The Annals of Irish Mathematics: Trying to Track Four Centuries of Mathematical Activity

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What have the Irish* ever done for mathematics?

Quaternions! And? The (x,y) notation for complex numbers, octonions, Euclid colourised, inversion in a circle, the ∇ operator, Stokes theorem, Boolean algebra and logic, the Hamilton-Cayley theorem, the term polytope, the arrow notation for limits, the student t-test, the Weaire-Phelan structure, and the proof that Sudoku always needs at least 17 clues.

In maths physics we have Boyle's law, the Kelvin temperature scale, Lorentz-FitzGerald contraction, and the 1920 introduction of the idea of black holes as real physical entities.

We will survey The Annals of Irish Mathematics & Mathematicians, now in its eighth year.

It seeks to document 400+ years of mathematical activity associated with the island of Ireland.

It's a story populated by notable names incl. Robert Boyle, George Berkeley, William Hamilton, John Graves, George Boole, Oliver Byrne, George Stokes, George FitzGerald, Sophie Bryant, William Gosset, Jack Todd, John Bell, and Cathleen Morawetz.

We include astronomy, fluid dynamics, continuum mechanics, theoretical physics, stats, and maths ed.

The Annals of Irish Mathematics & Mathematicians (along with the associated blogs and wall calendars) is sponsored by

MATHS WEEK IRELAND,

the world's largest mathematics outreach programme.

In Oct 2022 alone, Maths Week Ireland engaged over 400,000 people (on an island of about 7 million souls).

See mathsweek.ie and @MathsWeek

Led by Sheila Donegan & Eoin Gill of SETU (Waterford).

(Only very recently have similar initiatives taken off in each of Scotland and England. Wales started but stopped.)

Previous AIMM sharing via the MAA

In Jan 2017 at the JMM in Atlanta, GA, a talk on "Irish Mathematicians in America—A Historical Perspective" was given.

In Sep 2018, a survey article on the Annals of Irish Mathematicians and Mathematics appeared in the HOM SIGMAA Newsletter (Vol VII, No 2, 11–14).

Thanks to editor Cynthia Huffman of Pittsburgh State University for her interest and guidance there, and for permission to link to "HOM on Display" from cardcolm.org/AIMM.html.

# The earliest days of maths in Ireland: nature

All over the world patterns are observed in living things, and in the heavens, as well as in geology:

1. Giant's Causeway, Antrim (Robert Fathauer);
2. Fossil in UCC doorway (Anne MacHale)

Getting a handle on nature

Man learnt to read the heavens and even harness them to create alignments on earth. And "in time" we mastered calendrical calculations (Computus).
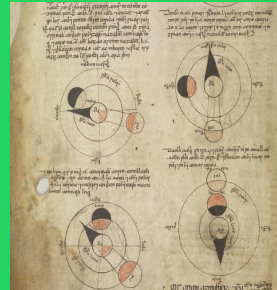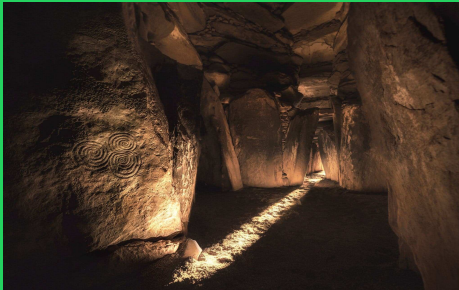
3. 3200 BCE Newgrange passage tomb, Meath (NYT);
4. 14th c Irish translation (Marsh's Library)

Man's imagination takes over

Much of astronomy/mathematics grew out of our curiosity about form, patterns, and seasons observed around us. Then we got artistic/creative:
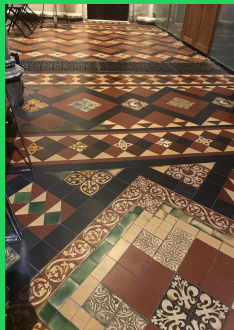
5. 7th c cross, Donegal (SketchFab);
6. 1880s tiling in St Patrick's Cathedral, Dublin [f 1191]

Irish movers and shakers

These comparitively recent men and women have contributed to mathematics in important ways:

Robert Boyle, Richard Helsham, George Berkeley, Bryan Robinson, Patrick d'Arcy, Robert Adrain, William Hamilton, John Graves, George Boole, Oliver Byrne, George Salmon, George Stokes, John Casey, George FitzGerald, Sophie Bryant, Alicia Boole, Alexander Anderson, William Gosset, Arthur Conway, Frank Murnaghan, Roy Geary, John L. Synge, Jack Todd, Lochlainn O'Raifeartaigh, John Bell, Cathleen Morawetz, Adrian Raftery, ...

What did the Irish ever do for mathematics?

Boyle's law, Berkeley's criticism of calculus, angular momentum, an early version of the method of least squares, the Hamiltonian in mechanics, the Icosian game, Hamiltonian paths, (a, b) form of complex numbers, quaternions, octonions, Euclid colourised, inversion in a circle, the ∇ operator, the Kelvin temperature scale, Stokes' theorem, Navier Stokes equations, most of Boole's work, the Hamilton-Cayley theorem, the Smith normal form of a matrix, Casey's theorem in geometry, Edgeworth series, Lorentz-FitzGerald contraction, the Baker-Campbell-Hausdorff formula, Cullen numbers, the student t-test, introduction (by Alex Anderson) of

the idea of black holes as real physical entities, the Henstock-Kurzweil integrals, the no-go theorems of Bell and O'Raifeartaigh, Weaire-Phelan structure, and the proof that Sudoku needs at least 17 clues.
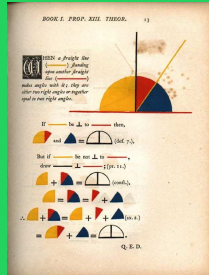
Not to mention the terms electron and polytope, and (in 1905) the arrow notation for limits!

And the annual Hamilton Walk, from the Dunsink Observatory near Dublin to the bridge where (on 16 Oct 1843) William R. Hamilton carved his brand new equations for quaternions:

$$i^2 = j^2 = k^2 = ijk = -1.$$

WRH was the first foreigner elected to USAS.

Oliver Byrne (1810-1880)

Started publishing in Dublin at age 20, but spent most of the rest of his life in England and the USA. He was a nationalist.

In 1847 issued an innovative treatment of Euclid's books I-VI (which he first wrote about in 1831). Great Exposition 1851.

See "Oliver Byrne: The Matisse of Mathematics" by Hawes & Kolpas (*Convergence*). Recently extended to Euclid VII-XIII.

Irish maths contributions in USA & Canada

Robert Adrain from Antrim moved to NJ following the 1798 rebellion in Ireland and was one of the leading lights of academic mathematics at Princeton and Rutgers in the early 1800s, also publishing the method of least squares before Gauss. Editor of (and contributor to) the *Mathematical Correspondent*, the first mathematical journal in US. Started journals *The Analyst or Mathematical Museum* and *Mathematical Diary*.

James McMahon from Armagh, who had pursued metaphysics and classical studies at TCD, is likely the first Irish person to supervise a mathematical doctoral thesis, at Cornell, in 1888. He served as chair there too, and was an early member of what became the AMS.

Tyrone's Frank Murnaghan built up the math dept at Johns Hopkins (1920s-1940s), and authored 16 books.

Dubliner John L. Synge worked tirelessly with his U Toronto colleague John Fields in the early 1930s to set up what became the Fields Medal. Educated at TCD. Worked at Toronto), TCD, Toronto again, then at DIAS. Also stints at Princeton, Brown, Ohio State Carnegie Inst, US Air Force (ballistics). Supervised many PhDs in Canada and Ireland; wrote 11 books.

He worked in mechanics, geometrical optics, differential geometry, and relativity. Credited with the introduction of a new geometrical approach to the special and general theories of relativity.

Jack Todd from Belfast studied under Littlewood, and helped to secure the preservation of Oberwolfach in Germany after WWII, then worked at the US National Bureau of Standards and later spearheaded the use of computers to do numerical analysis at Caltech.

Synge's daughter Cathleen Morawetz was born in Toronto, and lived in Dublin age 2 to 7. Career at Courant Institute (director in the 1980s). President of the AMS in the 1990s.

Mathematician and geophysicist Gerry Gardner born in Offaly. Educated at TCD and Princeton; worked in the USA in the oil and natural gas industries, and in academia (Univ Houston & Rice). Very active as a social activist. His statistical analysis was used in 1973 US Supreme Court decision banning classified advertising segregated by gender (in Pittsburgh).

People who have supervised Irish graduate research

Postgraduate research supervisors overseas include:

Emile Picard, Frank Morley, E. T. Whittaker, J. E. Littlewood & G. D. Hardy, Max Born, Emil Artin, William Feller, Frank Smithies, Graham Higman, A. S. Besicovitch, William Hodge, Alfred Goldie, Walter Hayman, Olga Taussky, Gil Strang, Tom Banchoff, Ali Fröhlich, John H. Conway, Bob Fefferman, Karen Uhlenbeck, Kip Thorne, Vaughan Jones, Richard Stanley, Hans Schneider, Grace Wahba, George Lusztig, Richard Taylor, Goro Shimura, Peter Sarnak, Ingrid Daubechies, Bill Thurston, Hendrik Lenstra, Tim Gowers, Stephen Hawking, Fan Chung and many others.

The jungle of Irish universities

DU, TCD, UCD, DCU, TUD, QUB, UCC, UG, MU, UU, UL, DKIT, ATU, MTU, TUS, SETU, etc.

Until half a century ago, the main players were:

Trinity College Dublin (founded 1592, the only constituent college of Dublin University).

St Patrick's College **Maynooth** (founded 1795, originally a seminary)

Queen's Belfast (founded 1845)

University College Galway (founded 1845)

University College Cork (founded 1845)

University College Dublin (founded 1854)

The role of the DIAS

In 1941, the Dublin Institute for Advanced Studies opened. It soon consisted of 3 schools: Theoretical Physics, Cosmic Physics, Celtic Studies. Theoretical Physics led by Erwin Schrödinger & Walter Heitler. In 1952, Cornelius Lanczos replaced Schrödinger.

Public lectures were given for local academics. Thus wave mechanics, perturbation theory and quantum mechanics were added to univerisity curricula.

John L. Synge, Lochlainn O'Raifeartaigh & John T. Lewis later had leadership roles.

The origins of AIMM

Starting in Dec 2014, a big push has been made to hunt, collect, check, polish, and share information on "all" Irish (island wide) mathematicians down through the centuries. In January 2016, we thought that the job was perhaps 80% done. Wrong.

Now, after another 7+ years, and considerably more effort, we believe the job is perhaps 80% done.

Sharing has been via a "degree database" website, regular blogs, social media (Twitter), and talks.

What data has been focussed on

The Irish data focusses in particular on degrees in mathematics, employment, supervising PhDs, and the publication of books. That leaves many gaps!

Crude websites (coded in raw html) and clunky blogs (via Plone) are the main outputs.

Others are strongly encouraged to modify our methods and/or html code to track graduates in this and other contexts.

(A database documenting a century of Spelman mathematics grads and their career is on a similarly functional website at spelmath.org.)

Data collection

Strategy: make use of personal contacts, the web, university publications, and newspaper archives.

1. The Math Genealogy Project website: lists people by name, doctoral institution, year, thesis title, and advisor. Coincidentally, it has grown from 200K to almost 300K people since 2016.

2. Many major university websites have search engines allowing one to find "all" theses done there. Downside: theses are often not classified by subject area, nor are advisors generally noted.

3. Some math (and related) departments list their graduate degree recipients.

Data collection 2

4. LinkedIn seems to be used by a high proportion of graduate degree holders born after 1970.

5. Specialist websites, such as MacTutor, MAA Convergence, etc.

6. Genealogical websites: census forms, family trees, death certs, SSDI, etc.

7. The personal touch: contact older (or retired) colleagues, your former teachers, those who went before you. Use email!

Annals of Irish Mathematics & Mathematicians

1. A "degree database" of 5200+ people, going back 400 years, which includes many people who merely did PhDs with Irish advisors (somewhere). Has head shots, links to personal/dept websites, LinkedIn/GoogleScholar/ResearchGate, obits, etc.

2. A spin-off page documents almost 1000 books.

3. Themed monthly blogs since Sep 2016, with thousands of mini-bios. Special focus each time (e.g., women, mathsy medics, those associated with Galway or Wales or Austria or Boston, etc).

4. @IrishMathsFacts on Twitter (1225 followers).

Annals of Irish Mathematics & Mathematicians

5. Irish mathematician biography representaton at MacTutor site up 35% by Jan 2016 alone.

6. Wall Calendars (thanks to Maths Week Ireland) each highlighting 72 people (with mini bios and images) current and historic, alongside hundreds of birthday listings. Starting with 2016's, so far 8 calendars have been produced. Physically distributed in maths depts and to select school teachers.

The proportion of highlighted women in year N is $\frac{N-2000}{72}$. All of these calendars are now viewable at and downloadable from www.mathsireland.ie.

Monthly Blogs at www.mathsireland.ie/blog

The Atlas of Irish Mathematics 35: CORK 1900-1939 (Feb 2023) [42 people]

The Atlas of Irish Mathematics 32: WATERFORD (Aug 2022) [70 people]

Irish Dutch Mathematical Connections (Jul 2022) [31 people]

The Atlas of Irish Mathematics 29: KILDARE before 1970 (Feb 2022) [111 people]

The Scottish Irish Mathematical Trail (Jul 2021) [130 people]

The Atlas of Irish Mathematics 25: TYRONE (June 2021) [49 people]

Monthly Blogs at www.mathsireland.ie/blog

The First Fifty-Five Females in Irish Maths (May 2021) [55 people]

Mail Boat Maths: Ireland/Wales (Jul 2020) [58 people]

Irish Mathematical Medics (Mar 2020) [44 people]

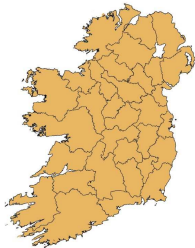The Real First Irish Woman with a Doctorate in Maths? (Jan 2020)

Illinois Irish Mathematics (Jan 2019) [29 people]

The Irish Presence at the International Congress of Mathematicians after WWII (Nov 2018)

The Cambridge Connection before 1900 (Mar 2018) [68 people]

Calendar Front Cover

AUGUST 2020

Maths Week

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
					1 John Tyndall (1820-1893) Michael A. Hayes (1835-2017) Pauline Mellon	2
3 **BANK HOLIDAY (ROI)** George Fitzgerald (1851-1901)	4 William Rowan Hamilton (1805-1865) Francis Mornaghan (1893-1976)	5 Joe McKenna	6	7 William Mongomery (1866-1912) Brendan McWilliams (1944-2007)	8 Annraoi de Paor	9 Donal Gurney
10 Charlie Rogers	11 William Eakin (1912-1983) Lionel Lovitch John Miller	12 Erwin Schrödinger (1887-1961) Vincent Guerrini (1912-2000) Michael Mackey	13 George Stokes (1819-1903)	14	15	16 Felix Hackett (1882-1970)
17	18	19 Aoife Hennessy Maalesha Khalid	20	21 Samuel Scott (1913-1980)	22 Philip Gormley (1910-1973) Natasha Kopterus	23
24 John Parser (1835-1903)	25	26 James Booth (1860-1878) Thomas Lyle (1860-1944)	27	28 Caoimhín Ó Raghallaigh The Irish Mathematical Society's annual conference, DCU	29 John Hevievil (1918-2011) Dáibhí Ó Croinín	30
31 **SUMMER BANK HOLIDAY NI**						

Calendar Monthly Page

David Conlon was born in August in Sligo, and grew up in Lanesborough, Longford. He was educated at TCD and Cambridge. He taught at Oxford for a decade, and recently moved to Caltech. His interests are in Ramsey theory, extremal graph theory, additive combinatorics, pseudorandomness and random graphs.

Madeeha Khalid was born 19 August in Rawalpindi, Pakistan, and was educated at UT Austin and the University of Pennsylvania. She has worked at IT Tralee and St Pat's Drumcondra. Currently she is honorary research fellow at UCD. Her interests are in algebraic geometry, differential geometry and mathematical physics.

William Hamilton (1805-1865) was born 4 August in Dublin, and was educated and spent most of his career at TCD. His extensive legacy includes innovations in algebra, mechanics and optics. He invented quaternions, a non-commutative algebraic-system predating matrices.

John Tyndall (1820-1893) was born 2 August in Leighlinbridge, Carlow. He became the first Irishman with a doctorate in maths, in Marberg, Germany, but he is remembered for key discoveries in diamagnetism, infrared radiation, and the physical properties of air. His name lives on via the Tyndall effect, Tyndallization, and the Tyndall Institute at UCC. Some credit him as a climate science pioneer.

Sebastian Wieczorek was born 4 August in Chociwel, in northwest Poland, and was educated at the Universities of Poznan and Amsterdam. After several years at Exeter, he moved to UCC, where he now heads up Applied Maths. His interests include nonlinear dynamics and applied bifurcation theory.

Aoife Hennessy was born 19 August in Tramore, Waterford. She was educated at DCU, NUIG and WIT. She has worked as an actuary, and after stints at Queen Mary (London) and UCC she settled back at WIT. Her interests include combinatorics and statistics.

Calendar Biographies Page

Pioneering WIMEN: Women in Irish Maths Exceeding Norms

From 1870 to 1920, when women first dared to pursue maths past secondary school level, to the last decade or two, when some (but hardly enough) have made it to the highest levels of academia in Ireland (and overseas).

Many of the early Irish maths women who earned degrees, or were engaged in mathsy work of some sort, were first educated privately. Of those who excelled at university, some didn't graduate: TCD didn't give women degrees until 1904, Oxford didn't do so until 1920. Cambridge held out until 1948.

Women in Maths—in and/or of Ireland

A 2018 panorama covering 150 years

Includes Irish mathematical women, regardless of where they were educated or practiced their craft, together with women from abroad who've worked in maths related fields in Ireland.

History is always flawed: a very important person is missing here. She should be in the 3rd position in the 1st row.

A Hidden Figure

The first known Irish woman with a doctorate in maths

Margaret Gough (*aka* Sister Mary de Lellis), 1892-1983.

"Nun the Wiser"

In August 1909, aged 17, she sailed from Liverpool to Texas (a three week crossing) to become a nun in San Antonio.

She was educated at Catholic University, Washington, DC, in stages, while on leaves from teaching back in Texas. BA 1920.

MA by thesis 1923. (Only one Irish woman is known to have earned an earlier master's by thesis in pure maths.) PhD (in algebra) by thesis 1931. (No other Irish woman is known to have earned a doctorate by thesis in pure maths before 1941.)

Her PhD was done under Aubrey Landry, who in 1943 supervied the PhD of Euphemia Haynes, the first African American woman to obtain a doctorate in mathematics.

Pioneering WIMEN

Very few of the pioneering WIMEN pre-1920 had the chance to enter academia, and a high proportion of them became teachers. Some of the early ones pursued astronomy, and some of those settled for publishing under their husbands' names. Those who did start relevant careers almost always had them cut short if they married.

A good starting place for exploring early Irish maths women: the wonderful MacTutor website's Davis Archive (1878-1940) which "contains details of the approximately 2500 women who graduated in mathematics from universities in Britain and Ireland before 1940." Entries are very brief.

This archive misses a few graduates from Irish universities, and naturally contains hard to spot Irish women who earned their degrees from British institutions.

It's (not all) academic

Mathematics graduates pre 1900 often pursued careers in the church, the military, law or medicine.

And sometimes in politics.

Since then, that trend gradually faded, and in the past century governmenr statistics offices and meteorological services have attracted many mathematical minds.

Also many branches of engineering .

More recently, many grads have gravitated to CS, IT, finance, and actuarial careers.

The Weaire-Phelan Structure

In 1993 in Dublin, Denis Weaire & Robert Phelan showed that the 1887 William Thompson (*aka* Kelvin) conjecture about filling 3D space with bitruncated cubic honeycomb based shapes was wrong: the structure shown here (on display in TCD, photo by David Malone) is better.

It represents an idealised foam of equal-sized bubbles, but with two different shapes. It inspired the design of the Beijing National Aquatics Centre in the 2008 Summer Olympics.
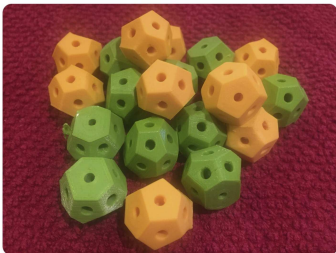
Irish Maths Archive
@IrishMathsFacts

In 1993 in Dublin, Denis Weaire & Robert Phelan showed that Kelvin's conjecture about filling 3D space with bitruncated cubic honeycomb based shapes was wrong: the Weaire–Phelan structure is better. It's easy to 3D print the two required shapes, but very tricky to arrange them!

12:58 PM · Mar 6, 2020

Irish Maths Archive
@IrishMathsFacts

TCD graduate Caoimhe Rooney has a PhD in applied mathematics from Oxford University, now works for NASA Aimes researching planets outside of our solar system,


BBC NEWS

bbc.com
Nasa: Belfast mathematician working towards her astronaut dream
Dr Caoimhe Rooney, from Belfast, keeps one eye on calculus and the other fixed firmly on the stars.

12:13 PM · Dec 5, 2021

News about maths and news about mathsy people.

The Library of Irish Mathematics

About 1000 relevant books have been chronicled, dating back to 1704: Bryan Robinson's *New Elements of Conick Sections: Together with a Method for Their Description On a Plane*, which was a translation of Philippe de La Hire's *Nouveaux elemens des sections coniques* from 1679.
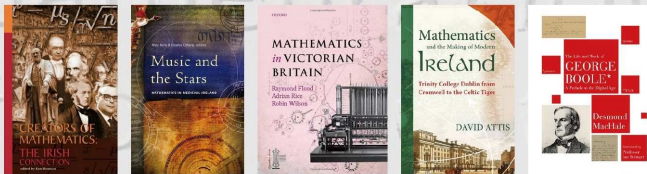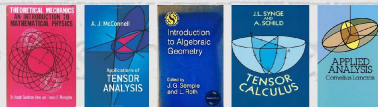

Recent historical books by K. Houston, M. Kelly & C. Doherty, R. Flood, D. Attis, and D. MacHale.

Incl. astronomy, theoretical physics, statistics, and maths ed.

The Library of Irish Mathematics

19th century tomes by G. Salmon, W. R. Hamilton, G. Boole, J. Casey and G. Allman.

The late 1920s to the 1950s, by F. Murnaghan, A. McConnell, G. Semple, J. Synge, and C. Lanczos.

Books from the 1960s by J. Todd, S. Taylor, D. Simms, C. Ryan and Y. Takahashi.

Books from the 19th century, the 1920s-1950s, and the 1960s.

The Library of Irish Mathematics

The 1970s: books by L. O'Raifeartaigh, T. McDonough, J. Herivel, R. Aron & S. Dineen, and S. McClean.

The 1980s: books by S. Sen & C. Nash, A. Newell, P. Muldowney, J. Bell, and D. Ó Mathúna.

The 1990s: books by G. Ellis, J. Miller & E. O'Riordan, S. McMurry, D. O'Regan & M. Meehan, and F. Murtagh.

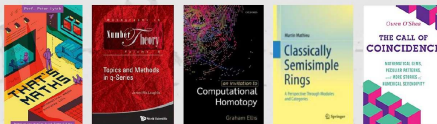Books from the 1970, 1980s, and the 1990s.

The Library of Irish Mathematics

The 2000s: books by D. Weaire, S. & D. Flannery, D. Armitage & S. Gardiner, P. Boland, and D. Crothers.

The 2010s: books by G. McGuire, M. Mathieu, P. Hogan, A. McCluskey & B. McMaster, and A. O'Farrell.

The 2020s: books by P. Lynch, J. McLaughlin, G . Ellis, M. Mathieu, and O. O'Shea.

Books from the new century.

Are mathematics and literature disjoint?

Fiction writers include Bram Stoker (1847-1912), Michael McLaverty (1904-1992) and Fergal Anton.

C.S. Lewis's mother Flora Hamilton (1862-1908) was the first woman to get BA in maths in Belfast.

Poets include William Hamilton (1805-1865), George Boole (1815-1864), Erwin Schrödinger (1887-1961), Pádraig de Brún (1889-1960), and Brian Coffey (1905-1995).

Irish physicist Iggy McGovern has a book *A Mystic Dream of 4–A Sonnet Sequence Based on the Life of William Rowan Hamilton*.

General philosophy

1. There are challenges, and there are obligations.

2. It's important to reel in and document accounts of underrepresented people in mathematics.

3. Better to collect too much data than too little. (Was that master's by thesis? If so...)

4. Cast the net wide (others can later decide to exclude/ignore some of the information).

5. Snatch history from the jaws of fate/obscurity.

6. Dream globally, gather data locally.

Giving back

Ensure that relevant data found is submitted to the Math Genealogy Project and MacTutor sites and other appropriate places.

Be pro-active to try to avoid lost opportunities.

Process information received speedily.

Update the online offerings without delay.

Don't even think of using ChatGPT and the like— Our AIMM is true!

Gaps (areas not yet properly documented)

1. Prizes and scholarships. Most universities award prizes, often named after distinguished (or generous) graduates, both for degree exams and along-the-way exams.

2. Exam papers: traditionally given once a year, challenging, and very different from those in USA. Often studied assiduously .

3. External examiners: profs from overseas have to approve the exams months ahead. Some examiners also help to decide who gets first class honours (etc) and prizes and scholarships.

Gaps (areas not yet properly documented)

4. Honorary degrees awarded by Irish universities to distinguished scholars from overseas, including Sylvester, Hilda Hudson, Borel, Lemaître, Higgs, Atiyah, Penrose, Knuth. Others were recognised in this way for long service as either external examiners or doctoral advisors of multiple Irish students.

5. Board of DIAS School of Theoretical Physics (A. Jaffe, M. Atiyah, P. Goddard)

6. Fulbright scholars at Irish universities.

7. Irish Maths Olympiad, participation in the IMO.

Mathermatics degrees are relatively recent

Few of the universities in Britain and Ireland offered degrees "in mathematics" at first. (TCD was the first to teach calculus, circa 1814.)

The Cambridge mathematics tripos goes back to 1725, and BAs in mathematics were presumably awarded there by 1800.

Trinity in Dublin was awarding maths degrees by 1835. (Note: TDC degrees took 4 years.)

Belfast, Galway and Cork offered such degrees from the outset (1853). Both BSc (4 years) and BA.

Population statistics

The population of the island of Ireland (which was partioned in 1922 into what we now know as the Republic of Ireland and Northern Ireland) reached a max of about 8 million in 1840. That dropped to 5 million by 1850, due to starvation and emigration. Today it's about 7 $(= 5 + 2)$ million.

The population of Great Britain (England, Scotland and Wales) went from about 18 to 65 million over the same period.

(In 1870 and 1900 the Great Britain population was about 30 and 40 million, respectively.)

Consquently, much of the Irish mathematical talent in the first half of the 19th century was motivated to study and work in Great Britain (at Cambridge, Oxford, St Andrews, Edinburgh, and Glasgow).

(Likewise for those with careers in the arts, classics, law, medicine, church, military and civil service.)

Maynooth was bascially the only third level option for poor Irish Catholics before the 1850s. Though a seminary, it graduated accomplished scientists, and in time mathematicians too.

Reality checks

For many years after 1850, there was limited buy-in from poor and middle-class Catholics for the new colleges in Belfast, Galway and Cork.

The Catholic University of Ireland in Dublin (later to become University College Dublin) slowly struggled into existence, finally becoming a force in the 1880s.

(Way back, select Irish Catholics went to France or Spain for religious and secular education. Quite a few Methodists from the north of Ireland went to Scotland for education, as far back as the 1760s.)

Few Catholics attended TCD before the 1960s!

Tracking, connecting, building communities

What percentage of your original institution's 1990s grads did doctorates in pure math?

What percentage of your work institution's 2010s grads did doctorates in actuarial math or stats?

Does anyone else know (Alum or Dev Office)?

Is somebody engaging with this diaspora?

Seeking career info, inviting former grads to campus, or asking them to act as inspirational distance mentors for students?

If not, when would you like to get started?

So many questions

Today, we are awash in data, yet much info is lost.

None of Wikipedia, WolframAlpha or ChatGPT can come to the rescue until much more information is hunted and gathered, checked and rechecked, and freely shared in a public way.

Who is going to do this hunting and gathering and checking and sharing? Not any state or federal institution–and probably not any campus office.

Maybe it will be that diligent, committed person you spotted in your bathroom mirror this morning.

Acknowlegements