

EMMANUEL COLLEGE



*In memoriam*

Brian Arthur Thrush

MA, PhD, ScD, FRS

23 July 1928 – 14 September 2023

FELLOW 1960–2023

TUTOR 1963–1968

VICE-MASTER 1986–1990

ACTING MASTER 1986–1987

UNIVERSITY DEMONSTRATOR IN PHYSICAL CHEMISTRY 1953–1959

ASSISTANT DIRECTOR OF RESEARCH IN PHYSICAL CHEMISTRY 1959–1964

UNIVERSITY LECTURER IN PHYSICAL CHEMISTRY 1964–1969

READER IN PHYSICAL CHEMISTRY 1969–1979

PROFESSOR OF PHYSICAL CHEMISTRY 1979–1995

Addresses given at the funeral service for Professor Brian Thrush held  
in Emmanuel College Chapel on 16th October 2023.

**Dame Mary Archer**

*Former Chair of Cambridge University Hospitals NHS Foundation Trust*

I first got to know Brian when I arrived in Cambridge in 1976 as a young chemistry don, with a joint teaching appointment for Newnham and Trinity, although I already knew of his pioneering work in flash photolysis from George Porter, his near contemporary at Emmanuel College, with whom I had just completed a four-year post-doctoral fellowship at the Royal Institution.

Brian and Rosemary kindly included my husband and me, newcomers to Cambridge as we were, in the convivial lunch parties which they hosted in Brook Cottage, complemented by expertly chosen wines and surrounded by attractive water colours on the walls above Brian's carefully curated mineral collection – all testament to a man with a tutored eye, a fine palette and a discerning mind.

Others can speak more authoritatively than I of Brian's great distinction as a physical chemist, but I must remark on his work to unify the two University Departments of Chemistry – the Department of Physical Chemistry, of which he became head in 1986, and the Department of Organic, Inorganic and Theoretical Chemistry. This unhelpful apartheid was an overhang of the antipathy between Alexander Todd and Ronald Norrish, about whom Brian had a fund of amusing, though mainly unrepeatable, stories.

Brian finally achieved the unification of the two departments, which, in characteristic Cambridge style, had first been proposed, but rejected, twenty years before. He went on to serve as the first head of the combined department for the new standard period of five years, during which time he oversaw the introduction of the four-year chemistry undergraduate degree – an important and fundamental reform.

I was privileged to have many enjoyable conversations with Brian during the last year or so of his long life, when he was lovingly looked after by his daughter Felicity and kept amused by the antics of his ginger kitten, Pumpkin. We talked – it would be more accurate to say that we gossiped – about many mutual friends and chemists past and present: Sandy Ashmore, Fred Dainton, Morris Sugden, Bryan Levitt, Norman Sheppard, Fred Mann, Jack Linnett and more beside.

Brian's recall of the personalities and events of his professional life was impressive. We challenged ourselves to name all the professors of physical chemistry and all the holders of the 1702 Chair. In these competitions, I would have been a non-starter were it not for the book chapter I had recently written about the teaching of chemistry in Trinity College over the twentieth century.

Brian critiqued that draft chapter for me, providing illuminating asides on some of the Trinity men I wrote about. For example, of Francis Roughton, who held the chair of colloid science for twenty years from 1947, Brian added to my

rather bland account of him that he drove an ancient green Rolls Royce drophead coupé complete with a dashing dickey seat.

Away from chemistry, Brian and I talked about favourite holidays. He loved the Lake District and had enjoyed several walking holidays there. When my husband and I had a weekend in the Lake District in April, Brian lent us his well-thumbed guidebook and Ordnance Survey map, with instructions that we were to visit his favourite valley, Borrowdale.

Brian reached the grand age of 95, and his was a life to look back on with pride. He had the rare distinction of being a high achiever with no personal vanity, and generations of pupils and people have benefitted from his wisdom and scholarship.

Farewell, Brian – and thank you.

**Professor John Pyle**  
*Professor Emeritus of Physical Chemistry*

When you talk about Brian to people who knew him, a number of common themes emerge: Brian the devoted family man; Brian the dedicated college man; Brian the exceptional scientist; Brian the wonderfully caring colleague and mentor; Brian the committee man, always supporting his subject and his university; Brian the lover of life - of art, wine and, with Rosemary, entertaining. In this brief tribute I will touch on a few of these themes.

Brian came up to Emmanuel College in 1946 to read Natural Sciences. He graduated as the top chemist in Part II in 1949 and started a PhD with Maurice Sugden but with only one year's funding. However, after the year during which he published his first paper in *Nature*, Professor Norrish appointed Brian as Assistant in Research, tasked with building a second-generation flash photolysis apparatus. Norrish and Porter were interested in the role of free radicals, very reactive and hence very short-lived intermediates in hydrocarbon oxidation. They had earlier demonstrated the measurement of these radicals by flash photolysis. The challenge was to do time-resolved measurements, so as to understand the progress of the reaction. The reactions had to be initiated with a burst of high energy in as short a time period as possible with the intermediates then monitored throughout the reaction, which might be over in less than 1 millisecond. Ex-military flash tubes could provide the energy to produce the radicals but their short lifetimes made detection very challenging. In a triumph of electronic design Brian developed a new system with hugely improved time resolution (20 microseconds), opening up the path for measurement of a large number of radical species. Norrish and Porter shared the Nobel prize with Manfred Eigen from Germany for their overall work on flash photolysis. Brian's contribution to the development of the technique was immense.

Brian subsequently made seminal contributions across broad areas in kinetics and spectroscopy. His later kinetic studies, measuring the rate constants of

fast gas phase reactions, used the discharge flow technique and, of course, the use of lasers enabled new directions to be followed. His work was hugely respected, a colleague once telling me that “Brian’s estimates of rate constants are better than most people’s measurements.”

His work in Physical Chemistry was recognised by election to Fellowship of the Royal Society in 1976 and to a Personal Chair in Cambridge (one of only two awarded that year) in 1979.

From the late 1960s onwards, the importance of radical species for the chemistry of the atmosphere became increasingly clear. Many of the key radicals for stratospheric chemistry had been seen using flash photolysis and some relevant reaction rates had been measured. When the threat to the ozone layer from CFCs was first raised in the 1970s, Brian was thus an obvious choice to contribute to a report on the topic by the US National Academy of Science, with Brian travelling monthly at weekends for meetings in Washington.

Given his position now as a leading academic Brian was well placed to foster the development of atmospheric science as a major area of scientific endeavour. He was a member of the Council of the Natural Environment Research Council when ‘New Blood’ lectureships in atmospheric science were established and I was fortunate to be the recipient of the post in Cambridge, with Rod Jones following a few years later. I owe Brian and Rosemary a huge debt for the welcome they gave to me and my growing family when we arrived in Cambridge and Brian was immensely supportive as I was setting up my research group in the Chemistry Department. I was, of course, one of many who were helped by Brian. His former research students, many of whom went on to prominent careers in chemistry and atmospheric science, speak about what a caring, considerate mentor he was throughout their careers. In all, he supervised more than 40 research students emphasising publications as important, lasting objectives. Nowadays, and with good reason, mentoring is highly organised, with courses and support widely available. Brian, of course, just ‘got it’.

Brian had many interests outside his science, including art and wine. His wide knowledge of wine was helped by a sabbatical spent at the National Bureau of Standards in Washington in the late 1950s. (It was on the boat out to the US that Brian first met Rosemary, his future wife.). While he was in Washington the Russians launched Sputnik, which rather alarmed the American administration. Scientists in government establishments saw significant increases in their salaries such that Brian was on nearly four times his Cambridge salary. As he told me, he could afford to buy fine wine and he did! Again, he was generous with his knowledge to the subsequent benefit of both his college and his colleagues.

On one of my recent visits to Brian he told me with some relish a story which arose because of his position on the Syndicate of the University Botanic Gardens. Lord Ramsey was a fellow syndic and Brian invited him to college for dinner (a technique Brian had used to great effect with the Chair of the Research Councils when the college fee for research students was under threat). A few weeks later Brian received a phone call from one of Lord Ramsey’s staff, “Lord

Ramsey would like you to come for lunch on Saturday – and please bring your wife, if you have one.” Brian had, and they did, and they gloried in drinking 1945 First Growth Chateau Lafitte. As Brian said, ‘those were the days’!

It was a privilege to know Brian and Rosemary and to work with Brian. It’s a special pleasure to record here my deep thanks, on behalf of so many, for the unstinting support he gave to our careers.

**Dame Fiona Reynolds**  
*Former Master of Emmanuel College*

Brian was a tremendous scholar, a dedicated college man, and devoted to his family. His long life, which has ended in a peaceful death, surrounded by his daughter Fe and her children, was one of loyalty to a single institution, Emmanuel and Cambridge, which though once common in academic life is becoming increasingly rare.

I met him as soon as I arrived as Master, when – as new Masters do – I arranged to talk to all the Fellows individually. He was one of a group of Life Fellows, retired from active research and departmental duties and more than happy to devote time to the College and to appear regularly for lunch and dinner, always ready for a chat.

Already in his mid 80s when I arrived, he and his wife Rosemary were often in college, and I went several times to tea at their home, Brook Cottage. Brian was full of stories: about his academic life and in particular his work with the Nobel Prize winner Ronald Norrish; about his cleverness in buying the modest but centrally located Brook Cottage at what was in 1961 an eye-watering price, but which proved its value time and time again; and also about the intrigues of college, where he served on many Committees and was Acting Master during Derek Brewer’s sabbatical.

Brian was born in Hampstead in 1928 the son of Albert Arthur Thrush and Dorothy Charlotte Thrush. Albert was a representative for Chapman and Hall, and a slightly-published poet and writer, and probably did not imagine that his clever little boy was to become such an eminent scientist.

Brian attended Haberdashers Askes School from 1939 to 1946, performing with such distinction that he won a scholarship to Emmanuel College to read natural sciences. His headmaster said this was as much a cause for celebration as winning a major sports trophy. Cambridge appealed to him for its broad scientific curriculum, which meant he did not have to choose between physics and chemistry at eighteen, and indeed he could be said to have reconciled the two subjects as he went on to become one of the most celebrated atmospheric chemists of his age. He arrived in Emmanuel to rations and basic, often chilly accommodation. His description of the college in those days, captured in his memoirs, might horrify today’s students, used to en suite rooms and choices of food! He did well, coming top of the Tripos in Part II Physical Chemistry, so was offered post graduate study

with Morris Sugden, which led to his PhD in 1953 and an increasingly international network of academic contacts.

In 1957 he was offered a year's sabbatical in Washington at the US National Bureau of Standards, and he leapt at the chance. It proved fruitful in more ways than one, as on the ship out he met a young Canadian woman, Rosemary Terry, who was working as social secretary to the Canadian Ambassador to the UN. They were married on 31 March 1958 in Ottawa. Brian loved his time in America, but he and Rosemary decided to return to England and Cambridge in the summer of 1958, buying Brook Cottage in a nail-biting auction in 1961, the best purchase he ever made.

Their two children, Basil and Felicity, were born in 1965 and 1967 and grew up there, both of them returning to live at Brook Cottage in later life.

I got to know Basil first, because of my early morning walks along the river. Early on I began to get to know the occupants of the barges which lined Riverside (sadly no longer there after the council moved the barges on). I'd already started chatting to one friendly, colourful character with flowing blond locks before I realised it was Basil Thrush. One afternoon at tea, Brian said 'you must meet my son!' and it turned out I already had. After that, an early morning chat with Basil became part of my routine.

Sadly, after a period of declining health, Rosemary died in 2016 and her funeral, here in Emmanuel chapel, was one of the most moving I ever attended. Basil's tribute to his mother was particularly poignant. Sadly Basil himself was to die suddenly only three months later, soon after he had returned to live in Brook Cottage to be company for his father.

Then living in Devon, Felicity and her brood of beautiful, clever children, started appearing in college. Severin studied for a Masters here, and Brian was immensely proud to see the family connection with Emmanuel continuing. As Brian's health declined, Fe moved from Devon to Brook Cottage to look after him, and maintained a lively atmosphere with children coming and going, and a steady supply of kittens and visitors keeping Brian happy and occupied right up to his death.

But it was Brian's association with Emmanuel that was the lynchpin of his life. He became a Fellow in 1960, taking on teaching responsibilities for chemistry; and he was a tutor from 1963-9, only relinquishing this role as his departmental duties grew.

The early 1960s was a lively time in Emmanuel, with the construction of a new Master's Lodge (Edward Welbourne having refused (or more accurately his wife having refused)) to live in the large Victorian Lodge; and the new student accommodation that was named South Court, both by the architect Tom Hancock. These buildings followed the earlier controversy of the building of new kitchens and Upper Hall in 1959, designed by Robert Hurd; a development that led to protests outside Emma due to its 'uglification' of the street – Brian's perspective was that the architecture should be 'neither seen nor Hurd'!

Brian was also fond of recounting how, in the late 1960s, there was a row between the Governing Body and the Council over repairs to the Westmoreland Building (where the Council agreed to the installation of very inconvenient scaffolding without adequately consulting the Fellows) and the treatment of swans on the pond in the paddock (where the Council seemed to accept their loss, but the Fellows argued they had the ‘right’ to see swans on the pond). This row led the Governing Body to refuse to renew the Council, ushering in a period of nearly fifty years when college business was conducted directly by the Governing Body, leading to long and sometimes irritable meetings. It took Richard Wilson’s formidable diplomatic skills to renew the Council’s operation in the early 2000s. The exception to long GB meetings came under Brian’s own chairmanship, when as Vice Master he became Acting Master during Derek Brewer’s absence on sabbatical. Brian told me how he enforced a rule that Fellows should only speak once during debates, miraculously shortening meetings.

Throughout Brian’s long service as a Fellow, he served on many College committees: the Library Committee, the Services Committee, High Table Committee and the Investment Committee. But without question the Wine Committee was his greatest love. He’d begun enjoying fine wines during his year in Washington DC, and brought his enthusiasm to College. The Wine Committee began its work in 1973, and apart from a short break he was a member until 1996, when he handed the responsibility over to Jonathan Aldred. Negotiating with suppliers, choosing wines and managing the cellar was an interesting business, and Brian would talk about the deals he’d struck with immense pride.

Until very recently Brian would come in to lunch, assisted by his trusty walker, and enjoy catching up with the Fellows among whom he’d worked for so long. He kept up a regular order of his favourite wines, and never failed to have a story to tell about the college he loved so much. We won’t forget him.

### **Felicity Baker**

*Brian’s Daughter*

Today my family and I want to celebrate Brian’s life by sharing a few of our favourite memories and tales with you.

My father was born in London nearly 100 years ago. Growing up he had a great love of books, wind-up toys, and his dear little ginger cat, called Rusty. As a very young child his inquisitive experimental mind began to emerge as Nana Thrush caught him one day gently pulling Rusty’s tail and on asking what he was doing, he innocently replied in a questioning tone, ‘winding Rusty up to make him go faster’.

Dad spent most of his childhood with his lifelong best friend Michael Warburg. They had a great deal of respect for each other and used to embark on day trips exploring London on their bikes together. During their early teenage years, unbeknown to their parents, their favourite thing to do became finding

unexploded bombs to defuse together. Michael himself told me many years later my father would give him clear instructions on how to do this, whilst remaining at a very safe distance himself.

Daddy received a full scholarship to Cambridge from his school haberdashers, and not knowing which would be the best college to apply to, he asked his science teacher who suggested Emmanuel as he said it was his old college. So, my dad's Emma life began, only to discover years later that his former teacher had never actually been at Emma.

I have always held my father in high regard and with ultimate respect, as he was a truly wise and honourable man.

As a child, I believed he literally knew everything, in fact when I was young, my brother and I would sit and watch the news each night with my mother, whilst dad was still at work. At the end I would, to my mum's amusement, always run over and kiss the so knowledgeable, suited and slightly balding newsreader good night thinking it was dad. In my defence, TV 's were black and white and very fuzzy in those days.

Later as an early teenager, on asking perhaps just one of too many questions, my father relayed, "I don't know everything Felicity" which was a truly shocking moment of realisation for me.

My father was a master of child discipline and whilst growing up, I honestly don't remember him ever raising his voice to me and despite me being a 'spirited' child, he just gave me 'the look'.

After my dad retired and he grew older, his cheeky side began to grow, with his great sense of humour amusing many. My fondest, funny memory was when he took me to see a new bench by the pond at Emma. The bench had a plaque on with my, recently deceased, mothers and his name on. (I hasten to add that he had suggested to the college adding both names at this point as it was more practical) As we approached front court, we looked back only to see a group of his friends, looking bemused upset as they read the plaque on the new bench until they looked up only to see dad, alive and well, in front of them. After the initial whoops moment, he found this very amusing and shared the story with many referring to it as benchmark humour.

My mother always used to say, all we can hope for in this life is to leave the world a better place, and I honestly believe dad has done just that. Not only in his professional life, including his invention of the UV laser, which has gone on to be used extensively in many applications and his pioneering research into the harmful effects of CFCs on the ozone layer. But also, personally by enriching so many people's lives with his mentorship, teaching and of course his loyal, supportive, and generous nature towards his friends and family. I think we will all treasure the memory of the twinkle in his eyes as he shared his many fascinating and amusing stories.

The past two years of my family's life will be remembered as a very special time by us in which our love, friendship and closeness with dad grew every day. A treasured gift which we are truly grateful for.



My parents always said you can tell the true measure of a man by the friends he has and looking around this room at all your faces confirms what a truly special and great person my father really was.

**Sienna Baker**

*Brian's Granddaughter*

Hi, for those who don't know me I am Sienna, Brian's youngest grandchild.

When we were young, my grandfather spent a lot of time with us playing games, looking back though his favourite was definitely one called potty professor. Maybe because not only was it short (which I think he secretly liked) but also because being based on solving maths sums and building a lab meant he got to share a little bit of his world with us and to be honest the characters in it did all looked remarkably like him.

But my favourite story to share with you all is about my ginger kitten, which I got when I first moved to Cambridge. Grandprof was very against the idea of a kitten but the minute he met Pumpkin they became best friends, Pumpkin spent most of his days lying beside him as he read the daily paper. This meant that although he was supposed to be my cat, I only ever saw him next to Grandprof. They became very attached to each other and even when we got another little black kitten, Pumpkin remained Grandprof's favourite, to the extent of calling the new kitten "the beast" showing how Pumpkin was his without doubt his number one.

Our name for my grandfather was Grandprof or for short Grand P, which led to us giving Pumpkin the nickname Little P as they were very similar at this stage, lying in bed all day, loving attention from the family and eating all the biscuits in the house.

One of the things Grandprof missed most while being bed bound was wine tasting, so on his last birthday, I got him lots of small bottles of wine which he enjoyed with his lunch each day, he would amuse himself by numbering the wines according to how good they were. I guess having been in charge of the Emma wine cellar for so long he had become very particular about the wine he liked to drink, which I personally don't understand as I think they all taste the same.

Despite him stealing my cat I loved my grandfather, and I will miss him lots.

**Senna Baker**  
*Brian's Grandson*

We are here today to celebrate the life of my extraordinary grandfather who touched all of our hearts in so many ways.

I will certainly cherish the countless memories and experiences I shared with him.

These include hours of highly competitive family board games which I have a slight suspicion my grandmother (Mimi) strongly encouraged him to play with us, from arguably made-up words in scrabble to playing a marble game called stay alive which looking back now, Grandprof clearly won after 97 years of smashing life.

More recently, when Grandprof was unfortunately confirmed to his bed, I was always struck by the warm smile he gave my girlfriend and I after travelling down from Durham to see him.

During Grandprof's time of needing extra care, my girlfriend (Rosie) was always happy to help look after him, especially whilst my mum was in hospital and recovering thereafter. It was lovely to see how fond they became of each other; we all still joke that Rosie did actually seem to receive more excited greetings than I did and in fact she may have become his favourite grandchild (despite not actually being related).

Thank you for all listening and let's not dwell on the loss of Grandprof but celebrate his life and the great memories he has left behind.

**Sascha Baker**  
*Brian's Grandson*

I'd like to start my speech with how much Grandprof changed and softened throughout my childhood.

Some of my first memories are of him sternly telling me and my siblings off whenever we had our elbows on the table during mealtimes. This gradually turned into him saying "are your elbows hungry" which has now become one of our family's favourite sayings.

Another great, comical memory we all share is how particularly proud and protective Grandprof was over his flower beds which didn't mix very well with our passion for football. He always had that sweet side in him, and not wanting to discourage us, he would join in whilst guarding his flowers with his stick and trying to kick the ball back into play, in an outfit that would definitely not be allowed on any football pitch. But looking back not wanting to hit his precious plants and upset him in turn greatly improved our ball control, helping us to all become great footballers.

He was always a very modest man and although we told him all the time how special he was, I don't think he really knew how big a part he played in all of our lives and how dearly loved and missed he will be.

**Severin Baker**  
*Brian's Grandson*

I'm going to start from the end, or the top,

From moments in which I remember Grandprof most vividly, a great word for such a vivid character, full of life and experience and complexities of which I still don't quite understand but will always admire.

Let's start with Cambridge, a natural start for a true Cantabrigian, a man who once complained about being seated next to me at a formal, because he was not seated on the high table. How dare they, he said, with his usual humour, as dry as the pages of his memoirs, seat me next to my grandson, and not the master.

A true scholar who to most required no introduction,

A scientist, clueless of humanities and history because he himself was history,

His immortal mind chiselled into the halls of life.

A brilliant innings for a man who knew nothing of cricket, yet his mother lived at fenners lawn.

I greatly enjoyed my time here at Cambridge, in part due to the rumblings and grumbings of my weekly encounters with Grandprof.

A meeting that was mutually beneficial - I would cook for him, trying out new recipes continuing a lockdown love of cooking.

He would talk, at great lengths, with the wit and incisive intellect of a graduate student, debating with me the middle classes role in the Russian revolution, the true power of free radical ionisation, and the debilitating effects of structural reform programmes on South America during the 80s.

Albeit, it wasn't the relaxing dinner time chat one often craves after a 12 hour stint in the Emmanuel library, but it laid bare the undecided power of his mind, 95 years young and built from a love of learning and knowing one cannot teach.

Rewinding a few year back in my story brings us to my pre-university years, and time when both him and I were probably thinking the same thing, what in the world do I now do with my life. Given, these thoughts likely took different shapes in the respectively different stages of life we were in.

When I looked and spoke to Grandprof, it became clear the answer he had came to, and his actions purely belied words he need not say. For the rest of his life, he dedicated to me, to my mum, to my family, and providing us with the love, admiration, care and sacrifice that long outlives his mortal body. His immortal love

towards us was brilliant, something that matched his great mind - a feat I thought to be impossible

And it was during these times when I was able to witness the rekindling of a love so pure it exists only within the pages of novels and the scripts of the silver screen. My mother, who has numerously admitted how difficult she was a child, and how she rebelled against both of her parents, was reconnected in a beautiful and pure way with her father. A love that wasn't new, but was found once again.

So, when I was deciding to what to do with the rest of my life, I looked up towards Grandprof, and followed in his footsteps.

This brings us to the final part of my story. And in understanding how I looked to Grandprof when I was looking for answers for the rest of my life, I realised this was not new.

Ever since I can remember, he represented something otherworldly. A occult and mysterious being shackled to the world of academia and intellect. His knowledge, his passion for learning, his inability to let me win at chess no matter how young I was, captivated me, inspired me and motivated me to move beyond my own limitations and shackles. To realise the potential I had. I now cathartically realise that throughout my life I have idolised Grandprof, and rightly so. I have looked to him as a beacon what can be done, and what one should try and do. And I thank him for this. For without him, I wouldn't be in the position I am today.