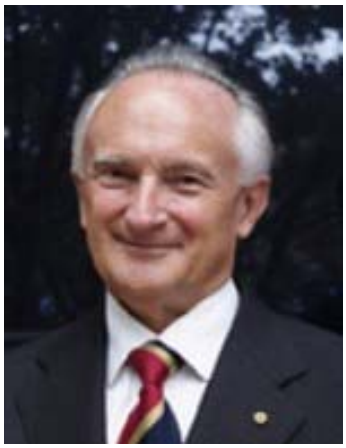
Anthony Greville (Tony) Shannon
Emeritus Professor



Personal background

Emeritus Professor Anthony Greville (Tony) Shannon first began visiting Central and Eastern Europe in 1963. Then for an Australian it involved going through "Check-point Charlie" in Berlin, followed by long train journeys with frequent demands for passports, visas and other identity papers. His most frequent destination has been Bulgaria with nearly twenty trips to that beautiful country.

Australians are travelers because Australia seems so far away to the rest of the world: Australians have to go to them if they will not visit Australia! Tony's own ancestors on his mother's side came to Australia (without much choice) on *HMS Pitt* in 1791-1792.

He, Thomas Rowley, was an army officer, and she, Elizabeth Selwyn, his common-law wife, was a convict, so that Tony is sixth generation Australian. This great (cubed) grandfather was for a while the commanding officer of Norfolk Island, one of the most feared penal settlements for the punishment of convicts, many of whom were either political prisoners from Ireland or petty criminals from England. On his father's side he is third generation Australian via England and Ireland (a graduate in medicine from Queens University, Belfast).

Tony was born in Mosman, Sydney, on 30 September 1938. His employment has included school teaching in Sydney and London, the Royal Australian Navy, and as a mathematician in universities (mainly the University of New England and University of Technology, Sydney, where he was the Foundation Dean of the University Graduate School) and hospitals (Prince of Wales Hospital, Randwick, and the University Hospital, Cardiff, Wales). Other professional experience has included the Australian Council for Educational Research in Melbourne, and as an Australian Research Council Industrial Fellow with the TCG Group of Companies in Sydney.

Tony and his wife, Marie, spent 1969 and 1970 in Port Moresby, the capital of Papua New Guinea, before it became independent. Papua was then an Australian Territory and New Guinea was administered by Australia under a mandate from the United Nations. As Marie worked for the PNG Tourist Board they were able to travel extensively throughout the beautiful and topographically varied islands. Tony was then a Lecturer in the Department of Mathematics at the newly established University of PNG. Teaching applied mathematics there was challenging as the then familiar analogies in mechanics, such as locomotives, billiard balls, and so on, meant nothing. Relevant to this Tony was able to complete some published educational research with Dr. Tony Allen. These investigated the concept selection strategies of PNG students and compared Piagetian development stages with their Western counterparts (*Psychological Reports* 27 (1970): 591-594; *Journal of Experimental Education* 39 (1971): 1-4; *American Mathematical Monthly* 79 (1972): 1131-1133; *Malaysian Journal of Education* 11 (1974): 77-82).

Professional background

Tony has a first class honours degree and doctorates in:

- pure mathematics (Ph.D.: number theory) – thesis topic: "Some number theoretic properties of arbitrary order recursive sequences",
- education (Ed.D.: philosophy) – dissertation topic: "A Thomistic evaluation of John Dewey and the foundations of education", and
- science (D.Sc.: epidemiology and public health) – thesis topic: "Interdisciplinary contributions to the diagnosis and management of diabetes mellitus".

As well as being educated in Sydney (first degree), Oxford (post-doctoral), and Cambridge (WHO Scholar), his academic visits have included Universidad de Navarra, Pamplona, Spain (1981), Hong Kong Polytechnic University (1997,2001), UCLA (1975), Campus Bio-Medico, Rome (1995) and Pontificia Università della Santa Croce (PUSC), Rome (1998, 2002), a Patron of the Foundation of the PUSC, Staff Seminars at Department of International Relations Istanbul Kültür Űniversitesi, Turkey (2009), and Department of Mathematics & Computer Science Seminar, Bahçeşehir University, Istanbul, Turkey (2009), and Harvard (1994, 2009, 2010).

Tony's substantive position for the last ten years has been Master of Warrane College at the University of New South Wales. Warrane College is a college on the main campus of UNSW in Kensington, a suburb of Sydney. The word "Warrane" is a spelling of the indigenous word for Sydney Cove on the 1808 chart of Sydney Harbour authorised by the then Governor of the Colony, William Bligh (of "Bligh of the Bounty" fame). Warrane serves as a residence for men, but its primary focus is to form young men so that they will be good professionals, good citizens and good husbands and fathers. It provides tutorials to supplement and complement the main university programs, as well as outlets for community service, including work-camps to disadvantaged societies. One such is visiting Samoa in November and December 2010 to work at the Mapuifagalel Home for the Aged near Apia. Tony is part of that team.

He is also in demand as a higher education consultant, principally as an Auditor for the Australian Universities Quality Agency which is becoming part of the Tertiary Education Quality and Standards Agency in Melbourne in 2011, a Higher Education Assessor with the NSW Department of Education and Training, a Subject Specialist with the Hong Kong Council for Accreditation of Academic and Vocational Qualifications, and as a 'Research Coach' at the Queensland University of Technology in Brisbane.

The latter work involves helping two recent Ph.D. graduates, Dr. Grace Sarra and Dr. Bronwyn Ewing, seek funding for a project aimed at facilitating the resources for assisting isolated Aboriginal and Torres Strait Islander women living in remote communities in far north Queensland. The project aims to assist parents in supporting their children's learning of literacy and numeracy prior to the commencement of formal schooling in ways that are culturally relevant to their community, and which align with indigenous education and policy.

Tony has supervised more than twenty research degree candidates over the years and he is currently keeping his hand in teaching with PhD supervision at the University of Sydney and by running a *Diploma of Educational Studies* program for higher education tutors. Warrane College is accredited to run the course by the College of Teachers at the University of London, Institute of Education.

Tony has been on the editorial boards of many professional journals. Currently he is on the editorial boards of:

- *Education Today,*
- *International Journal of Mathematical Education in Science and Technology,*
- *International Journal Bioautomation,*
- *Notes on Intuitionistic Fuzzy Sets,*
- *Notes on Number Theory & Discrete Mathematics* (Co-Editor in Chief),
- *Advanced Studies in Contemporary Mathematics* (Managing Editor), and
- *Proceedings of the Jangjeon Mathematical Society* (Managing Editor).

He is also a life member of several professional societies, including the *Indian Mathematical Society* and the *Australian College of Educators* for whom he was the NSW President in 1991-1992.

For his "services to education, particularly in the field of applied mathematics", Tony was invested as a Member of the Order of Australia in the Honours List on the occasion of the official birthday of Queen Elizabeth II in 1987.

Research interests

Tony is a co-author of several hundred papers, books and conference presentations in number theory (especially recurrence relations) and biomathematics where he works in epidemiology in endocrinology, particularly in the mathematical modeling of diabetes mellitus. His interest in DM was sparked when he and his late wife, Marie, who had suffered from a very brittle form of DM1 since infancy, lived in different parts of the world and found very different approaches to her therapy. Investigations of the primary medical literature revealed deficiencies in some of the experimental designs and statistical analyses. He then approached Novo Nordisk, the major world supplier of insulin, with headquarters in Copenhagen in Denmark. They put him in touch with several research and clinical Professors of Medicine, including Professor David Owens (University of Cardiff) and Professor Steve Colagiuri (Universities of NSW & Sydney) with whom he began long and fruitful collaborations.

For the last sixteen years, Tony has also been collaborating with Professor Krassimir Atanassov of the Bulgarian Academy of Sciences in some of the first applications of intuitionistic fuzzy sets and generalized nets in medical diagnoses. Tony also has academic interests in philosophy in which he has completed major studies of John Dewey and Jacques Maritain.

Some of Tony's collaborative research achievements of relevance to readers of this journal include:

- a technique for finding closed form solutions for generating functions of difference equations of any order (*Duke Mathematical Journal*, 38 (1971): 791-794);
- a method for solving higher order recurrence relations computationally (*Society for Industrial and Applied Mathematics*, *Journal on Applied Mathematics*, 23 (1972): 364-368);
- a contraction of Bernoulli's iteration applied to Bernstein's Jacobi-Perron algorithm (*Bulletin of the Australian Mathematical Society*, 8 (1973): 261-277);
- solving problems which defect traditional parallelizing/vectorizing computers (*The Fibonacci Quarterly* 12 (1974): 327-335);
- polynomial truncations (*Mathematical Gazette* 67(1983): 278-280);

- mass screening for diabetes mellitus (*Medical Journal of Australia*, 143 (1985): 544-546);
- glucose clamping (*Mathematical Modelling*, 7 (1986): 1239-1244);
- meta-analysis relating multiple injections to glycaemic control (*Journal of the Royal Society of Medicine*, 79 (1986): 686);
- measurement of insulin and glucose sensitivity (*Journal of Clinical Computing* 15 (1986): 29-41);
- contingency relations for infectious diseases (*Computers and Mathematics with Applications* 14 (1987): 829-833);
- use of Polaroid ophthalmic views of retina (*Diabetes Research* 9 (1988): 59-65);
- mathematical basis for erythrocyte sedimentation rates (*IMA Journal of Mathematics Applied in Medicine and Biology)* 7 (1990): 145-156);
- new techniques for solving coupled difference equations (*Discrete Mathematics* 92 (1991): 329-340);
- a nutritional database for diabetes mellitus (*Diabetes, Nutrition and Metabolism* 4 (1991): 93-97);
- modeling metabolic curves (*Diabetes Care* 17 (1994): 1225);
- a Fibonacci model of infectious disease (*The Fibonacci Quarterly* 34 (1996): 257-270);
- best practice guidelines for gestational diabetes mellitus (commissioned research for the New South Wales Health Department (1997);
- estimation of glomerular filtration rates (*IMA Journal of Mathematics Applied in Medicine and Biology* 14 (1997): 151-160);
- since then he has published a series of medical meta-analyses in this journal.

Concluding comments

Tony's personal interests include travel, reading, music, theatre, and sport, (particularly swimming and walking – and watching cricket and rugby), as well as thoroughbred racing (for which he owns two racehorses).

It has been Tony's privilege to help foster a lovely young man, John, now eighteen, with the world at his feet! Tony was married to Marie, who died in 2009, for almost 43 years. They first met at a dance in 1964 when, at a "ladies' choice", she invited him to dance, even though she was a good dancer and he has two left feet!

Let wish him health and creative power for new achievements.

Editorial Board of Int. J. Bioautomation