IVAN LEON REILLY

Born in Upper Hutt in 1942, Ivan Reilly attended Trentham Primary School (1947–54) and Heretaunga College for secondary education (1955–1959). In 1960, he was the first member of his family to become a university student, at Victoria University of Wellington (VUW). He held a Department of Education Studentship to obtain a degree intending to become a high school teacher (This is just one of his unfulfilled intentions). Ivan graduated BSc in Mathematics, MSc with the first class honours in Mathematics, and BA in Statistics and Geography in 1963, 1964 and 1966 respectively. From February 1964, he spent two and half years as a Junior Lecturer in Mathematics at VUW. During that time, he considered options for his PhD study in Mathematics in UK, Australia or USA. More significantly, he met a fellow-student, Barbara Miller, and they were married in 1965.

Ivan was awarded a New Zealand University Grants Committee Postgraduate Scholarship, and a Fulbright Travel Grant, and Barbara and he left NZ (for the first time) in August 1966. They travelled to USA by ship— two weeks cruise on the Canberra was cheaper than a flight from NZ to the west coast of USA. They sailed under the Golden Gate Bridge into San Francisco on their first wedding anniversary. Then a long train ride to Illinois, where they both became students at the University of Illinois, Urbana-Champaign (UIUC). In 1970, Ivan graduated PhD at UIUC, supporting his studies as a teaching assistant.

In December 1970, Ivan took up a lectureship in the Department of Mathematics (and Statistics), UOA. Since then, he has served the department for 35 years. Ivan has held a British Council Visiting Fellowship at University of Warwick in 1970, a Visiting Fellowship at Oxford University in 1975, Honorary Research Fellowships at University College, London in 1980 and at University of Michigan in 2002, a Claude McCarthy Fellowship in 1985, and a Visiting Professorship at University of California, Davis in 1987. He has also completed about 300 invited reviews for Mathematical Reviews and Zentralblatt für Mathematik, and has been an editor and a referee for many journals. Moreover, Ivan has presented papers and given invited lectures at numerous conferences both within New Zealand and in overseas countries.

Since his first paper appeared in Mathematische Annalen in 1970, Ivan has published at least one paper each year. He has always valued and enjoyed collaborative work. At the last count, he had published with 51 different co-authors having 14 different first languages. Ivan's contribution to mathematics lies in general topology, where he and his co-authors have published about 130 research papers in refereed international journals. In particular, Ivan specialises in nonsymmetrical topology, topological anti-properties, maximal and minimal topologies, non-Hausdorff spaces, and generalized continuity properties. When "symmetry" in the traditional definition of a metric space is dropped, the resulting space is called a quasi-metric space. Indeed, nonsymmetrical distances are quite common in our everyday life; examples include the "shortest-time taken" distance, the "minimum-energy consumed" distance and distance measured in "one-way street" or "round-about" systems. Nonsymmetrical distances always appear in pairs, that is, they are bitopological spaces. In the 1970s, Ivan discovered that any

quasi-metric space with a sequentially compact conjugate is metrisable. He also showed that three versions of bitopological compactness in the literature are in fact equivalent. In the 1980s, Ivan systematically investigated topological anti-properties. Numerous examples of properties closely related to the notion of continuity of a function between two topological spaces can be found in the literature; but, with his co-authors, Ivan discovered that many of these concepts are not new if one is willing to change the topology on the domain and/or the range. More recently, Ivan has studied generalized closed sets in topological spaces.

Ivan was a foundation member of the NZ Mathematical Society (NZMS) in 1975, and quickly became Treasurer, serving on the Executive Committee of NZMS for five years. He was the first person elected to a two-year presidency of NZMS, 1985–87. His greatest contribution to the society was probably his term as the Publications Convenor in 1982–85. This was a period of significant publication activity in the life of NZMS. A team of authors wrote a first-year university Calculus textbook, which was adopted at 5 NZ universities (and some Australian universities). During that period, there was a new set of curricula in Mathematics and Statistics at senior high school level. When it became clear that commercial publishers would not be able to provide books for the new curricula on time, Ivan set up three writing groups composed of experienced high school teachers and university staff: one for 6th form Mathematics, led by Lindsay Johnson, one for 7th form Mathematics with Statistics, led by Bob Broughton, and one for 7th form Mathematics with Calculus, led by Dean Halford. Ivan was a member of two of these writing groups. In each case, inexpensive books were produced for the first week of classes. These books proved to be extremely popular with teachers and students so that several print runs were required over the next few years. All of this meant significant profit for NZMS (and its sister organization—NZ Association of Mathematics Teachers). The society's share of these profits represents more than 90% of the current accumulated funds of the society. You may wonder where the money for such things as travel grants for graduate students, small research grants, etc., made by NZMS comes from. It is largely the interest on these funds.

In 1986, when Ivan was president of NZMS, Derek Holton asked a favour, namely, would Ivan act as Chair of the newly formed NZ Mathematical Olympiad Committee (NZMOC)? Ivan's response was "No—that is elitism". However, he agreed to do the job for one year. Now, Ivan is still Chair of NZMOC, and is happy to acknowledge that his knee-jerk reaction was wrong. He saw how NZMOC activities provide a challenge that is not available elsewhere to the most talented students of the country. Since that time, many good students have come through NZMOC activities into NZ University Mathematics Departments (and into related subjects). In the last twenty years, Ivan has spent much time trying, with limited success, to raise money and sponsorships for NZMOC. He is also Chair of NZMET (NZ Mathematics Enhancement Trust), which is largely involved with funding NZMOC.

Having been a student at VUW during the headship of J. T. Campbell, it is not surprising that Ivan developed major interests in the educational side of Mathematics. In the late 1980s, Ivan was the departmental member of a triumvirate who set up a joint Diploma in Mathematics Education, involving Auckland College of Education and the University of Auckland's Departments of Educations and Mathematics & Statistics. From the success of that venture grew the Mathematics Education Unit (MEU) founded in 1991, which Ivan headed for its first six years. Ivan was certainly the main player in the creation of the MEU. There is no doubt that he is extremely proud of the way the MEU has developed into a centre of teaching and research excellence. Alistair Scott saw the possibilities early on in the life of the MEU, and predicated (correctly) that Ivan would see this as his major contribution to the Mathematical Sciences in NZ.

Ivan has served in many university committees, starting with a Sub-Deanship of the Science Faculty, UOA. This culminated in Ivan's appointment as Director of the new School of Mathematical and Information Sciences in 1993–4, and at that time he was appointed Professor of Mathematics and Mathematics Education.

Since 1996, Ivan has been the Director of the NZ Study Centre of the University of California's Education Abroad Program (EAP). Now, each year about forty UC students spend a year as exchange students under EAP in a New Zealand university, and reciprocally a similar number of NZ students study at one of the nine UC campuses. This student exchange program is the largest and arguably the most prestigious of all such exchanges which involve NZ universities.

Recently, Ivan has become half-time professor in view of his approaching retirement. He now has more time to enjoy his three children and (currently) three grandchildren. This year, during his final sabbatical leave, Ivan and Barbara plan to celebrate their 40th wedding anniversary in North America, and I am sure that many of their colleagues and friends will share this celebration and give best wishes to the couple. Also, I am sure that many of us look forward to Ivan's continued service and contribution to the NZ mathematical community.

Jiling Cao
The University of Auckland