles of a Geologist*:

*[T]he stone, – an exceedingly compact red sandstone, – had resisted the imperfect tools at the command of the traveller, – usually a nail or knife; and so there were but two of the names decipherable, – that of an 'H. Ross, 1735', and that of a 'P. FOLSTER. 1830'. The rain still pattered heavily overhead; and with my geological chisel and hammer I did, to beguile the time, what I very rarely do, – added my name to the others, in characters which, if both they and the Dwarfie Stone get but fair play, will be distinctly legible two centuries hence.*

Then Miller adds one of those reflections which take his writing to another level and remind us why, despite the passage of time and the advance of scientific knowledge, he is still relevant, and why therefore the wonderful new edition of *The Old Red Sandstone* produced by Ralph O'Connor and Mike Taylor is so welcome:

*In what state will the world then exist, or what sort of ideas will fill the head of the man who, when the rock has well-nigh yielded up its charge, will decipher the name for the last time, and inquire, mayhap, regarding the individual whom it now designates, as I did this morning, when I asked, 'Who was this H. Ross, and who this P. Folster?' I remember when it would have saddened me to think that there would in all probability be as little response in the one case as in the other; but as men rise in years they become more indifferent than in early youth to 'that life which wits inherit after death', and are content to labour on and be obscure.*

# Delving into Hugh Miller's creative mill: Bringing *The Old Red Sandstone* back to life

An interview with Professor Ralph O'Connor of the University of Aberdeen, who co-edited the new edition of *The Old Red Sandstone* with Dr. Michael A. Taylor.

by Lara Reid

**Could you begin by telling us about the origins of this project?**

It was very much Mike Taylor's brainchild. As many FOHM members will know, Mike edited *The Cruise of the Betsey* reprint back in 2003 - a book by Miller that has a wide appeal because of the wonderful descriptions of fossils and fossil hunting, interesting social history, scenic travel and elements of folklore. It seemed to be a good candidate for a reprint, and it did well enough. It went out of print in only a few years, and it's recently been reissued with an added photo section. Mike felt that *The Old Red Sandstone* was an obvious follow-up, because it also had a similar attractive mixture of science for the general reader with descriptions of landscapes, personal anecdote, and even some folklore stories buried in its footnotes. It's also the book that Miller was best known for in his day – it made a big splash when it came out, and it became one of the one of the biggest scientific bestsellers of the 19th century, on a par with Darwin's *Origin of Species* in terms of sales and readership. However, it went out of print in the first part of the 20<sup>th</sup> century – in fact, it's now 101 years since the last edition was published, so it is brilliant to see it back on the shelves again today.



Ralph O'Connor

**And how did you get involved?**

I had worked with Mike before on *The Cruise of the Betsey*, helping him with some of the details of Miller's poetic quotations and allusions to literary works. With *The Old Red Sandstone*, Mike brought me in as a co-editor. I jumped at the chance - Hugh Miller is absolutely my favourite writer. Initially, we planned a single volume with a facsimile with notes to explain the trickier bits, and a reasonable length introduction. But then it grew.

**I was going to ask you about that! It's a two-volume edition, with an extensive and beautiful critical study as one volume, and Miller's text in the other. Why did you decide to do this?**

Mike and I started work on this project 15 years ago, and it wasn't meant to be a two-volume edition. We were drafting and re-drafting the introduction together, and each time the drafts got longer and longer, as we found more and more interesting and important things that needed to be said. Once it grew to more than 40,000 words by way of an introduction, we began to wonder if it needed to be in two volumes – if nothing else, because it would be too big and heavy for people to carry around if it was all in one book! We were very lucky that National Museums Scotland Publishing took all this in their stride. They put an enormous amount of time, patience and creative thinking into the book and its many moving pieces.

Besides the introduction, the book kept expanding with more textual notes, new images for the artwork section (partly thanks to a generous contribution from FOHM), and of course all the appendices.

***The appendices add extraordinary detail in terms of describing Miller's processes and reasonings behind the content of The Old Red Sandstone. Can you tell us a little more about the research that went into those?***

We were determined to tell a coherent story about how and why Miller wrote this book – how the book came into being, why it takes the form it does. Some of the questions we wanted to answer were very specific, and we felt they would impede the flow of the critical study if we tried to include it all in the main text. So, the idea for the appendices was to add in detail and further context. Some of them are aimed at explaining general issues such as how geological ideas were different in Miller's time from our own time. Others are more specific and present further research that we'd conducted both into the text itself and its scientific contexts. We included one appendix looking at the very specimens illustrated in Miller's book (now in National Museums Scotland) co-authored by Mike's NMS colleague Andy Ross and Mike himself. The one appendix that I wrote was about how Miller turned his articles from *The Witness* newspaper into a full-length book. The initial nucleus of *The Old Red Sandstone* is a series of seven short newspaper articles that Miller wrote. Researching that process was just so fascinating - a couple of chapters in *The Old Red Sandstone* have been lifted pretty much word for word from *The Witness*, but by far the greatest proportion of the material has been put back through Miller's creative mill and turned into something not only different but much more satisfying. He was clearly designing the book so that it was easier for general readers of his own time to understand – I could see where and why he had reordered material, expanding some of the analogies, adding whole new examples, making the whole book pull together more powerfully. It was a bit like getting a glimpse over Hugh Miller's shoulder as he worked.

***Is there any actual physical archival evidence of Miller working on The Old Red Sandstone himself? Any handwritten notes that you came across?***

Mike and I haven't found any complete chapters in manuscript or anything on that scale, no. With *Scenes and Legends of the North of Scotland*, there are some of Miller's draft chapters, but not for this book. That's why it was so important to compare it with *The Witness* articles, which are essentially the first draft of *The Old Red Sandstone* as a whole. The other thing that was useful was having access to the letters that Miller wrote to his network of correspondents, scientific and otherwise, in the late 1830s and beginning of the 1840s, telling them about his progress on the book. These were people like Louis Agassiz, Roderick Murchison and also some of his literary friends like Helen Dunbar. We were lucky that Professor Jon Hodge down in Leeds lent us a box of transcripts of Miller's letters – Miller kept copies of his letters, presumably for his own benefit to help him develop as a writer. We actually found that some of the text that appears in *The Old Red Sandstone* first appears in letters to friends. For a long time, Miller didn't even know whether this project was going to be a book – he just keeps talking about his sketches growing. Mike and I found this a familiar feeling! We had to piece together the story of how the book came into being by looking at letters by Miller and his circle of acquaintances, and join the dots that way.

***Would you say there is anything about The Old Red Sandstone that stands out in terms of Miller's writing?***

Many of Miller's books are wonderful in the way they mix together different subject areas – science, literature, art, architecture, history – with autobiography. *The Old Red Sandstone* is of a piece with these other writings: they are all special. But in terms of his development as a writer, this book it is massively important. This was his first book about fossils, but it was also his first published piece of autobiography. He was trying out, for the first time, how to blend two very different kinds of writing on a large scale. I think *The Old Red Sandstone* is like Darwin's *Origin of Species* in terms of its literary importance. But it's even more engaging to read than Darwin's book because Miller allows his own personality and passion to come through so much more directly, telling his own story as much as the story of the Earth. It also has scientific importance too – it continues to be a reference point for palaeontologists today. Miller wanted to make sure that he staked his claim in finding these fossil fish – he deserved the credit as a scientific investigator. He continues to be recognised for his extraordinary skill in identifying these particular fish by their intricate anatomical details.

***Is there anything particular you feel that modern day science writers can learn from reading Hugh Miller?***

Well, I think modern-day science writers still do and have continued learning from Miller - *The Old Red Sandstone* has remained a much loved classic that geologists and palaeontologists continue to find inspiration in. I've just finished reading Thomas Halliday's wonderful book, *Otherlands*. You can see the inspiration of Hugh Miller in there, right from the very first chapter.

In his own writing, Miller manages to choose words so that the reader can imagine themselves actually looking at something from the distant past and can then relate to it as important. He somehow conveys to the reader that it is necessary for them to know about, and feel something about, these past objects and past events. He regularly puts himself in the picture – taking the reader for a walk with him and saying 'look what I've found!' Science-writing and nature-writing today often uses the same technique to appeal to the wider public, but only a select few carry it off as naturally as Miller.

***Do you have a favourite passage from The Old Red Sandstone?***

I have so many. I've got a particular fondness today for the passage where he describes his first visit to Eathie beach for fossil hunting, partly because it's now a favourite place for me and my family.

*We may turn over these wonderful leaves one after one, like the leaves of a herbarium, and find the pictorial records of a former creation in every page. Scallops, and gryphites, and ammonites, of almost every variety peculiar to the formation, and at least two varieties of belemnite; twigs of wood, leaves of plants, cones of an extinct species of pine, bits of charcoal, and the scales of fishes; and, as if to render their pictorial appearance more striking, though the leaves of this interesting volume are of a deep black, most of the impressions are of a chalky whiteness. I was lost in admiration and astonishment, and found my very imagination paralyzed by an assem-*

*blage of wonders, that seemed to outrival in the fantastic and the extravagant, even its wildest conceptions. I passed on from ledge to ledge, like the traveller of the tale through the city of statues.*

I love the way he describes the wonder with which he first found those fossils. It's just magical. I also love the passage in the last two or three pages of the book, where he dives into the Carboniferous and describes this conceptual journey through *the Old Red Sandstone* formations as being like a voyage by sea through time before finally approaching land – just as the fossil fish give way to the first land-based creatures. And then he says, 'we have entered the Coal Measures' because he's reached the end of his story and the Carboniferous is the next geological period. He describes what 'we' see, as if he and his readers are looking amazed from the deck of their time-travelling ship. It's very dramatic, written almost like a scene in a science fiction novel. That was the passage that really grabbed me when I was a student and first read Miller.

The cleverest thing is that he also incorporates things into the scenes he describes that were not yet known – 'we see the distant gleam of scales, but the forms are indistinct and dim'. It's his way of saying – this is provisional, it is unproven science, but I know – we know – it is there. There is so much more to discover.

*Can you say a little more about Miller's sense of perspective?*

Miller had an extraordinary ability to widen his own viewpoint, his own perspective. He might be working on these individual fish scales and piecing them all together, but he knows for a fact that this is a minute part of a huge history. It's quite an astonishing way of thinking, not just for his time but for the modern day, too. There is a recent drive in academia and beyond towards creating narratives of Big History, where human history and human activity are worked into a much larger narrative about the history of the Earth and the environment. I think the way Miller presents human history as part of a continuum with geological history, rather than compartmentalising it, really chimes with this new approach.

*Do you have anything else you'd like to add?*

Simply that I am so pleased that this book is finally out, and I'm incredibly grateful to Mike for inviting me on board in the first place and NMSF for publishing it. It's been such a pleasure working with Mike over these 15 years and I look forward to further collaborations in the future. I do hope all our readers find something new in the latest edition, and that it brings people joy to read Miller's work afresh – or indeed for the first time!

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*This will be the last edition of Hugh's News for 2023, so we take this opportunity to offer festive greetings for Christmas and the New Year to all our Members.*

# Shortlisted for Scottish National Book Awards

**SALTIRE SOCIETY SCOTLAND**  
**COMANN CRANN NA H-ALBA**

**Scottish Research Book of the Year 2023 Shortlist**

#SNBA23  
SC 04962

In partnership with

**National Library of Scotland**  
Leabharlann Nàiseanta na h-Alba

As this edition of Hugh's News was going to press, we received the Saltire Society's announcement of the short-listed titles for the 2023 Scotland's National Book Awards, which recognise work across six literary categories (Fiction, Non-Fiction, Research, History, Poetry and First Book) and three publishing categories (Publisher, Emerging Publisher and Cover Design). We were delighted to hear that *The Old Red Sandstone* has been shortlisted for the Scottish Research Book of the Year Award, which is run in partnership with the National Library of Scotland.

Sarah Mason, Executive Director of the Saltire Society, said: *"The 2023 shortlists for Scotland's National Book Awards show the outstanding talent, scale, diversity and excellence that we are so lucky to have in Scotland today. These Awards have a proud history of celebrating the extraordinary richness in the work of our authors, publishers and designers and we congratulate everyone who have been shortlisted this year."*

Well done to Mike and Ralph, and best of luck at the next stage - the Literary Awards winners will be announced at a ceremony in Glasgow on 7 December 2023.

Friends of Hugh Miller members can get *The Old Red Sandstone* at a discounted price by purchasing through the publisher's website. Go to <https://shop.nms.ac.uk/collections/books-natural-science> and when you come to pay enter the code FOHM23. This will entitle you to buy the book for £22.00 (RRP is £30.00) plus postage and packing (£5.00 in the UK). For members living in or visiting Edinburgh there is the opportunity to choose 'Collect from the Museum' at check out.

The offer is valid only through the publisher's online shop and will expire 30 November 2023.



# Arbroath Sandstone

by Lynn Valentine

I bow my head to mountains  
every morning, a benediction  
to northern skies.

But my eyes cast eastwards,  
measuring my early life out  
in steps along claret cliffs,  
taste of salt surer than wine.

A red light flares in my heart,  
stitching memories  
with the Needles E'e.

A dare to the De'il,  
his effigy twisting  
with the wind, land-locked  
when all we can do is swim.

Three sisters are shushing  
secrets in the Masons' Cave,  
siblings bound with pink thrift  
and promises.

The sea a grey milk boiling up,  
the haar stealing time.

*Authors note:*

*The Needle's E'e, The Deil's Heid, The Three Sisters and The Masons' Cave are red sandstone landmarks found along the Arbroath Cliff Trail.*

**Lynn Valentine** is a poet from Arbroath now living in the Black Isle. Her debut poetry collection, *Life's Stink and Honey*, was published by Cinnamon Press in 2022 after winning their literature award. Her Scots language pamphlet, *A Glimmer o Stars*, was published by Hedgehog Press in 2021 after winning their dialect award. She is working on her second full collection which will be published by Cinnamon Press in 2026. Lynn is widely published with work appearing in places such as *Gutter*, *New Writing Scotland*, and *Northwords Now*. She tweets @dizzy-lynn and her website is at

<https://lynnvalentine.com/>



Top to bottom:  
The Needle's E'e ; The Deil's Head; The Three Sisters; The Mason's Cave  
All © Andrew Diack cc-by-sa/2.0, edited for colour

# Old Red Stones

by Jane Jago

The abbots built from warm, red stone  
A place their children could call home  
Where men of piety and grace  
Did carve the saints of solemn face  
Who from the church did watch us all  
And seem to judge us should we fall  
But now the abbey is long gone  
No more are voices raised in song  
All gone, the abbey's rosy stone  
Except the church that stands alone  
And slumbers in the evening light  
Whose crimson beams make windows bright  
While rosy stones give back the hue  
And in the warmth look almost new  
Though time has weathered every stone  
Brought beauty down to its last bone  
Once austere saints now watch life's trials  
With faces smoothed from frowns to smiles

**Jane Jago** is an eccentric genre hopping pensioner, who writes for the sheer enjoyment of the craft and gets in terrible trouble because of her attitude. Find out more about her at: [tinyurl.com/t9pkll3](https://tinyurl.com/t9pkll3) [author.to/janejago](https://author.to/janejago)

# Ol' Dreds and Stone

by Elsa Panciroli

There's a slab of him, up  
turned  
on my shelf,  
not all that old,  
decidedly unpetrified and disappointingly  
beige.  
I won't pretend I've read him right through  
any more  
than those dreadful geologists  
have licked every outcrop,  
but I dip and strike,  
now and then,  
and the *Old Red Sandstone* chips,  
buries me,  
beneath an epoch of prose.

What is this stuff,  
this 'Old Red Sandstone'?  
A Dad-joke punchline.  
*What's black and white  
and red all over?*  
*The Witness!*  
#OldRedSandstone41 –  
secure password  
for a geologist's twitter account.  
A destination Tolkien sent dwarves,  
their dreadful hammers,  
Moria eyes, Millerite chops,  
clouds gathered around their outcropping chins,  
all dread  
and stone.

**Dr Elsa Panciroli** is a palaeontologist and writer from the Scottish Highlands. Her scientific work focuses on the origin of mammals, and she studies fossils found during her fieldwork on the Isle of Skye. She has published two books, *Beasts Before Us* and *The Earth: A Biography of Life*, and written for newspapers and magazines including *The Guardian*. She also regularly contributes to television and radio programmes.

# Two fragments

by Michael McKimm

## [Hoy]

Chieftain, Easter Island god, Totem of the Sea.

How young you are, Old Man.

Proud fresh face to the western sun.

Olivine-basalt, porphyritic crystals.

Iron ores, augite, Upper Old

Red Sandstone, burnt red, dust

red, terracotta red, ochre red, picked

scab red, orange red, green tinged

red, black smudge red, coal red, pale

creamy yellow red, peach red, Grand

Canyon red, pull of rhubarb coulis

red, ginger biscuit red, fungus red,

black redstart red, moss red, not red.

Old Man, on your platform of lava,

A Ting of Kro

has assembled on your head.



*Old Man of Hoy. © GP Hemy cc-by-sa/2.0*



*Cliffs of Hoy © GP Hemy cc-by-sa/2.0*

## [Hoy]

Climbers Are Hereby Warned –  
the sign at base of Hoy's Old Man  
white capitals on black  
that's weathered to a leopard zinc.

We Will Not Rescue You  
it might as well say, which no doubt  
embellishes the thrill  
for men and women grappling

with neon ropes and harnesses  
that glint and chink like light on water  
who urge their hands into narrow cracks

judge the depth of pull and slack  
their hammers ringing off  
the thick iron sides of old red sandstone

**Michael McKimm** is a writer and librarian. Originally from Ireland, he lives in London, where he works at the Geological Society. The poems included here are from his collaboration with artist Julie Cuthbert to create a portrait of the geology of the British coast in poetry and photography. Michael's most recent poetry collection is *Because we could not dance at the wedding* (Worple Press, 2023).

[www.michaelmckimm.co.uk](http://www.michaelmckimm.co.uk)

Twitter: @MichaelMcKimm

# To The Horizon

by Jim Mackintosh

*for Bob Davidson*

Saintly hill above old Cromarty,  
beech altar under oak vault  
willow herb aisles calling soft  
Sutor song - echoes up to graves

assuring souls forever love.  
Stories fidget and mingle there  
under stern angelic gaze, mason's  
hammer and timeless hour glass.

Near Urquhart's crypt, Miller's  
Eliza, a precious wee bundle  
sleeps under the words crafted  
by hands damp with father's grief.

The veins of Old Red pulse deep  
run solid and gather the world  
to the Firth where tides offer up  
an ancient harvest of other bones.

And by folded layers, Bob Davidson  
leans quietly into the gathering  
of today's bairns with sharp minds  
stitching Miller's past to their horizon.

**Jim Mackintosh** is a poet, editor and producer who has published six collections of poetry, including *Flipstones* (Tippermuir Books, 2018). He has edited or co-edited four anthologies including *The Darg* (Drunk Muse Press, 2019) celebrating the centenary of Hamish Henderson and *Beyond The Swelkie* (Tippermuir Books, 2021), a celebration marking the centenary of George Mackay Brown. He is Makar of the Catearan EcoMuseum. His latest book *The Banes o the Turas* (Tippermuir Books, 2022) is a poetical translation into Scots of *Turas Viaggio* by Italian poet, Pino Mereu. It was shortlisted for Book of the Year at the 2023 Scots Language Awards.

# Cromarty Fossil Fish - New insights fae Cromarty

By Sidney Johnston

In Chapter 1 of his book *The Old Red Sandstone; or, New Walks in an Old Field*, Hugh Miller encourages his readers to “Learn to make a right use of your eyes: the commonest things are worth looking at—even stones and weeds, and the most familiar animals.” It is worth pondering on this sentence and reflect on how you can use your eyes to look at things differently to see and notice things that may not be initially apparent. This sentence inspires further research into the fossil fish of Cromarty.

Hugh Miller would no doubt have marvelled at the new technologies we have available today. Without having to hammer open the types of nodules Hugh collected in Cromarty, we can “see” his fossil fish preserved inside stone nodules using non-invasive technologies such as X-ray scanning technology and computed tomography (CT) scanning. Indeed, we can see certain fossil fish structures preserved in three dimensions, where the fossil fish has not been 100% flattened in the sedimentary layers of the rocks. Powerful microscopes also allow us to see details that are simply not visible to the naked eye or under a magnifying glass.

The photo of the boulder and pebble beach at Cromarty shows the typical types of rocks and stones Hugh Miller would have seen at Cromarty. Which one of these rocks contains a fossil fish or part of a fossil fish? In order to “see”, it is worth visiting the Hugh Miller Birthplace Cottage and Museum in



Top: Cromarty pebble beach  
Middle: *Cheirolepis*  
Below right: *Cheirolepis* Fin detail  
Below left: Cromarty Fossil Fish - *Cocosteus* Jaw,  
All © Sidney Johnston, 2023



Cromarty to see the fossil nodules Hugh Miller collected and also the fossil nodules in the handling collection. It becomes clear that not all fossil nodules are the same! Some are finely laminated, like pages of a book. Others are hard as flint and can result in injury if you don't wear the right personal protective equipment when hammering them. Others carry the scars and tales of events that shaped them over the best part of 400 million years.

The geological formation bearing the fossil fish in Cromarty is of middle Devonian age, approximately 378.9 to 394.3 million years old. At Cromarty there is a mix of sandstones, limestones and hard limestones, the latter next to the Great Glen Fault that runs through the Sutors.

Recent research has shown that the fossil fish nodules from Cromarty continue to contribute to new insights and have revealed the following:

- The oldest elastic cartilage found in fish gill structures
- The connection between the fossil fish *Cheiracanthus flabellcostatus* from Cromarty and the same fossil fish from the Baltic region – this means that the waters must have been connected!
- 3D preserved structures like skulls, jaws and teeth and fish scales
- Coprolites (fish poop) that are revealing what fish ate, for example other fish, plants and other fauna
- Dentine fibres that make up the internal structure of the scales of Acanthodian fish (spiny sharks) are remarkably similar to those found in modern shark scales!

No doubt further research will allow us to use our eyes as Hugh Miller encouraged us to do, to look at what more the fossil fish from Cromarty can reveal.

For those interested in further reading, below are weblinks and details of some recent academic papers that include fossil fish specimens from Cromarty, some of which are illustrated on these pages.

### **Weblinks to some recent academic papers with fossil fish specimens from Cromarty:**

Burrow, C.J., Newman, M.J., & den Blaauwen, J.L. February 2020

First evidence of a functional spiracle in stem chondrichthyan acanthodians, with the oldest known elastic cartilage. *J. Anat.* 2020;00:1–6. <https://onlinelibrary.wiley.com/doi/full/10.1111/joa.13170> (Free access)

Burrow, C.J., den Blaauwen, J.L., & Newman, M.J. April 2020

A redescription of the three longest-known species of the acanthodian *Cheiracanthus* from the Middle Devonian of Scotland <https://palaeo-electronica.org/content/2020/2989-cheiracanthus-from-scotland> (Free access)

Burrow, C.J., Newman, M.J., & den Blaauwen, J.L. August 2020

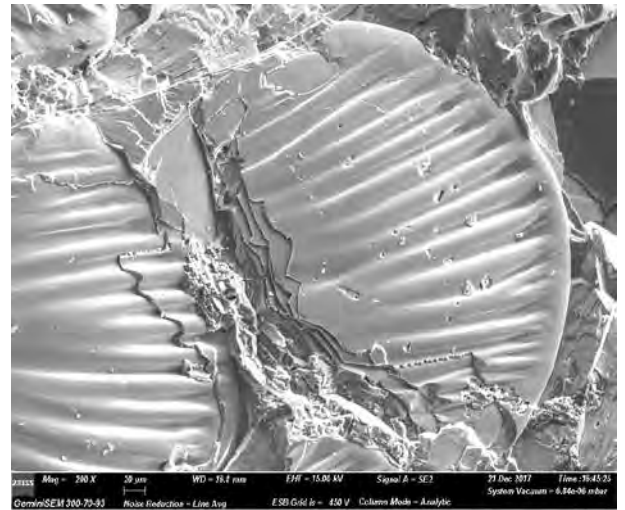
Cheiracanthid acanthodians from the lower fossil fish-bearing horizons (Eifelian, Middle Devonian) of the Orcadian Basin, Scotland <https://www.lyellcollection.org/doi/10.1144/sjg2020-006> (Scottish Journal of Geology)

Newman, M.J., den Blaauwen, J.L., Burrow, C.J., Jones, R. & Davidson, R.G. January 2023

The Middle Devonian acanthodian *Orcadacanthus* n. gen. from the Orcadian Basin of Scotland <https://palaeo-electronica.org/content/2023/3763-new-devonian-acanthodian> (Palaeontological Association: Palaeontologia Electronica)

An online resource detailing the different types of fossil fish from the middle Devonian:

<https://orkneylandscapes.org/orkney/fossils/>



*Cheiracanthus Murchisoni* Fish Scale - Scanning Electron Microscope Image, John Still, University of Aberdeen, 2023

# Layers within layers beyond layers

By Kenny Taylor

Sandstone seems synonymous with layers. Ground down, it is sand, but when intact even a single layer, a year of deposition, can be astonishing.

Its thickness could suggest what flows dumped it; its marks the currents that once rippled it; its grain alignments prove the direction of prevailing winds. And in the Devonian, what fish once swam in the rivers, lakes, seas and shallows where they gasped their last and were entombed. Hidden in sandstone until a hammer blow split the old red or gouged a stratum, revealing anything from single scales to whole bodies, the shapes and patterns of heads, lobes and tails coal-dark against the paler stone, beautiful as an inked Chinese artwork.

Those 'fishbed' layers fascinate me in so many ways, including how they lead out to scientific and intellectual histories: to people who wrestled to reconcile what they exhumed with beliefs some found hard to alter, while others moved on and developed fresh theories and frameworks for understanding the world. Layers of ideation.

I'm also amazed at how some of the fish that past polymaths found and debated are still yielding fresh insights, as research techniques grow ever more sophisticated. Analysis of tiny details of form within slivers of fossil can suggest function, for example, or add to ideas about feeding ecology and evolution. Layers of evidence, from macro to micro.

To my surprise, I also realised quite recently that I've spent most of my adult life not far from a couple of very notable Devonian fishbed locations and close to where people who investigated them, and were prominent in the early development of palæontology and geology, once lived. I'd not taken stock like this before, and now it fascinates me. Geographical coincidence has both revealed a personal layer and given me pointers to further exploration.

## **Days in the Den**

Dura Den is the first of those renowned localities. I lived just a few miles to the south of it for a few years, with a sliver of the Firth of Forth visible from the garden of the farm cottage and the gannet-stippled Bass Rock on the far horizon. That plug remaining from Carboniferous vulcanism was a southern punctuation point in the wide, wide view. But at that time, as a student of animal behaviour, I had little knowledge of the explosive story of the Bass and its time frame, nor of the two geological periods, Devonian and Silurian, that had spanned tens of millions of years before it.

The Den was a place I travelled past between the cottage and St Andrews. Very occasionally, I visited for a walk. Green shade and the sounds of birds and water lured me in, not ideas of what had been found there in the early decades of the 19<sup>th</sup> century; nor knowledge of the characters whose hammers had cracked some of the secrets of the Den's sandstone fishbeds.



One of those was the Reverend Dr John Anderson, who in 1838 was the first to discover fossil fish here. Later (perhaps boosted by his celebrity as a finder of fossils) his field trips to Dura Den seem to have been planned and provisioned with both panache and expense, as described in a letter to his grand-daughter, Maggie:

*"...we all lunched on a beautiful grassy bank on pies, chicken, pigeon and ham – and then grapes, peaches, plums, apricots and nectarines – all of which were washed down with plentiful supplies of cider and sherry."*



*From Dura Den - a monograph of the yellow sandstone and its remarkable fossil remains - John Anderson 1859*

A shout from masons engaged to dig nearby then alerted the party to a fossil fish – “the largest and finest that ever rose to a geological hammer” - with one of the group, Sir Roderick Murchison, declaring it the best he had ever seen. That fish was most likely a *Holopterygius*, a sarcopterygian or lobefin, which was the commonest of the finds at Dura Den. Traces of it are widespread around the world, especially as isolated scales, and such fish seem to have been among the largest predators in freshwater and coastal marine environments in Middle to Upper Devonian times.

Layers within those scales have been the subject of recent investigations, as I'll describe. But the connections, from my perspective, are also of interest through the letter's reference to Sir Roderick. In addition to being the first to describe and name the Devonian and Silurian systems of rock, he was also a son of the Black Isle. He was born at Tarradale House by the silty southern shore, before moving to England, where in early adulthood he devoted himself to fox hunting before turning to science.

My family home for several decades sits between Tarradale and Cromarty, where nearly 170 years after his death, Hugh Miller is still the village's most celebrated former resident. Contrasts are obvious between Hugh's life and that of Sir Roderick, not only in the Cromarty mason's more homespun approach to fieldwork to find fossils. But the desire to understand what was found in the sandstones both links those Black Isle boys back then and still seems relevant, as contemporary science gives fresh insights into denizens of Devonian waters.

### **Questions of scale**

Research published just three years ago is a case in point. It's based on trunk scales of *Holopterygius* from Latvia and Greenland, now housed in the Museum of Natural History in Paris. All far from the East Neuk of Fife or the Highlands, but as the authors of the paper

say: "The porolepiform *Holoptychius Agassiz*, 1839 from the Upper Devonian is one of the most widely found vertebrates in the Palaeozoic fossil record." Using only the generic name for this kind of fish is intentional, since it's difficult to assign individual scales to a given species.

Within plates at the base of *Holoptychius* scales, the layers are distinctive, with a fairly thick stacking of collagen fibres, the protein that is still the primary building block for skin, muscle, bones and more in the human body. The *Holoptychius* collagen stacks are arranged so that every second layer is rotated at a small angle around a vertical axis. The pattern repeats every five layers, resulting in a structure reminiscent of plywood. The beauty of this tiny detail, meticulously gathered from small fossils, is in how it suggests that the plates were both flexible and in turn, protective.

Flexibility would have been a boon for an ambush predator capable of sudden speed bursts (akin to how pike behave today). The double twists in the plywood-like arrangement could also have made the scales more resistant to cracking and penetration when the predator was itself attacked. Coupled with the large size of some species, say the authors, such features could have helped *Holoptychius* gain its cosmopolitan status in the second half of the Devonian.

...

Sandstone is all about layers. And in the fish remains within it, there are layers within layers upon layers. In turn, these can reveal something about the lifestyle of those fish, out across wider environments and then to the world.

Now that's what I call science. And it's part of what I relish, quite simply, as wonder.

**Dr Kenny Taylor FRSA** is a Black-Isle-based writer, naturalist, editor and musician who works mainly in non-fiction based on wildlife and science in books and other media, including magazines such as *BBC Wildlife* and *National Geographic*. A seasoned environmental campaigner, he became chair of The Scottish Wildlife Trust in the autumn of 2023 and has been editor of *Northwords Now*, the principal literary magazine for the Highlands and Islands and wider north, since 2017. He was part of the 'Cruise of the Betsey' voyage with Martin Gostwick and others in 2014, and values several FOHM trustees as friends.

[www.kennytaylor.info](http://www.kennytaylor.info)

Reference: Jorge Mondéjar Fernández & François J. Meunier. New histological information on *Holoptychius Agassiz*, 1839 (*Sarcopterygii*, *Porolepiformes*) provides insights into the palaeoecological implications and evolution of the basal plate of the scales of *osteichthyans*. *Historical Biology* (2020)

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# The Silence inside Sandstone

By Lara Reid

The silence inside sandstone intrigues me. We have squeezed our way in, through a side-ways split on the shore ten or twelve feet back. It takes all of my inner strength to persuade myself not to panic. It is safe. It feels safe, in the sense that this cave has been here for hundreds if not thousands of years and is unlikely to change suddenly and trap us now. No loose rock, no ceiling to fall, just a narrow vertical opening large enough for a small adult to side-step through. It was likely a natural layer-break in heavily-tilted sandstone, though I don't remember the outer landscape clearly now.

I'm relieved when we enter a wider space and can stretch out our arms a little. I look down and, in the torch light, I'm glittering, covered in tiny sand crystals brushed from the cave walls. Time feels different in here. It could be day, night, winter, summer; these sand grains were deposited in the bottom of a lake, Lake Orcadie, that extended for kilometres across what is now Morayshire and Caithness, sometimes reaching as far north as Orkney and Shetland. Covered in sand-grains hundreds of millions of years old; grains that ancient fish shoals would have swum around in, hidden in, died in. And before that? How did their original crystal structures form? How far around the world had they travelled to land on my sleeve, here, now?

The torch illuminates a dark red space before flickering and going out, and hush settles as we stop trying to examine our sensations in speech. The dark is soft, calming, all-consuming. Time extends both within and around me. The only light is a glimmer at floor level, stemming from the entrance to the cave. The rock presses inwards, encasing me momentarily as though I'm to be fossilised. I wonder why I'm comforted rather than frightened by this thought.

I had been cautious outside, blue sky above and curlews calling, wondering why I would want to slip away into the rock's interior. I was sure of claustrophobia; I could feel it taking shape around me, shadowing me even in sunshine. I didn't really comprehend why I was now at peace, at home in the silence of sandstone.

I kneel, tilt my head to the sandy base of the cave to look out. It could be feasible that centuries have passed; I could step back out into the distant future or a past before human footfall. I forget you're there with me and wander off in my mind, examining what these alternate future spaces might hold.

You break into my thoughts with a story of childhood, of hiding in the cave from your parents because you didn't want to leave the bay to return home. As we move through millions of years' worth of sand crystals to resurface into light and air, I consider doing the same. Returning to hide out, to remove myself from time entirely, to be encapsulated.



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