

**George Alfred Cecil GRAHAM—Scholar, Wit, Applied Mathematician
and Long-Time Contributor to CAIMS•SCMAI**

passed away on April 12, 2003:

Cecil will be missed

by

Serpil Kocabiyik, T. Bryant Moodie and F. Mary Williams

Cecil earned his Master’s degree from Brown University (1964), completed his PhD (1966) at University of Glasgow, under the renowned applied mathematician Professor I. N. Sneddon. He then joined the Department of Mathematics at Simon Fraser University in 1967. He became a full professor in 1980, and served as Department Chair for the period 1981-86.

His extensive research was in the area of non-linear fracture mechanics and viscoelasticity. He is the co-author of the book *Boundary Value Problems in Linear Viscoelasticity* (Springer-Verlag, 1988). Among his invited lectures was a series at an International Centre for Mechanical Sciences (CISM) Advanced School on Crack and Contact Problems for Viscoelastic Bodies at UDINE, Italy in 1994. Cecil is the co-author of a set of lecture notes based on these invited lectures and published by Springer-Verlag in 1995. Cecil presented results of his research at the last three International Congresses of Theoretical and Applied Mechanics in Haifa (1992), Kyoto (1996) and Chicago (2000) at a variety of other international scientific meetings.

Cecil has been a loyal member of CAMS/SCMA from the inception of the Society and joined the board as secretary-treasurer in 1993 continuing in that capacity until 1999 when positions of Secretary and Treasurer were separated. Cecil stayed on as secretary until June 2001. Cecil was tireless in his efforts to promote the Society in his university and in the country as a whole. He played a significant role in increasing the number of lifetime-memberships and bringing in young members.

Cecil invigorated the Society by organizing the 9th Annual Meeting of the Canadian Applied Mathematics Society (CAMS/SCMA) at Simon Fraser University (Burnaby Mountain) in 1988. The proceedings were edited by Cecil and published in book form. Cecil was co-chair (along with Dr. Serpil Kocabiyik of Memorial University of Newfoundland) of the 19th Annual Meeting of the Canadian Applied and Industrial Mathematics Society and the 13th Canadian Symposium on Fluid Dynamics held at Simon Fraser University (Harbour Centre) in 1998.

Under Cecil’s tenure many new features were added to the Society’s Newsletter: editorials about the Society, the *Applied Mathematician in Focus* articles and a suite of photos from the annual meeting. Many of these photos Cecil took himself. In 1996, Cecil brought the Society into the “internet age” with the launch of the CAIMS•SCMAI web site. Not only did this keep the membership up-to-date, but it also increased the visibility of the Society.

At the 2001 CAIMS•SCMAI Annual Meeting: The Arthur Beaumont Distinguished Service Award was presented to Cecil for distinguished and unselfish service to the Society over two decades. Cecil truly has “contributed immeasurably to the vitality of CAIMS•SCMAI.”

Applied Mathematicians will miss Cecil Graham for his unique Irish presence, his acknowledged prominence in his field, and for his warm and caring personality.



Society News

Tributes to Cecil Graham

My association with Cecil goes back about ten years, from when I was a research associate in the Applied Mathematics Department at Western (1988-1994). However, we became close when I joined the board in 1998 and organized the 1998 Annual Meeting of CAIMS•SCMAI with Cecil.

Cecil has been a pillar of support and sound advice to me, as a colleague and otherwise, all these years, and a good friend. We, the present board sorely miss his presence: Cecil was a source of wise counsel for the Society. He always added something special to our CAIMS•SCMAI meetings, as well as working hard for CAIMS•SCMAI behind the scenes.

*Serpil Kocabiyik (PhD. 1987, University of Western Ontario)
Associate Professor of the Department of Mathematics and Statistics
Memorial University of Newfoundland*

Cecil was first and foremost a dear friend of mine. I will miss his presence at meetings both in Canada and abroad and especially in the cheery pubs of Dublin where I spent much time with him. I will miss his counsel which I sought quite often. I will miss his mischief.

Cecil took over from me as Editor of the CAIMS•SCMAI Newsletter and immediately set about to improve it's quality and content. This he did with resounding success! In everything that Cecil undertook he never accepted the status quo. He always worked to improve the situation.

Cecil was a true scholar with a very extensive knowledge of literature and Irish literature in particular. He was a traveller, going to some of the world's more remote locales in order to satisfy his curiosity about the culture there but Cecil's heart remained attached to Ireland a place where he spent much of his time.

*T. Bryant Moodie (Ph.D. 1972, University of Toronto)
Professor of the Department of Mathematical and Statistical Sciences
University of Alberta*

I first came to know Cecil when I was elected to CAIMS•SCMAI Board of Directors in 1995. He was the Secretary/Treasurer at the time and seemed to handle all the administrative duties of the society. When that position was split in 1999 and I took over as Treasurer, I relied heavily on his experience while learning the financial ropes. Cecil was devoted to the promotion of Applied Mathematics in Canada and his receipt of the Arthur Beaumont Award in 2001 was a well-deserved testament to that service.

Not being a student at SFU or working in his field, I did not have the pleasure of attending any of Cecil's lectures. However on a personal note, I do have many fond memories of his dry



sense of humour and warm Irish wit. Before I visited Dublin several years ago, I asked him about his favourite haunts. Number one was the library bar above a popular pub that James Joyce once frequented. It was a lovely spot and the next time I'm in Ireland I'll visit there again and quietly raise a Guinness in his memory. Cheers Cecil. "May the road rise to meet you ... "

*Michael Foreman (PhD. 1984, University of British Columbia)
Research Scientist, DFO-Institute of Ocean Sciences*

My first personal recollection of Cecil goes back to the CAMS meeting in Winnipeg in 1996. At that time, Cecil was for me a father figure. He took me into the executive of CAMS. He showed me the way and motivated me to run for the office of CAMS president. Once I was elected, Cecil provided me with unselfish support, encouragement, and inspiration. He participated actively in the changes that I brought to the society (i.e. change of name and incorporation). In this process, in which he collaborated actively, I had the opportunity to see that the future of applied mathematics in Canada was very dear to his heart. During the course of our collaboration I had the opportunity to witness Cecil's wit, sense of humour, and depth, which I now miss and will miss in the future.

*Anna Lawniczak
CAMS/SCMA President 1997-1998
CAIMS/SCMAI President 1998-2001*

I met Cecil at the CAMS meeting in 1997 (Toronto) and later at the subsequent CAIMS meetings. My personal knowledge of Cecil comes from a number of conversations at the margin of these meetings, conversations having coffee, waiting in the airport, having dinner, etc. Cecil and I spoke about non-professional subject. Cecil had a deep knowledge of philosophy, history, culture, and life. Cecil exhibited the wit, the humour, the ability to perform deep sociological analysis, and the culture of other great Irishmen, Oscar Wilde, George Bernard Shaw, and James Joyce. I told him this. He smiled and said: Yes, but contrary to them I was born in the free Ireland. He felt that this gave him something more, something that the three more famous Irishmen missed. In a way or another, Ireland entered in almost every conversation we had. It's a pity that he could not retire in Ireland, as he planned and as he stated at almost at every meeting we had.

Bruno Di Stefano, P.Eng

A shock of hair, a crooked grin, and a raspy, squeaky voice full of mischief, humour and an occasional high-pitched cackle. A lanky frame, mostly arms and legs. A grey, rumpled suit. A decent, kind man. That is how I remember Cecil Graham.

He was a class ahead of me at Trinity in Dublin, but, because of the small number of mathematicians, the third and fourth years were put together. So, in 1960-1961, we attended Mathematics lectures together. Broderick taught us Pure mathematics, which we learned afterwards was completely up to date. The Provost, MacConnell, was an inspiring lecturer. He taught us Applied mathematics, which that year consisted of a replay of the glory years of Relativity and

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Quantum Mechanics. Cecil was much amused by the Provost's idiosyncrasies, which included tut-tutting and cleaning up after his beloved cat that, more often than not, would make him pay the price of inattention. Once Cecil almost leapt up to help, but he restrained the impulse and told me afterwards that the Provost deserved whatever befell him for keeping such a silly animal.

Cecil became a Scholar of Trinity in 1960, which was earned by scoring well in a nontrivial examination and which earned him many privileges, every one of which he took advantage. He went to Brown for Graduate School, and I remember what a good time he showed me one weekend when I went down to Providence to meet up with him soon after I arrived in Boston (1962).

After that I lost track of him for many years, but we re-established contact when he invited me to Vancouver and Simon Fraser for a CAIMS•SCMAI do in 1988. He hadn't changed too much, but I got the impression that he was a man eager to find a way to serve. I think it was important for him to give, not only to help others but also as a way of belonging. And give he did. CAIMS•SCMAI greatly benefited from his efforts and his generosity. He was a lovely man.

*Alan C. Newell (PhD. 1966, MIT)
Professor of the Department of Mathematics
University of Arizona*

My association with G.A.C. Graham, affectionately called Cecil, in his professional capacity and as a private friend dates back to 1961 when both of us entered Brown University to pursue graduate studies in Applied Mathematics. He was then a very shy young man of 22 years having just completed his B.A. from Dublin University. The field of Viscoelasticity was just beginning to get hot research wise enticing Cecil's interest. But soon thereafter, researches found that most of viscoelasticity problems could be converted to that of elasticity through the so-called correspondence principle involving integral transforms. This inspired Cecil to move to University of Glasgow for his doctoral studies under the supervision of a genius in Integral Transforms, Professor I.N. Sneddon . However, more exciting than Ph.D. he obtained in 1966 was the fact that he found love of Lorna, a beautiful and accomplished lady from the Scottish Highlands who would be his dear wife all the years that followed.

Then it so happened that in 1966, we both joined the Faculty of N.C. State University, North Carolina. I told Cecil that he should not follow me like that even though I relished his graceful subtle Irish humour and zealous friendship. But would you believe as soon as I moved to Simon Fraser in 1967, a month after Cecil did too! Needless to say, his image is inseparable from the most delightful forty-two years of association with him.

Cecil continued his research endeavours in various aspects of Viscoelasticity despite the fact many researchers had more or less given up the area. But then in 1980, Cecil published a paper, which made a striking breakthrough reviving interest in the field and earning him International recognition. Throughout his academic career as a teacher, Cecil scorned easy popularity caring less for course reaction surveys. Even though the art of delivery was not one of his strong talents, he prepared and organized his lectures as well as anyone. One thing that will always stand apart in my mind was his simplistic devotion to practical usefulness of studying applied mathematics as a career for students.

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He divided his appreciation for his colleagues in two and only two categories: those who were supporters of applied mathematics and those who were not. And then he further subdivided the applied colleagues into those who were for continuum mechanics and those that were not. To establish an Applied Mathematics Institute at Simon Fraser became his passion and the subject of his most serious consideration. He did not succeed but the enthusiasm for the idea never wholly relinquished in his mind. He chaired the Department of Math and Stats from 1981 to 1986. During this period, whenever the interests of the math faculty and university administration conflicted, however rare, he gave undoubted support to the faculty. Cecil's graduate supervision was much in demand and all of his students who were awarded Ph.D. degrees are by now well-recognized scholars. In the last ten years or so, he became passionately involved in promoting the Canadian Applied and Industrial Mathematics Society. How entirely he gave himself up to the business of editing CAIMS Newsletter making it an effective medium of communication among applied math scientists in Canada. He organized quite a few CAIMS conferences, which were eminently successful.

The scientific way in which Cecil expressed his views on International politics was indeed charming whether the discussion centred on Middle East, Northern Ireland, or Kashmir India. He felt most comfortable and confident in provoking your reaction, to tease you to think. He never expressed any emotion or dismay at events in the world that were wrong, but wanted only to understand and analyze them. He was convinced of the logistics of the free enterprise system, asserting invariably that the market is the ultimate barometer of performance and rewards. Cecil was not a religious man simply because he could not accept propositions in the absence of evidence. Coming from a rural background, his attachments to rural life remained strong throughout his life. But over and above all, what amazed me most was his love for Ireland. Cecil and Ireland were always one and always inseparable. He was most at ease there and therefore spent sabbatical leaves or research semesters mostly in Dublin.

*Manohar Singh (PhD. 1965, Brown University)
 Professor Emeritus of the Department of Mathematics
 Simon Fraser University*

I first met Cecil in 1974 and we began to collaborate systematically in 1982. Our work together centred on a decomposition of hereditary integrals, which he had first given in an early paper (1965) arising out of his doctoral research. This decomposition has proved to be remarkably powerful in the context of viscoelastic boundary value problems, in the non-inertial approximation and to a limited extent for inertial problems. In the former case, it provides a standardised technique for solving a wide range of problems.

Much of our work together is summarised in a book (Springer 1988) and in lecture notes of an Udine course (Springer 1995). This latter event was one of several significant international meetings for which Cecil was the main organising force.

The world of Applied Mathematics will miss him for his leadership and organising ability. I will also miss him as a close friend

*John Murrough Golden (PhD. 1970, University of Edinburgh, Scotland)
 Head of the School of Mathematical Sciences
 Dublin Institute of Technology, Ireland.*



Cecil made many contributions to the applied mathematics literature. Rather than discuss the written legacy, I would like to focus on Cecil's love for the discipline of Applied Mathematics. He truly enjoyed working with the mathematical expression of physical phenomena, defining the problem, and finding the solution. He saw the value not only in the practical results, but also in the intellectual challenge. He taught his students mathematical rigor, and passed on to them his appreciation for the subject. Our careers and our lives were enriched by his care and mentoring.

*Mary Williams (PhD. 1975, Simon Fraser University)
Director General of the NRC-Institute for Marine Dynamics*

Cecil was both my teacher and friend. My first contact with Cecil was in 1967 as an undergraduate student in the Department of Mathematics at SFU. In 1968 he agreed to supervise me as a Masters student. The care and generosity that he showed me as his student was typical of his nature. For example, in the second year of my studies he invited me to join him in Oxford for two semesters. To help pay for some of my expenses he encouraged me to apply for a scholarship. As well, he assisted me in finding living accommodation. In Oxford, we attended courses at the Mathematical Institute together and I often would have dinner with him and Lorna, his wife. In December, 1969, my wife (to be) came over from Vancouver and I was married in Oxford in a civil ceremony with Cecil as a witness. Cecil was just as generous with his help and ideas when it came to research. Over the years we collaborated on seven journal publications. He taught me to be careful and methodical in my research.

Whenever I came to Vancouver I would visit him whether we working together or not. We would interact as if I had never left; that was his style. Interestingly, we rarely talked about our research, or if we did, I was the one who brought it up. Instead he enjoyed talking about the state of the world, the future of applied mathematics or department politics. Our conversations were not special since he could just as easily have similar conversations with an undergraduate student or a person selling newspapers. He treated everyone as equals.

His work passions were his research, his teaching, the Mathematics Department at SFU and applied mathematics in Canada. In all these areas he will be missed.

*Gary C.W. Sabin (Ph.D. 1975, University of Windsor)
Professor of Faculty of Engineering and Applied Science
Memorial University of Newfoundland*

Those who had any professional contact with Cecil know very well that he was first and foremost an applied mathematician. At SFU, he was always our advocate and one of the key developers of our Applied Mathematics Program. On a personal level, Cecil played a pivotal role in my staying at SFU. But more generally, his persistence and continually championing of his applied colleagues' cause in SFU's early years laid the foundation for what is now a strong tradition of support for applied mathematics. He was undoubtedly one of the best Chairs which our Department ever had, with such stubborn resolve that one would almost pity his targets (foremost, the Dean of Science). On another level, Cecil and I shared a love for all things Irish.

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His compassion for the underdog and willingness to take the unpopular side in an argument would eventually cause people to question their glib truths. Perhaps the best tribute to Cecil was made at the memorial services held at his home and at SFU, both through the poignant testimonials given by his friends and colleagues and through the very attendance of such a wide assortment of individuals who over the years had grown to care for and respect Cecil.

*Robert D. Russell (PhD. 1971, University of New Mexico)
 Professor of the Department of Mathematics
 Simon Fraser University*

I remember sitting in Cecil's office two summers ago, and looking at the poster for the 2003 meeting in Australia. It seemed so far away then, as it does now. Cecil always made me laugh, and pinched my side to make a point, and never took himself too seriously. The man always knew how to have a good time. I also remember one day we just took off to the Mongolian Grill, just for the day, and went for a walk on the beach before I left to come here (Pittsburgh). I always missed him, and I do now. A large part of what I miss at SFU is being around the department with Cecil around to make me laugh. When you see his daughter, give her a hug for me and thank her for having such a father, and tell her that I love this world more because of him.

*Albert Cohen (PhD Candidate)
 Department of Mathematics
 Carnegie Mellon University
 Pittsburgh PA*



Cecil Graham being himself, with Anna Lawniczak