

ISSUE 70 - SUMMER 2022

**RSE** *The Royal Society  
of Edinburgh*  
KNOWLEDGE MADE USEFUL

# Resource

THE NEWSLETTER OF SCOTLAND'S NATIONAL ACADEMY

SUPPORTING  
YEAR OF  
STORIES  
— 2022 —

## STORIES IN THE LANDSCAPE

Place names, maps and coastline provide  
musical inspiration for Julie Fowlis

### ALSO IN THIS ISSUE:

How stories expand our minds | The art of visual narratives | Stories in gaming | 100 years of insulin

KNOWLEDGE MADE USEFUL

# Professor Sarah Skerratt appointed Chief Executive

**T**he RSE has named its new Chief Executive as Professor Sarah Skerratt. A familiar face to the RSE, Professor Skerratt was the organisation's

Director of Programmes for two years, prior to her appointment following a competitive process for the Chief Executive role.

Before joining the RSE, Professor Skerratt was Director of Policy Engagement at Scotland's Rural College (SRUC) and a Professor of Rural Society and Policy. Her 30-year track-record in research has focused on her passions of promoting resilience and tackling the root causes of disempowerment, poverty and poor mental health. Using robust data, particularly lived-experience evidence, her work has enhanced rural and national policies, making a real difference in rural communities.

Professor Skerratt said: "It is a privilege to be appointed as Chief Executive of the RSE. The Academy's Fellowship is made up of some of the greatest thinkers and leaders in Scotland, and as Chief Executive of Scotland's National Academy, I am determined to help mobilise the Fellowship – from Shetland to Stranraer and Stornoway to St Abbs.

"We strive to make knowledge useful at the RSE, and I intend to deliver on that promise. It's not just about Fellows having

the opportunity to give back by sharing their knowledge, but about creating a collaborative community to make the most of the RSE's unique status as an inter-disciplinary Fellowship.

"Personally, having access to knowledge as a young person changed my life. Without role models and influencers, we cannot hope to inspire Scotland's future generations."

Sir John Ball, President of the RSE, said: "In a highly competitive field, Professor Skerratt demonstrated a compelling understanding of what the RSE needs. Her strong leadership track-record, and her broad experience across an impressive 30-plus year career makes her the ideal candidate to step into the role of Chief Executive. I'd like to extend my congratulations to Sarah, and I am very much looking forward to working with her."

Professor Skerratt is also Scientific Director of the Scottish Consortium for Rural Research (SCRR) and Co-Chair for Scotland of the Food, Farming and Countryside Commission (FFCC). She is on the Advisory Board of the Institute for Advanced Studies in the Humanities (IASH), a Partner in Scotland's Social Action Inquiry and is a founding member of the National Rural Mental Health Forum.

Professor Skerratt will take over from Interim Chief Executive Dr Eve Poole at the end of September 2022.



Professor Sarah Skerratt



Left to right: Professor Sarah Skerratt takes over from Interim Chief Executive Dr Eve Poole



Welcome to the Summer 2022 issue of *ReSource*. Here, we take heed of the year-long celebration of Scotland's Year of Stories. As VisitScotland explains, stories are a vital part of Scotland's culture. When we share remarkable stories, whether spoken, written, sung, filmed – or *played*, as you will read later – they give a sense of place, history and belonging.

The RSE's Fellowship and the Young Academy of Scotland harbour a rich heritage of stories and a wide range of powerful methods of storytelling across countless disciplines.

Acclaimed Hebridean singer, Julie Fowles, describes how Gaelic is woven into the fabric of Scotland and how stories contained within the landscapes of North Uist have inspired her. James Robertson takes us to the mid-20th century home of Scottish poet, Hugh MacDiarmid, while Professor Mirela Delibegovic celebrates the 100th anniversary of the discovery of insulin; depicting its origin story and illuminating a long-debated question of who deserved recognition for its discovery.

Elsewhere, Dr Miranda Anderson considers how stories expand our minds and the interaction between story and imagination. Moving beyond the words, Mhairi Stewart and Frank Quitely illustrate the power of visual narratives, and Dr Iain Donald highlights Scotland's success and influence in the video game industry and the stories told within games.

Finally, Professor Martin Hendry channels his "inner Carl" (Sagan) and describes how storytelling supercharged his own scientific journey, expressing that the best stories are those yet to be written!

You can read more about Scotland's Year of Stories and themed years on the VisitScotland website: [www.visitscotland.com/about/themed-years](http://www.visitscotland.com/about/themed-years)

Professor Sir John Ball FRS PRSE  
President, RSE

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#### ON THE COVER:

Julie Fowles FRSE is a multi-award-winning singer, musician, composer and voice artist

# 2000 *Curious* minds

**A**ugust brought our fourth summer events programme, *Curious*, with in-person and online events offering insight from some of the world's leading experts from the RSE Fellowship and beyond; across the four key themes of health and wellbeing, innovation and invention, our planet, and Scotland's Year of Stories.

From mind travelling to mental health, microsatellites to multilingualism, this year's *Curious* events saw attendees get to grips

with fascinating, diverse, and pertinent aspects of science and the arts.

Famed tartan noir writer Ian Rankin gave attendees a glimpse into his 'curious mind', sharing stories using objects from his life. Professor Maggie Gill led a panel discussion on the road to net zero; Professor Gerard Carruthers guided a tour around the hidden stories in Greyfriars Kirkyard, and Professor Stella Chan explored the role and potential of social prescribing to improve mental health in society.

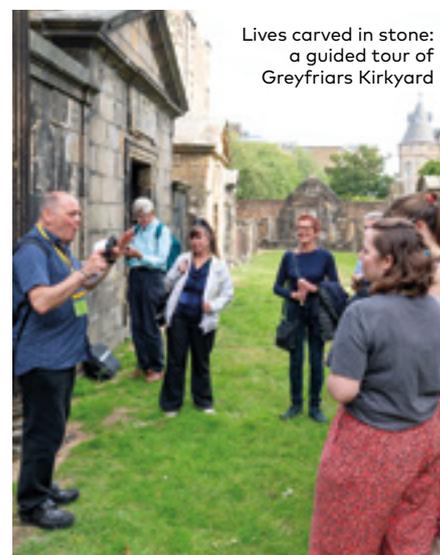
Thank you to all who attended any of this year's 29 events, with 2109 registrations. *Curious* will be back in 2023!



Minds on Mars: Dr XinRan Liu



The curious mind of Ian Rankin



Lives carved in stone:  
a guided tour of  
Greyfriars Kirkyard

## RSE funding supports new research

Thirty-seven exceptional researchers have been recognised through the latest RSE Research Awards programme. Totalling just over £664,000 in funding, the research supported will not only benefit Scotland's cultural, economic and social well-being but will also have an international impact.

Representing all 15 of Scotland's universities, projects range from menstrual health education; to gamifying finance; to boredom and young people; some projects also support international collaboration between researchers in Scotland and 15 other countries, including New Zealand, China, Japan and the USA.

Professor Charles W. J. Withers FBA FRSE, Research Awards Convener, said:

"The RSE's Research Awards Programme is vital to support the outstanding talent in Scotland's vibrant research community. The innovative work of these awardees in advancing knowledge, tackling global challenges and providing new ways of thinking will provide significant benefits to society and to our economy.

"On behalf of the RSE, I offer my congratulations to each and every recipient, and wish them success in their research."

The RSE Research Awards programme runs twice a year in Spring and Autumn and aims to support Scotland's academic researchers, nurture promising talent, stimulate research in Scotland, and promote international collaboration,

which will be of lasting benefit to the individuals and communities concerned and to the broader society.

You can read the full list of awardees on [www.rse.org.uk](http://www.rse.org.uk)



Professor Charles  
W. J. Withers  
FBA FRSE



# The Scottish Arts and Humanities Alliance

**T**he Scottish Arts and Humanities Alliance (SAHA) has been established with the close support of the RSE to promote and defend the Arts and Humanities in Scotland and internationally. Our co-chairs are Professor Catherine O’Leary (University of St Andrews) and Professor Murray Pittock MAE FRSE (University of Glasgow). The universities of Aberdeen, Dundee, Edinburgh, Glasgow, Heriot-Watt, Highlands and Islands, Queen Margaret, Robert Gordon, St Andrews, Stirling and Strathclyde have all joined the Alliance, as has the Royal Conservatoire of Scotland and the national Graduate School.

SAHA has four working groups, all of which demonstrate the value of arts and humanities to wider society: Climate Change; Post Covid-19 Society; Digital and Cultural Economy; and Education Policy. These all bring home the importance of people and culture to research. Co-chair Murray Pittock’s Scottish Government report on Robert Burns and the Scottish Economy (2020) and its fresh methodologies for valuing culture stands at the heart of the Digital and Cultural Economy group, which is also looking at cultures of sustainable food, tourism and supply chains. SAHA’s accompanying podcasts foreground stories from leaders in diplomacy, politics, business, finance, energy and the third sector, who all identify their Arts education as foundational to their current success.

The Arts and Humanities face challenge

and scepticism throughout the world. Some of this is unjustified; some is the result of the fragmented nature of fields of study and their historic habit (now changing) of looking inwards rather than outwards in identifying stakeholders and interlocutors. Within Scotland and the UK, SAHA sets out to be a single voice for the sector to funders and government. SAHA meets regularly with the Scottish Government, the Scottish Funding Council, the Arts and Humanities Research Council and Russell Group’s arts and humanities network; working on policy and other papers, for example on Funding for Culture and Arts and Humanities impact case studies, as well as providing evidence to Scottish Parliamentary committee consultations.

SAHA has also established an international footprint. We are members of the European Alliance for the Social Sciences and Humanities, and meet with the North American National Humanities Alliance, the Deans of Arts, Social Science and Humanities in Australia and New Zealand (with whom we have a joint event in October), the Royal Society of Canada and the Irish Humanities Alliance on a regular basis. On 11 October, we are holding a joint event with the RSE and our Irish partners reflecting on the shared Scottish-Irish narratives based on the bilateral review of the Scottish and Irish Governments for 2021–25.

Narratives and stories matter, and SAHA is working with other Arts and Humanities organisations globally to develop a single



Professor Murray Pittock MAE FRSE

statement on the centrality of the Arts and Humanities to culture, the economy, research and society. We will also be sharing some of the tremendous resources developed elsewhere in the world to support Arts and Humanities and to demonstrate that people and their stories are part of every question. To take only one example, the historic narrative of Ukraine and Ukrainian culture held in Russia is currently causing enormous damage to the economy and security of the world. Who could say it was not worth understanding it better? Our SAHA Insights podcast reflected on this in a special episode at [saha.scot/podcasts](http://saha.scot/podcasts).

Professor Murray Pittock MAE FRSE, Co-Chair of Scottish Arts and Humanities Alliance [www.SAHA.scot](http://www.SAHA.scot)



# How stories expand our minds

**W**hat happens to our minds when we listen to a story or read a book? How about when we watch a play or film? Any story, like a piece of music, plays out across our minds and in the process changes the nature of our notes and expands their range. Stories enable a metamorphosis of our minds through biological and sociocultural processes operating in concert.

One process at work here is episodic memory: our autobiographical memories enable us to recall our past experiences, inflect our present ones, and envisage the future. It is also at work when we engage with stories, as our imaginative capacity to flesh them out is generated by our prior life experiences, so that the story we experience shares common features with another's, but is also particular to ourselves.

A related process is the mirror neuron system. When I see actions or emotions or hear or read words grounded in actions or emotions, my mirror neurons fire as if my body beyond the brain were enacting them. Mirror neurons fire more intensely when witnessing actions or emotions I have already experienced myself. There is both sharing and particularity across persons, due to the contingency of subjective experience, which this system reiterates and yet also mediates.

Through their use of words, actions, gestures and expressions, stories build on these processes, providing both resonance and reflective distance. Stories draw us into their experiential worlds, casting words into complex arrays of patterns which reiterate and mediate our own customary weavings, disentangling us from automaticity by generating new associational arrays, and so, new capacities to perceive and act in the world.

Close your eyes and imagine the place in which you are situated. Your imagining of it morphs and mutates as you attempt to feel your way into its edges. Then open your eyes

and cast your gaze around you. Generally, people experience more detail through such actual world perceptual forays, which is a reason often given for imagination's inferiority to real life experience. However, there is an open-ended spaciousness in your capacity to imagine the room and a free play such that if you were to close your eyes and imagine the room again you could consciously alter some aspect of it. Stories act

as imagination-enriching companions: factors such as literary language's precision, vividness and own open-endedness, can render us in wondrous realms beyond the constraints of our unaided imaginations. Augusto Boal<sup>1</sup> discusses how actors can make use of emotions experienced in their lives by disentangling them from their personal

narratives and redeploying them as a source of a character's beliefs and behaviours. Such modes of acting dynamically widen the narrowing of experiential horizons: the entrenching of emotions that occurs through the circling of closed narratives instead spirals open through the newly recast playing out of the emotional resonances. Not only the actors, but spectators reverberate with the



chords of another's stories. Our particularities and stories' wider resonances are brought into flickering coexistences, at times with an intensity that is necessarily fleeting. Such a creative resurfacing and recalibrating of our own stories expands our minds in ways that are not always possible to maintain when caught up in the flux of our daily lives, with the multifarious demands on attention and requirement to function in the world. Stories widen and deepen our experiential range not only in that moment, but in the future recalling, experiencing and playing out of our lives. Disproportionate to the time spent in their vibrant spheres, stories can act as touchstones that qualitatively transmute our existences, rendering them more meaningful and fuller of wonder.

**Dr Miranda Anderson**, RSE Young Academy of Scotland member (YAS), Honorary Fellow, University of Edinburgh, Research Fellow, University of Stirling and Associate Lecturer, Open University

#### References:

<sup>1</sup> Boal, A. (2022). *Games for Actors and Non-Actors*. Trans. Adrian Jackson. 3rd Edn. Oxon: Routledge.



Dr Miranda Anderson



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Ourit Ben-Haim  
www.she said unprintable things.com

# A tiny place full of big memories

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**T**here is nothing particularly special about Brownsbank Cottage, a two-roomed farmworker's dwelling at Candymill, three miles north-east of the Lanarkshire town of

Biggar: nothing, that is, except that it was the final home of one of modern Scotland's most significant – and controversial – cultural figures, the writer Christopher Murray Grieve (better known by his pseudonym Hugh MacDiarmid). From 1951 until his death at the age of 86, in 1978, he and his wife Valda lived there, and Valda remained until her own death 11 years later.

MacDiarmid's worldwide reputation as a poet and polemicist notwithstanding, the Gieves were always poor. About to become homeless, they were put in touch with Thomas Tweedie, the farmer at Brownsbank, who generously offered them the vacant cottage. During the nearly four

decades they were there, they were never charged rent.

For all that it is only 200 yards from the busy A702 to Edinburgh, Brownsbank retains a sense of isolation. In the 1950s, it had no electricity, two fireplaces, an outside toilet, and its water supply was a spigot in the garden. Valda set about making the cottage, as MacDiarmid acknowledged, "not only habitable but comfortable". She lit it with oil-lamps and cooked on a Primus stove or over an open fire. The garden she gradually transformed by making flower beds out of the earth from molehills in the surrounding fields.

In the early 1960s, volunteers added a kitchen and bathroom extension, and electric power. As he entered his eighth decade, MacDiarmid finally enjoyed the bare minimum of 20th-century home comforts.

He referred to the cottage as "a growing shrine to my vanity", its walls adorned with portraits of him at various ages — his shock of hair and remarkable face made him a favourite subject of photographers and painters. After he died, Valda preserved one of the rooms very much as his, but the cottage's character owes more to her eclectically indiscriminate taste: makeshift shelves, matching patterned curtains and wallpaper, wally dug and a host of other whigmaleeries.

Following Valda's death, Biggar Museums bought Brownsbank and restored it to how it had been in the 1960s. Visitors who knew it from that time were astonished at how much remained the same. The chief absences were the great piles of newspapers beside the poet's chair, the reek of tobacco smoke, and the smell of wet dog.

But Brownsbank did not become a mausoleum. In 1993 I was lucky enough to be the first in a succession of writers based at the cottage. Despite the draughts and ongoing battles with a variety of wildlife determined to share the residency, my two years there were happy, productive and life-changing. Waking under the gaze of some twenty pairs of MacDiarmid eyes was a great incentive to work, but in truth, far from being intimidated by the spirits of its former inhabitants, I found Chris and Valda's lingering presence familiar and friendly. In front of a blazing fire in the hearth, or in summer sitting in the garden watching the sun go down over Tinto, I felt very much at home.

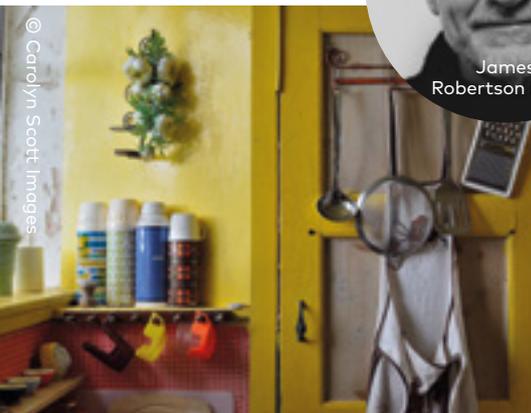
It is the association with MacDiarmid and Valda that makes Brownsbank magical and unique. But its primitive simplicity also recalls a kind of country living, commonplace 70 years ago, that is now almost forgotten. The film I made with Carolyn Scott and Andy Sim explores how a seemingly unremarkable place had the capacity not only to nurture different lives, but also to hold echoes of those lives and the stories associated with them — including, for me personally, something from the two years I spent there more than a quarter of a century ago.

**James Robertson FRSE, author**

*For more information about Brownsbank Cottage and the aims of the charity that manages it, please visit [www.macdiarmidsbrownsbank.org.uk](http://www.macdiarmidsbrownsbank.org.uk). A link to view the film 'Return to Brownsbank' can also be found there, as featured in this summer's Curious programme.*



James Robertson FRSE



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# What's in a story?

Professor Jennifer Smith examines the linguistic analysis of narrative in everyday speech

“Och, we had a lot of good times at the sailing. I mind we was in loading pineapples in this village in the Philippines place called Baru there was nothing there but a Del Monte pineapple factory and there was this bar crier the Palm Tree, that was the name of the bar just at the end of the jetty farr the ships tied up. And it was ain of thon places that was built on stilts out ower the water, you ken. Bonnie place, like, but it was just hez, there was nae tourists or nothin'. There was a German ship in, and us loading this pineapples and we're all up in the bar this night dancin' – you mind thon record 'Knock Three Times'? Maybe you've never heard it? Well, every time this 'Knock Three Times' come on, we was a' jumpin' up and doon, you see, and there was fifty of us in the bar jumpin' up and doon. Well, the stilts collapsed, didn't they! The whole lot of it, jukebox, toilets, bar, the lot. Slid bonnie as you like, into the sea. Was back there three months later. They had rebuilt the bar the same, like, but that was ain of the funniest things I can- I aieways mind on that.”  
(John, 72 years old).

This is a story of a collapsing bar in a faraway place, but the storyteller, John, is clearly from Scotland. We can tell this from the distinctive language he uses: *ken, thon, doon, bonnie*, amongst many other words and phrases.

While the language that John uses is particular to the community he comes from, the way he tells the tale may not be. In fact, linguists suggest that, regardless of whether we're from north east Scotland, New York, or indeed anywhere else, we all tell stories in the same way. How exactly can a seemingly unique story be, at the same time, the same as every other story?

Linguistic researchers, Labov & Waletzky<sup>1</sup> (1967), demonstrate that while stories may look very different on their surface form, underneath they all share the same imprint. They identify five key functions within stories – *abstract, orientation, complicating action, evaluation and coda* – and show that

these follow a linear structure in the telling of the tale. Since it was first published, this framework has become one of the most influential models for

analysing the linguistic form found in personal narratives. A story often starts with the *abstract* which opens up a space in the conversation for the story to be told. John opens with 'Och, we had a lot of good times at the sailing', setting the listener up for hearing about one of those good times.

The *orientation* section of a narrative contains the background information, setting the scene for what's to follow. Here John provides details of the place – "I mind we was in loading pineapples in this village in the Philippines place called Baru"; the bar: "there was this bar crier the Palm Tree, that was the name of the bar just at the end of the jetty"; and even the song they were singing: *Knock Three Times*.

The *complicating action* provides the backbone of the narrative, telling us the sequence of events as it actually happened. That particular night "we was all jumpin' up and doon... the stilts collapsed... The whole lot of it...slid bonnie as you like, into the sea".

The *evaluation* component of a narrative tells the hearer what to think about the person, place or event in the narrative. Here, John wants us to know that this potentially disastrous incident was, in fact, "one of the funniest things ever".

The *coda* brings the story up to the present. Despite this happening a long time ago, John tells us that even now, all these years later, he "aieways mind on that".

Stories are a vital part of Scotland's culture and every community, and person within that community, has a different tale to tell. The quite remarkable finding is that we tell these tales in very similar ways.

Professor Jennifer Smith FRSE, Professor of Sociolinguistics (English Language & Linguistics) at the University of Glasgow

#### Reference:

<sup>1</sup> Labov, W., & Waletzky, J. (1967). Narrative Analysis. In J. Helm (Ed.), *Essays on the Verbal and Visual Arts* (pp. 12-44). U. of Washington Press

# Story in landscape: Playing the skyline

**A**nn an 2014, choimisean BBC Rèidio 4 mi gus pios ciùil ùr a chruthachadh, a' cleachdadh faire airson brìgh a thoirt dhan phios. Bhuail e air an riochdaire Julian May gun robh dreach ciùil air na loidhnichean 's na sreathan a bh'air na seann chlàran-seòlaidh agus na cumaidhean-cladaich; saoi am b' e dòigh inntinneach a bhiodh seo airson coimhead ri ceòl a chruthachadh?

'S a chiad dol-a-mach smaoinich mi air a dhol air ais a dh'Uibhist, mar as dual dhomh, a shireadh brosnachadh. Ge-tà, chan eil mòran air faire air eilean ìosal is, mar sin, thagh mi sealladh nas monadaile far a bheil mi a' fuireach an-dràsta.

Fhad 's a bha mi a' cur cumadh air a' phios, thàinig am preasantair Tim Marlow a choinneachadh rium agus a dhèanamh agallamh. Dh'fhaighneachd e dhomh an robh mi ag ionndrainn Uibhist agus an robh mi aig an taigh ann an Inbhir Nis. Bhuail e orm son a' chiad uair dè an ceangal a tha agam mar neach-ciùil ri gach dreach-tìre.

Nuair a thèid mise a dh'Uibhist, sgìre aig cridhe na Gàidhlig, chì mi agus cluinnidh mi òrain agus stòiridhean san dreach-tìre. Cluinnidh mi iad sna lochan, air a' mhachaire, aig a' chladach. Chì mi bàird agus seinneadairean a chaochail o chionn iomadh bliadhna. Cluinnidh mi rannan mu thobraichean, mu shithichean, mu aimsir, mu gheasachd, mu ròin a bhoineadh do theaghlach rioghail Lochlannach no mu chreachadairean mara 's na bàtaichean a bh' aca ann an doimhneachd na mara. Cluinnidh mi òrain mu eich-uisge, bana-bhuidsichean, fion is uisge-beatha. Gaol, call, poilitigs, cogadh, creach fearainn, eilthireachd.

Soillsichidh òrain agus stòiridhean gu socair an dreach-tìre mun cuairt orm. Tha na h-ainmean àite a' mìneachadh tòrr: Sloc a' Choire, Fèith na Fala, Am Baile Sear, Cladh Chomhghainn, Rubha nam Marbh.

Agus far a bheil mi a' fuireach an-diugh? Bhuail e orm nach eil an aon cheangal agam ann an Inbhir Nis. Chluinninn ainmean àite Gàidhlig a h-uile latha... Inbhir Nis, A' Mhanachainn, Am Blàr Dubh, Marc-

*"Gaelic is an important part of Scotland's story. As a poetic and richly expressive and idiomatic language, it brings to life our names and surnames and the names of the places we inhabit. It provides an essential key to much of Scotland's history and cultural heritage."*

Rob Ó Maolalaigh FRSE, Professor of Gaelic at the University of Glasgow

Innis, Clach na h-Àirigh. B' aithne dhomh criomagan de dh'òrain is stòiridhean na sgìre, ach bha iad fad às air dòigh air choreigin. Tro chall cànan, tha an ceangal ionadail air a bhith air a dhubhadh às gu ìre mhòir. Ach, tha an ceangal fhathast ann.

B' e an fhreagairt a bh' agam fhìn, eòlas a chur air pròiseactan le brìgh sa choimhearsnachd. B' e pròiseact clàraidh cultarach a bh' ann an aon dhiubh sin leis an sgrìobhadair is eòlaiche-cinnidh cruthachail Raghnaid Sandilands. Chleachd sinn stòiridhean, uirsgeulan, bàrdachd agus òrain mar chomharran-ìuil, chuir sinn ainmean Gàidhlig air a' mhapa, agus chuir sinn ceòl ri cuid de sheann òrain far nach robh sgeul air na seann fhuinn. Às a sin thàinig "ath-chruthachadh" de mhapa Srath Narainn agus taisbeanadh do mhuintir an àite de chuid dhen stuth.

Nuair a thèid cànan dùthchasach bhuaithe ann an sgìre sa bheil i air a bhith beò fad mìle bliadhna, thig an ceangal leis an tìr mu sgaol an cois sin. Nuair a tha rathad nan dròbhairean, Càrn na h-Innseig, air ainmeachadh as ùr mar Garbole Road, no Beinn a' Bhathaich Àrd agus Loch Dùn Seilcheig a dol gu 'Ben A Vaikard' agus 'Loch Duntulchaig' air bilean an t-sluaigh, tha a' chiall aca air chall agus tha an stòiridh aca air chall. 'S e cnàmhadh cultarach gun fhiosta a tha seo, dìreach mar a bhios a' mhuir a' cnàmh machraichean nan Eileanan Siar, an-còmhnaidh fo chunnart.

Thuir Craig MacAoidh, an dealbhadair ainmeil à Brùra, rium uaireigin 'I don't

speak Gaelic but I feel like I think it fluently.' Thuir Ali Smith, an sgrìobhadair cliùiteach à Inbhir Nis, mun Ghàidhlig: 'It's the language I have in my bones, but which I happen myself not to speak.' Ge brith an deach do thogail leis a' chànan na do smior 's na do chnàmhan, no an do roghnaich thu ceangal a dhèanamh leatha, tha an tìr agus an dualchas a tha i giùlan tro Ghàidhlig ann dhan a h-uile duine.

Julie Fowles FRSE

Julie Fowles FRSE is a multi-award-winning singer, musician, composer and voice artist. Originally from the Hebrides, Julie is now based in the Highlands and is known for her work in film, TV, radio and for touring and collaborating internationally. Her particular interest is in the way music and culture connect to landscape. Julie was invited to represent Scottish Gaelic for the United Nations Declaration of Human Rights Project and was Scotland's inaugural 'Tosgaire na Gàidhlig' (National Gaelic Ambassador).

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*"Tha àite cudomach aig a' Ghàidhlig ann an sgeul na h-Alba. Is e cànan bàrdail a tha sa Ghàidhlig a tha lom-làn de ghnathasan cainnte beairteach. Tha i a' toirt brìgh agus beatha dar n-ainmean pearsanta is dar sloinnidhean, agus do na h-àiteachan far a bheil sinn a' còmhnaidh is a' tighinn beò. Is e iuchair riatanach a th' innte a bheir dhuinn tuigse is lèirsinn air ar n-eachdraidh agus air ar dualchas."*

**Rob Ó Maolalaigh FRSE,**  
Ollamh na Gàidhlig aig Oilthigh Ghlaschu



In 2014, I was commissioned by BBC Radio 4 to create new music using a skyline to inform the piece. Producer Julian May was struck by the music-like qualities in the lines on old nautical maps and coastal profiles; could this be an interesting way to look at composing music?

My initial instinct was to go back to North Uist, where I am from, and where I most often go for musical inspiration. But it's a low-lying island so instead I opted for a more mountainous vista where I live now in the Highlands.

Whilst composing the piece, presenter Tim Marlow travelled to interview me and during the course of our chat he asked me if I missed Uist, and if I felt at home in Inverness. I realised for the first time something about my relationship, as a musician, with each landscape.

When I go to Uist, a Gaelic heartland, I see and hear songs and stories in the landscape. I hear them by lochs, on the machair, by the shore. I see poets and singers, who passed away many years ago. I hear stories about wells, fairies, weather, superstition, seals who have come from Scandinavian royalty or pirate sailors whose ships lie wrecked beneath the water. I hear stories of waterhorses. Witches, wine and whisky. Love, loss, politics, war, land raids, emigration.

Songs and story silently light up the landscape around me. The names of the places explain a lot: Sloc a' Choire, Fèith na Fàla, Am Baile Sear, Cladh Chomhghainn, Rubha nam Marbh.

And where I live now? I was struck at the time by how I did not have that same connection to landscape in Inverness. I heard Gaelic placenames everyday... Inbhir Nis (Inverness), A' Mhanachainn

(Beauly), Am Blàr Dubh (Muir of Ord), Marc-Innis (Markinch), Clach na h-Àirigh (Clachnaharry). I knew some snippets of song and story, but they seemed somewhat distant. Local connection to all of this has been erased to a large degree with the loss of the language. But it still exists.

My reaction to this was to engage with projects locally, the first being a cultural mapping project with creative ethnologist Raghnaid Sandilands. We used stories, poetry and song as landmarks, placing Gaelic on the map, and set older songs (whose melodies had been lost) to music. This led to the production of an area map that privileged different things, and a musical performance to a local audience.

With the decline of a native language in an area in which it has existed for a thousand years, there comes with it a growing disconnect with the landscape itself. When the traditional drove road, Carn na h-Innseig, is renamed Garbole Road which fits more neatly on a road sign, or when Beinn a' Bhàthaich Àrd agus Loch Dùn Seilcheig become 'Ben A Vaikard' and 'Loch Duntulchaig' on people's lips, their meaning is lost, and by default, their story is lost. It is subtle cultural erosion, like the sea eroding the Hebridean machair, constantly under threat.

Craig Mackay, the celebrated photographer from Brora, once told me, 'I don't speak Gaelic but I feel like I think it fluently.' Ali Smith, the acclaimed writer long listed for the Booker Prize, recently described Gaelic as 'the language I have in my bones, but which I happen myself not to speak.'

Whether you have been raised with the language in your marrow and bones, or whether you have chosen to connect with it, our landscape and the stories it holds through the Gaelic language is there for everyone.

**Julie Fowles FRSE**

# More than just words

*Visual narratives can provide a powerful method of boosting engagement*

**H**umans have used visual narratives in our communication for tens of thousands of years<sup>1</sup>. We, in fact, process visual cues at greater speed in comparison to other sensory inputs<sup>2</sup> and today, advertising, marketing and journalism rely heavily on visual narratives to evoke an emotional reaction in the viewer.

Images can do more than tell a story. They can also add layers to reinforce or confuse it. A sophisticated visual narrative in a graphic novel might in fact create a parallel storyline to the text, exposing the narrator, or a character, to be conflicted or a liar. It can create intentional ambiguity or provoke questioning, and in this way is often used in educational contexts. Importantly, visual cues can provoke emotion, positive or negative, as strongly as they can convey emotion.

These observations are incredibly important in the practice of public engagement. In engaging people with research, we often seek to empower individuals and communities to change their behaviour (e.g. patient-based, environmental or conservation research), advocate for their own needs (e.g. research co-created with communities of interest or place) or participate in and direct research itself (e.g. clinical trials, citizen science or participatory action research). While dialogue is key, it doesn't need to be spoken or written, and the use and co-creation of visual pieces can be critical in supporting it. Science communication studies suggest that the 'spectrum' of activity from dissemination of information to dialogue and participation is in fact circular, with most dialogic or participatory activity requiring high-quality two-way information dissemination<sup>3</sup>.

An example is the 'Wriggling Rangoli'<sup>4</sup> – a Rangoli being a type of community art. In the context of English being taught as a foreign language through lessons and workshops for women and children, researchers in Manchester engaged with an

Asian women's group, including individuals who did not speak English. Through art, they engaged in dialogue into the burden of parasitic disease and research into drug discovery against intestinal parasites. A co-created illustration described symptoms, treatments and experiences, including images of plants used in local medicine. In an example of mutual benefit from engagement, the co-created artwork facilitated the women in learning English



Original painting (acrylic on canvas) by Sophie McKay Knight, with imagery contributed by women scientists from the University of St Andrews, as part of the Chrysalis Project coordinated by Dr Mhairi Stewart, Wellcome Images

words for a technical situation and gave the researchers new leads on potential anti-parasitic botanicals.

In other contexts, comics have conveyed the medical potential of complex technology in the Scottish Parliament, the 'Dance your PhD' competition<sup>5</sup> has been running now for

14 years, and regular Global Science Shows<sup>6</sup> bring contributors from around the world together on Twitter. Innovations in visual narrative

have expanded beyond the two-dimensional, with award-winning and highly innovative projects such as the Tactile Universe<sup>7</sup> bringing astrophysics to blind and partially sighted individuals.

Visual narratives are a sophisticated tool enabling us to share complex information, issues and feelings with others without our experiences or specialisms, and across languages. They can convey information with greater accessibility, nuance and context than writing or speech alone, and spark conversation through emotion, curiosity and empathy. However, their use in public engagement itself, though widely reported and even taught, has not been subject to research beyond the context of marketing and branding. This presents an intriguing opportunity for research and practice to engage with each other to bridge a knowledge gap.



Dr Mhairi Stewart FRSE

**Dr Mhairi Stewart FRSE, Public Engagement Manager for the Berlin School of Public Engagement and Open Science**

#### References:

- <sup>1</sup> <https://www.theguardian.com/science/2021/jan/13/worlds-oldest-known-cave-painting-found-in-indonesia>
- <sup>2</sup> <https://pubmed.ncbi.nlm.nih.gov/24374558/>
- <sup>3</sup> <https://journals.sagepub.com/doi/abs/10.1177/0963662518821022?journalCode=pusa>
- <sup>4</sup> [http://www.engagement.manchester.ac.uk/stories/case\\_studies/wriggly\\_rangoli.html](http://www.engagement.manchester.ac.uk/stories/case_studies/wriggly_rangoli.html)
- <sup>5</sup> <https://www.science.org/content/page/announcing-annual-dance-your-ph-d-contest>
- <sup>6</sup> <https://twitter.com/GlobalSciShow>
- <sup>7</sup> <https://twitter.com/TactileUniverse>

# The art of storytelling



*Artist Frank Quitely on conveying his message with images*

**A**s a Glasgow-born artist who has been telling stories with images for more than 30 years, Scotland's Year of Stories seems like a good opportunity to share some thoughts on how stories, and ideas in general, can be shared visually.

Although I'm mostly known for my work in comic books and graphic novels, I'm often invited to collaborate on a variety of projects, such as murals, poster design, and all types of narrative illustration.

Glasgow's Radisson Red Hotel invited me to decorate their walls as I saw fit and happened to mention in one of our early meetings that they had been impressed with a poster I had illustrated depicting Superman flying over Kelvingrove Art Gallery. The mural I created has tourists and locals from every walk of life, soaring like flocks of birds above a dozen of the city's distinctive landmarks. It is an immersive canvas that represents a celebratory freedom from the gravity of everyday life. – an artwork you stand within. Looking to the north you'll see the spires of Trinity College, to the east Glasgow School of Art, and to the south the Angel at Govan Cross. A city-wide story suggested in every direction.

The Pacific Ancient and Modern Language

Association (PAMLA) chose the theme of 'Send in the Clowns' for its conference in 2019, and I was asked to draw an image that reflected that. I found various articles about the practice of sending in clowns during a performance to divert attention from some calamity or other, and an interesting piece about Steven Sondheim's song of the same name, a song about heartbreak, and how he was disappointed by so many of the subsequent recordings of it that misread its mood.

In my childhood, the circus was an annual event in Glasgow's Kelvin Hall, and I have fairly vivid memories of feeling both scared of and sorry for the clowns, who looked to me like old rough men who were disguised to look funny.

The clown is, perhaps, the very best example of both the literal and the metaphorical 'painted smile'. I knew the image would be used for posters and t-shirts, which gave me the opportunity to use the painted smile, easily visible from afar, to mask a heartbroken expression that would only become apparent at closer quarters.

Finally, rather than having the clown head simply disembodied, I opted for the knotted balloon, which continues the theme of clowning, celebration and entertainment, but also hints at the fragility and transience of life.

My current collaboration is with Bowmore,

the world-renowned Islay Whisky. The basic idea is to retell some of the stories of the island – in words and pictures – with master blender, Ron Welsh, selecting and finishing whiskies from the vault that have tasting notes that echo the key points of these stories, and to have me illustrate each of them in a single image.

The illustration shown here is from a tale called No Corners to Hide, and shows a detail from one side of the box, telling that part of the story when the Devil gets chased from the round church to the distillery. The full story is revealed across all four sides as you turn the box in your hands.

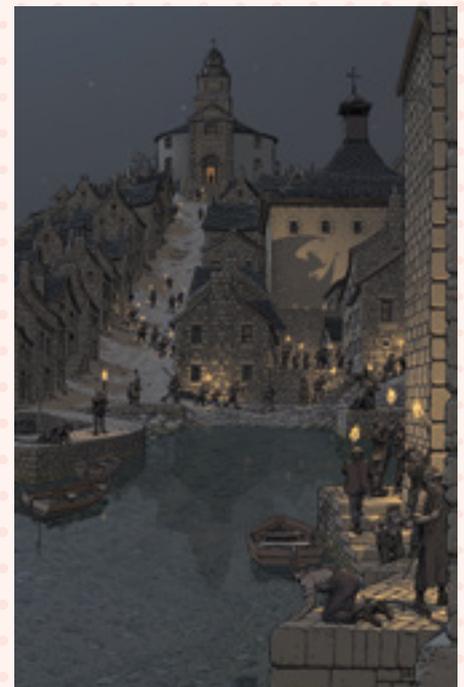
Our plan is to continue retelling the centuries-old myths and legends of Islay in this format as a new way of keeping these stories alive for future generations.

**Dr Vincent Deighan FRSE, better known by the pen name Frank Quitely, is a Scottish comic book artist**

**Images:** Top right: The Kelvin Hall Clown, Bottom left: One section of the extensive murals in Glasgow's Radisson Red Hotel. Bottom right: Detail from Bowmore's No Corners to Hide.



Frank Quitely





# Youth literature: a rich tapestry of storytelling

**S**tories provide transformative opportunities for exploring how we understand ourselves and our worlds. Literature for young readers provides an especially vital role in children's and young adults' emotional, cultural and imaginative wellbeing, particularly during Covid-19 and as we continue to recover from the pandemic.

Funded by a Royal Society of Edinburgh and Royal Society of Ireland-Scotland Bilateral Network Grant, our project explored the impacts of Covid-19 on the Scottish and Irish children's and young-adult literature creative and cultural communities and industries. The project also supported the collaborative exchange of learning and enhanced practice between these sectors. The cultural and creative sectors in Ireland and Scotland share many commonalities, including a shared respect for the importance of stories and vibrant traditions of storytelling across multiple indigenous languages, as well as differences in their respective national policy, educational, and publishing contexts.

As part of our project, we founded Lionra: The Ireland-Scotland Youth Literature and Arts Network. The network member organisations comprise key literature organisations in both countries: Moat Brae – the National Centre for Children's

Literature and Storytelling; the Scottish Book Trust; the Super Power Agency; Wigtown Book Festival; Children's Books Ireland; Fighting Words; and Poetry Ireland.

Collaboration, community and acting as agents of change are at the heart of creativity and creative experiences for young people, with young people, and by young people.

While access to and availability of local and national community and peer networks are important for all creators, they are

key for supporting early-career and aspiring creators – especially for creators from socially

marginalised groups – in order to support them

establish their careers and develop their professional practice. Our project

report<sup>1</sup> demonstrates how community and community-building at local as well

as national levels are crucial to establishing and sustaining

authentic, meaningful collaborations, creative partnerships and intergenerational exchanges of perspectives and learning between adults and young people.

While the pandemic isolated individuals and placed great strain on our networks, it also highlighted the value and importance of communication and of developing and maintaining personal and professional communities. In our focus group discussions with Scottish and Irish children and young

adults, the young participants discussed the important roles that access to a rich range of stories as well as

opportunities for creativity play in their lives.

Our interviews with Scottish and Irish arts organisation representatives and creators of literature for children and young adults highlighted the necessity of positive professional relationships between arts organisations and artists, and opportunities for formal as well as informal networking and community support. Many of our interviewees identified the potential enabled by Scotland's and Ireland's geographical size and affirmation of community. Our network members also affirmed the benefits and opportunities of international collaborations for knowledge co-construction and idea sharing.

Since its inception in September 2021, the network is flourishing and we intend to build upon this in future collaborative projects and to explore further opportunities for supporting and affirming Scottish and Irish creators, literature organisations, young readers and young creators.

**Dr Melanie Ramdarshan Bold, Senior Lecturer & Associate Professor in the Department of Information Studies at University College London; co-authored with Dr Patricia Kennon, Associate Professor in children's and YA literature and youth culture in the School of Education, Maynooth University, Ireland; and Dr Siobhán Morrissey, Awards Administrator for Children's Books Ireland; recipients of the RSE Ireland-Scotland Bilateral Network Grant in 2021**

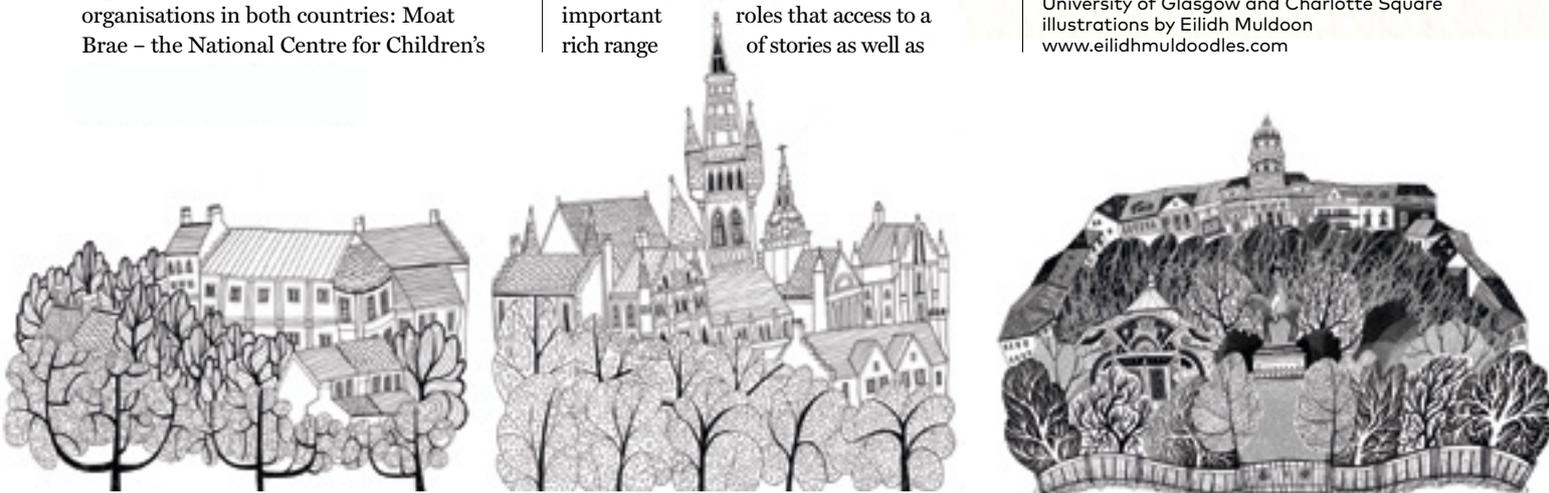
#### References:

<sup>1</sup> <https://tinyurl.com/5ed4djdjx>

University of Glasgow and Charlotte Square illustrations by Eilidh Muldoon  
[www.eilidhmuldoodles.com](http://www.eilidhmuldoodles.com)



Dr Melanie Ramdarshan Bold





# Playing the story

Scotland's Year of Stories celebrates stories inspired by, written or created in Scotland. The VisitScotland website emphasises that shared stories "whether spoken, written, sung or filmed" are a vital part of Scotland's culture and help provide a sense of place, history and belonging. We need to add *played* to that, because games – in all their various forms – are more than just popular culture and they are core to both Scotland's future and storytelling more generally. Games – along with the wider Creative Industries – form a key part of the Scottish Government's Economic Strategy, identifying the sector as one where we can build on existing comparative advantage, increase productivity and continue to grow. It is an area that Scotland continues to thrive in.

Scotland's success in video games should be wider known and it continues to produce award-winning and commercially successful games as well as experimenting with the boundaries of storytelling in different game-based platforms. The success of both the *Grand Theft Auto* and *Red Dead Redemption* series of games is well documented, but somehow the fact that the development is led by Edinburgh's Rockstar North often slips underneath the radar.

Whilst gamers are eagerly awaiting news of what is presumed to be the next iteration in both series, it's worth reflecting that *Grand Theft Auto V* (released in 2013) has been described as both the largest entertainment release of all time and also the most profitable entertainment release. Understandable when you think it has remained in the top-selling charts for the past nine years and, as of May

2022, had sold 165 million units worldwide. These figures dwarf *Red Dead Redemption 2*, released five years' later, and had 'only' sold 44 million by May this year. The phenomenal success of both is the result of the talented development teams and though the games are virtually set in the United States they both have distinct Scottish references to places, characters, myths and facts.

However, not everyone has the time to play the sprawling epics created by Rockstar North and Scotland continues to develop other more accessible and experimental stories in video game format. The blending of historical elements to create believable worlds is something that others have achieved on a far more modest budget. Common Profyt Games has used the unique archival sources in Aberdeen's UNESCO-recognised Burgh Records held by Aberdeen City & Aberdeenshire Archives to create a game, *Strange Sickness*, inspired by the events, descriptions and characters recorded in them. Players make choices to shape the story to tackle the threat of plague outbreaks in late 15th and early 16th century. If you prefer psychological horror short stories or science fiction over history, you can always pick up *Stories Untold* or the BAFTA award-winning *Observation* respectively, both created by Glasgow-based studio No Code.

Games research continues to push forward in telling other hard-to-tell stories. Dundee-based developer Pocket Sized Hands worked with scientists from the University of Cambridge to develop *Dish Life: The Game*

which educates and informs players of both the scientific processes of stem cell science as well as addressing the wider issues and misconceptions that are associated with stem cell research. PhD student Alexander

Tarvet recently released *The Longest Walk*, a documentary walking-simulator game about his father's experience of living with depression.

As the technology has become more accessible, we are seeing more projects centred around gaming for good with the Third Sector.

Children's Hospices Across Scotland (CHAS) has worked with

students and academics to produce a game, *A Mile In Their Shoes*, based on the real-world experiences of young people living with siblings with life-limiting conditions. Poppyscotland worked with game developers and academics to build *Their Memory* to explore how virtual reality could tell the stories of the veterans they support.

Games are not a new medium, but they are constantly evolving in design, technology and platform, and as a result we are increasingly going to see the stories that Scotland has inspired in games. Whatever your preferred format you are going to have more opportunities to experience stories differently through technology such as augmented reality and virtual reality, and what's incredibly exciting about this is that it puts the player at the centre of the narrative.

Dr Iain Donald, Young Academy of Scotland (YAS) member, Senior Lecturer in Game Production at Abertay University



Dr Iain Donald

# Celebrating the 100th anniversary of insulin's discovery

*Since the discovery of insulin in 1921, it has saved millions of lives globally. From its first use in January 1922, it has transformed diabetes from a death sentence to a treatable chronic condition*



**T**he breakthrough was performed by John Macleod, a University of Aberdeen medical graduate and expert in carbohydrate metabolism and diabetes, assisted by Frederick Banting, Charles Best and James Collip.

Macleod and Banting were awarded the Nobel Prize in Physiology or Medicine for the discovery of insulin. However, the story was not without controversy as Banting felt Macleod was undeserving of the accolade, and for decades Macleod was airbrushed from the history books.

The story of diabetes is a long one dating back to around 1550 BC, when ancient Egyptian papyrus mentions a rare disease making patients lose weight rapidly and urinate frequently.

Only in 1889 was it first linked to pancreatic function by research charting the removal of a dog's pancreas and subsequent onset of diabetes. It proposed the pancreas may produce an internal secretion to regulate blood sugar levels (only later discovered to contain insulin).

In 1906, two assistants at the University of Aberdeen, John Rennie and Thomas

Fraser, used fish pancreas extracts from an Aberdeen fish market to treat the patients. Unfortunately, the boiled or raw extracts fed to the patients recorded no improvements. The following year, a German physician used injections of pancreas extract which, despite not being well tolerated and caused vomiting, resulted in some clinical benefit. These experiments led Macleod to make the final discovery.

After moving to Aberdeen at the age of seven, he attended Aberdeen Grammar School then the University of Aberdeen, where he graduated with Honourable Distinction in 1898. After an outstanding research career, he was offered a Chair in Physiology in Cleveland, Ohio, aged 26, and then joined the University of Toronto.

While there, he was approached by Banting with the idea to self-contain a dog's pancreas while it creates secretion then use it to lower blood sugar levels in another dog. Banting seemed unaware this had been tried before, yet Macleod supported him to carry out the experiment.

After months of work, an extract was gathered but it was still not pure. Macleod then took the momentous step to instruct their biochemist, James Collip, to purify the extract using alcohol, creating

the first ever recorded pure insulin.

Without that pure extract, there would have been no miracle cure.

Unfortunately, in the immortal story, Macleod did not receive public acclaim despite his reputation. He returned to the University of Aberdeen where he remained, making several more significant contributions, until his retirement.

Today, researchers and academics at Scottish universities continue to have major roles in discovering new treatments for diabetes. Their work keeps the achievement of John Macleod alive and leaves anticipation for the next scientific breakthrough made at the hands of a Scot.

**Professor Mirela Delibegovic FRSE, Chair in Diabetes Physiology and Signalling in the School of Medicine, Medical Sciences and Nutrition, University of Aberdeen**

*This article originally featured in the RSE's Inside Science series in The Scotsman. Further details of the history of insulin can be found on [jjrmacleod.org](http://jjrmacleod.org) and [tinyurl.com/100yearsinsulin](http://tinyurl.com/100yearsinsulin)*

# Carsick in a VR world

*Neuroscientist and RSE International Joint Project awardee  
Dr Gang Li explores a novel method of overcoming 'cybersickness'*

**F**rom lawn bowls to playing poker on your phone, humans of all ages are drawn to games for recreation and relaxation. With the rapid development of new gaming platforms, virtual reality (VR) headsets have boomed.

When it comes to the video platform, VR can provide new realms for immersive gaming but, unfortunately, not all players can enjoy the experience. Similar to how some people suffer from carsickness, it seems that some players suffer from VR headset-induced motion sickness, or 'cybersickness'.

Mitigating this issue is especially pressing given the therapeutic applications for VR headsets. While the immersive experience can provide calming effects for conditions such as anxiety or pain, the unpleasant side effect of nausea negates any therapeutic benefits.

Despite the rapid expansion of the commercial market and uses for VR technologies since 2016, the complex problem of cybersickness still persists due to it touching many scientific fields, including computing science, biomedical engineering, psychology and neuroscience.

Funding from the Royal Society of Edinburgh has supported a research project in collaboration with the medical centre at the University of California, San Francisco. The project explored a potential method of neurostimulation that mitigated cybersickness by masking vestibular sensations (the body's balance system) from registering the imaginary self-motion, without the need to redesign existing VR content.

I travelled to the USA to demonstrate this research to a team of leading neuroscientists. It involved a member of the audience wearing a VR headset and riding a virtual rollercoaster while having their brain waves monitored.

Through this demonstration and ensuing research, we designed a new way of stimulating the brain. Specifically, we found a unique activity pattern in the brain's left parietal lobe (a part of our vestibular network) which linked to the severity of cybersickness.

To counteract this brain activity, we designed the exact opposite pattern and employed a non-invasive brain electrostimulation technique to block the symptoms from manifesting. Using the electric current to directly manipulate brain activity showed the initial signs of accurately and rapidly mitigating the sickness.

Following that collaboration, the research is being rolled out to human subjects in Scotland. These additional results should provide enough data to develop a wearable box-like device, compatible with commercial VR headsets, to stimulate the brain and mitigate symptoms of nausea.

The potential for such a device has already started to gain traction, leading to an ambition for Scotland to be the leading home of research into cybersickness solutions globally. Developing targeted digital interventions could also play a significant role in Scotland's National Care Service by providing better digital medicine or healthcare services at home without the need for hospital care.

This research and its discoveries are essential to building 'side effect-free' VR therapies, and will prove vital to achieve the full potential of health care applications for VR.

**Dr Gang Li, Research Associate in Psychology at the University of Glasgow and recipient of the RSE International Joint Project Award in 2021**



© Ian Georgeson Photography

# Somewhere, something incredible is waiting to be told

*Ever since our earliest ancestors made paintings in the flickering semi-darkness of their caves, or created fables from the star patterns they picked out in the night sky, we have told each other stories*

**S**tories are the fuel that fires our imagination and feeds our curiosity – enriching our minds with fresh perspectives and novel experiences, transporting us to exciting new places and extraordinary times. And for communicating complex and subtle ideas about the latest research to a general audience, stories have become a vital part of a scientist's toolkit.

My own scientific journey was initially turbocharged by storytelling, when as a teenager in the 1980s I was inspired to study physics and astronomy by watching *Cosmos* – the acclaimed television series created by Carl Sagan. I was deeply enthralled and moved by not just the content but also the narrative structure of this remarkable series. Sagan's passionate and lyrical journey, aboard his "spaceship of the imagination", through the history of science and how it has revealed our place in the Universe was brimfull of stories, mixing rich and colourful metaphors and stunning visualisations with engaging portraits of the historical personalities that helped to shape our understanding of the cosmos.

A few years later, as an undergraduate student at Glasgow University, I had the privilege of attending a series of lectures given in Glasgow by Sagan that covered similar scientific and philosophical ground to his *Cosmos* series. Sagan's storytelling was no less captivating in person, and helped to carry along with him a large and diverse public audience through an exploration of complex and subtle ideas far beyond our everyday experiences.

I believe that Carl Sagan's approach – similar in so many ways to that other great giant of science communication, Sir David Attenborough – set the standard for the televisual storytellers who have followed. Indeed, a few years ago I was delighted to join physicist Paul Davies in a radio programme celebrating Sagan's legacy. We returned to the scene of his Glasgow lectures and reflected on their pioneering character – and how Sagan had helped to make popular science communication a properly respectable activity for the generation of researchers (like me) who came after him.

So as an astrophysics researcher, and a passionate science communicator, I have always sought to channel my 'inner Carl' when sharing with audiences the excitement of our latest discoveries. For many years I have been a member of the LIGO Scientific Collaboration, the global team of more than 1,500 scientists who (with our colleagues in the Virgo Collaboration) in 2015 made the first ever detection of gravitational waves – a discovery awarded the Nobel Prize for Physics in 2017. Gravitational waves are ripples in space and time, predicted by Albert Einstein more than a century ago and produced by some of the most extreme events in the cosmos: exploding stars, colliding black holes, even the Big Bang itself. And yet to detect them requires scientific instruments of astounding sensitivity. Our first detection was of two

black holes colliding more than a billion light years away, yet its ripples shook up our patch of the cosmos by less than a millionth millionth the width of a hair!

When LIGO announced our discovery to global acclaim in February 2016, we drew heavily on storytelling to paint the picture of its significance – not just about the exotic new frontiers we are exploring and



Professor Martin Hendry FRSE

the remarkable technology which enables that, but also the human stories of the thousands of scientists and engineers who spent decades striving to make it all happen. In the years since that first discovery, as the number of our detections has swelled to almost 100, the themes of our stories have shifted,

focusing now on what gravitational waves are telling us about the cosmos and what lies ahead as new and better detectors come online. And, of course, the best stories are the ones which haven't been written yet: the unexpected and unimagined discoveries, the "unknown unknowns" that lie in store for this exciting new field. I, for one, cannot wait for the next chapter!

**Professor Martin Hendry FRSE, Professor of Gravitational Astrophysics and Cosmology at the University of Glasgow**

*You can read more about the detection of gravitational waves, and the role played by Scottish researchers in their discovery, in a special edition of the RSE's Science Scotland magazine: [tinyurl.com/ScienceScotland20](http://tinyurl.com/ScienceScotland20)*



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