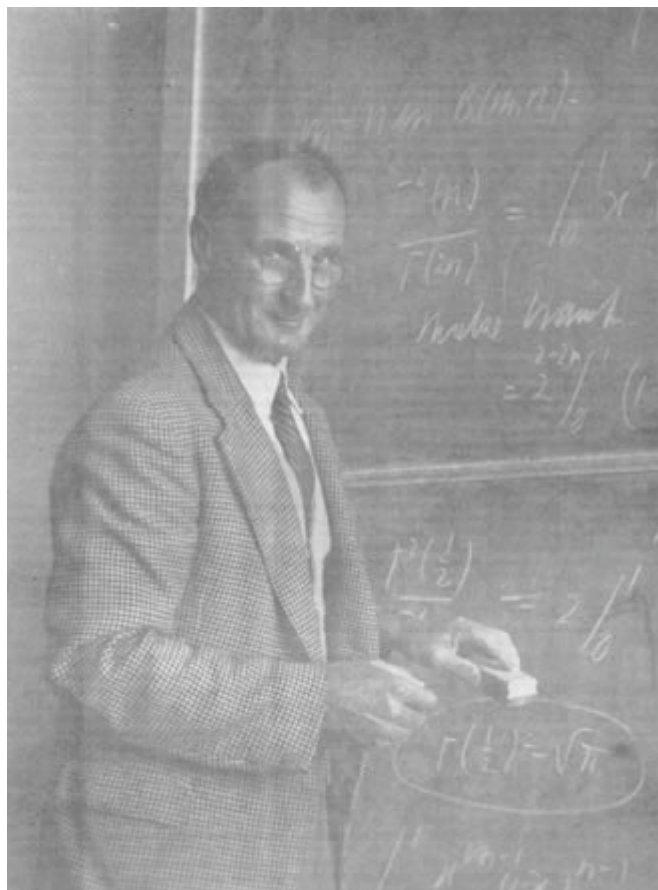


CENTREFOLD

Emeritus Professor J T Campbell



"In arithmetic there were numbers and one couldn't do much about them, but with algebra ... let x be Now that is something different, I have a say in this matter!"

So reminisces Emeritus Professor J.T. Campbell about the arousal of his interest in mathematics during his first term as a pupil at Gisborne High School, an interest that was to be developed, sustained and propagated through student years at Otago and Edinburgh Universities, through 34 years as a staff member of the Mathematics Department at Victoria University College in Wellington, subsequently Victoria University of Wellington, the final 17 years as Professor of Mathematics and Head of Department, and strongly into the present of his retirement years.

Campbell was born in 1906 at Kilmacolm, Scotland, a village on the Clyde, 40 miles west of Glasgow. His father, a Highlander and his mother, a Lowlander, emigrated to Gisborne in 1913 with James, their only child. Despite an early set back through his Scottish tongue being regarded as an inadequate vehicle for proper English Campbell prospered in school studies, successfully gaining a university entrance scholarship in 1924, in his sixth form year. It was results in English, Latin and French that secured him the 'lucky' position near the bottom of the ranked list. Results in Mathematics and Science were not so good although, in the case of Science, this may be explained by the fact that in that final year he planned his own Science

programme, including experiments, as formal teaching stopped at form five.

From Gisborne to Knox College, Dunedin, and Otago University in 1925. It was here that Campbell came under the influence of Professor R.J.T. Bell, one of two persons who exercised a formative and significant influence on his person and career, mathematically and otherwise. Campbell describes Bell as "the best teacher of mathematics I have known." During Campbell's first years as a student Bell was the only staff member in the Mathematics Department, lecturing five days a week, each day from 8.00 am to 1.00 pm. Bell himself was a Glasgow man and Campbell recalls his comment that if anything made his move to New Zealand worthwhile it was that he was able to launch A.C. Aitken on his mathematical career.

It was Professor A.C. Aitken who, likewise, was to exercise a major influence on Campbell's mathematical career. In 1928 Campbell completed his M.A. with First Class Honours in Mathematics. For a year or more he stayed on at Otago as a holder of the Ross Fellowship, a kind of residential tutorship at Knox College. Campbell used the time to broaden his background in mathematics. The mathematics course he had completed had covered some of the fundamentals of real analysis but little of complex analysis, apart from the algebra of complex numbers. He recalls of that time, "*Chrystal's two volume algebra provided plenty to think about.*" In 1930 Campbell took up the post-graduate scholarship he had won in Arts. Bell advised him against Cambridge (... *wisely, knowing me.*"), suggested Edinburgh, and put him in touch with Aitken. "*I became Aitken's first research student, and I could not have been more fortunate.*"

Under Aitken's supervision Campbell began working in matrix algebra but then shifted for his thesis work to a topic with a statistical flavour. Aitken, with his exemplary care of research students, judged that in this newer field there was a better chance of fresh results. At the end of the 1931/1932 academic year Campbell's Ph.D. thesis was accepted. It developed results about Charlier's Series of Type B (Charlier's Type A Series are Hermite Polynomials), subsequently published in articles in the Proceedings of the Edinburgh Mathematical Society.

Campbell stayed on at Edinburgh for a short time as an assistant lecturer, but his strong wish was to return to New Zealand, if possible, to a university post. So, in hope of being an applicant for a vacancy, when one arose, Campbell returned to New Zealand in the third term of 1933 to an appointment at Nelson College as an assistant housemaster and teacher. Early in 1934 Professor D.M.Y. Somerville of Victoria University College died and F.F. Miles, the one lecturer in the department was appointed to succeed him. The vacant lectureship was advertised and Campbell duly appointed. So began his association with Victoria University College and Victoria University which continued until his retirement in 1968, broken only by some four years service with the Royal New Zealand Naval Volunteer Reserve during the Second World War.

Prior to returning to New Zealand Campbell had made brief working visits to the Nautical Almanac Office at Greenwich, where L.J. Comrie, an Auckland, was in charge. Here he gained his first acquaintance with numerical analysis. Another such visit found him at Rothamstead Agricultural Research Station, where R.A. Fisher was then resident statistician, with J. Wishart as his assistant. Of more personal significance was his marriage in 1934 to Margaret Wilson of Nelson – an outcome of a meeting at the Canterbury Capping Ball earlier that year.

From the time of his appointment at Victoria in 1935 Campbell made the teaching of Mathematics his first priority. He comments of himself: "*I have no claim to have been a*

creative mathematician. The subject has always fascinated me, and still does, but the main drive has been teaching I believe." None the less he made a useful contribution to the development of statistics as a professional activity in New Zealand during the middle and late 1930's. He helped staff of Massey Agricultural College with the design and analysis of their experiments. He helped A.H. Ward (now Sir Arthur Ward), then newly appointed as Statistical Officer to the recently formed New Zealand Dairy Board, with the analysis of data relating to the sire improvement scheme for dairy herds and other projects. About this time it was proposed that Campbell take up a joint appointment with the Department of Scientific and Industrial Research as the nucleus for the formation of a statistical section within the department. In the event this did not come about, but Campbell's interest and involvement in this early development led to later association between Victoria and the Applied Mathematics Division of the D.S.I.R., when this was established following the Second World War. During his war service Campbell was attached to the Signals Section of the Naval Reserve and contributed to the solution of various problems. In later years he was one of the prime movers in the formation of the N.Z. Statistical Association.

But it was students and the teaching of mathematics that claimed Campbell's first love and it is the influence he exercised on successive generations of students that establishes him as one of the significant personalities of New Zealand mathematics. No doubt his lecturing style would be criticised by today's educational technocrats – his blackboard writing was often illegible and in the excitement of mathematical ideas worth sharing and insights to be imparted, his speech often over-ran itself. But it was the enthusiasm for mathematics that created the real presence of Campbell's lecture room and made it a living experience for so many. One former colleague writes: *"His great forte was "enthusiasm", which the humbler student remembered long years after the technical details were forgotten. The sheer physical vigour of his lecturing with material prepared in fine detail! The clouds of chalk, the repeated trips, blackboard to bench, full face to the class, the roving eye to catch a bewildered student, the quick 'ad lib' with alternative explanations to ease (or increase) that bewilderment."* Another former student and colleague recalls: *"I never remember him less than enthusiastic in front of a class. His patience in encouraging students into the subject was limitless; he was always happy to converse and debate or explain after the lecture, and his study offered the opportunity not only of continuing discussions on current material but of delving into the history and philosophy of mathematics from any viewpoint. He is a true evangelist: through him one connects with mathematics."*

Enthusiasm for mathematics, yes, always sustained by a wide and thorough reading of current mathematical books and publications, but, over the years, it was a deep-seated interest in the students under his care that became Campbell's distinguishing characteristic. Indeed in retirement he was able to say that important as the subject had been to him through the years yet, increasingly, it had been the means by which he had been able to sustain his relationship with students, and these relationships he valued most of all. In a lighter vein it is claimed by some that he was able to detect a growing romance between students before even the principals had given it conscious recognition. There is no doubt that through having no family of his own Campbell brought to his relationship with senior students and younger staff members a richness of interest and encouragement that has been a significant factor in the lives of many of them.

Appointed to the Chair of Mathematics in 1952 at Victoria University College, he served as Head of a rapidly growing department, four establishment positions in 1952, some 20 or so in 1968, including a second chair, in applied mathematics. As with his relationships with students, so also, those with his staff were characterised by care for their well-being,

encouragement and stimulation of their mathematical interests and whole-hearted support for their career progress. With-all there was a formality in personal relationships. Campbell was congenitally unable to address even the closest of his colleagues directly by their personal name. But it is typical of the man that one of the reasons he gave for his retirement some years before he had reached 65 years of age was that he was no longer happy to be running a department in which it was not possible to keep regular but informal contact with his staff members. The requirement of keeping staff members informed and in contact through written memoranda was the denial of a style of administration that he had practised successfully for many years.

Campbell's period as Head of Department and Professor saw the growth and development of mathematics departments in New Zealand from their close teaching and examining links within the college structure of the University of New Zealand to the independence of the several universities as they are today. He was cautious in course developments, although, as soon as opportunity allowed in the late 1940's he introduced a masters paper in matrix algebra. Given his interests, it is surprising that degree courses in statistics were not established at Victoria until the middle 1960's, although he had taught non-degree courses from before the war. Difficulties in recruiting staff over these years was undoubtedly one factor, but not the only one. In an article written in 1947 Campbell sets out his attitude then to mathematical developments at university level. He writes: "*... in fact, I consider that Stage I Mathematics should aim principally at presenting mathematics to the student as one of the great developments of the human intellect. ... if this view is accepted, then we shall have at most two years for the majority of Science students in which to make them mathematically literate. This time will be fully occupied with what is usually regarded as 'pure' mathematics and would allow of few excursions into the field of applied or quantitative mathematics. I consider that any attempt to increase the extent of such excursions would act detrimentally on the standard of work attained, and this we can ill afford.*" "*Where then the applicable mathematics? I would suggest that, in the main, it is best treated as a post-graduate study. This belief is fully confirmed by overseas experience.*" Mathematics in Research in N.Z., the N.Z. Science Congress, 1947.

During the 1960's, especially, Campbell appointed to his staff several former students, some of whom had gained graduate qualifications from overseas universities. While sometimes criticised for this on the grounds of building a department too inbred with Victoria graduates, there is no doubt that it was personal loyalty to Campbell that was a large factor in inclining these graduates to accept positions back at Victoria, when other opportunities were so easily come by in those days. One strong ambition Campbell had regarding his staff was the appointment of women members. In this he was successful with several appointments.

In later years in his university position Campbell played a respected role as a senior professor in the wider life of the University. But it is characteristic of the man that in the final two or three years of his work he withdrew from intensive involvement in wider committee work in order to concentrate on his work in the Mathematics Department, including most of all his teaching activities.

Combined with Campbell's commitment to teaching at the university level was his strong interest in mathematics teaching in primary and second schools and his desire to see those engaged in teaching at these different levels supporting each other in commonality of mathematical interest. An early attempt before the Second World War to bring this about was not successful, but renewed attempts in the 1950's led to the revitalisation of the Wellington Mathematical Association, of which Campbell is now a life member in acknowledgement of his pioneering and continuing work in its growth and development.

Another successful initiative during those years was his own participation, and the enabling of the participation of other university teachers, in the programmes of the Teachers Refresher Courses organised through the Department of Education. In these and other ways Campbell gave practical expression to his concern that universities and schools should come together in mathematics teaching.

Campbell came to retirement at the end of 1968 a little earlier than need be, but with a firm conviction that it was time for others to succeed him. His wife, Margaret, had at that time completed the second of two very effective terms as a member of the Wellington City Council. They shifted to Nelson where Campbell embarked on a new teaching career at the Nelson College for Girls. Again, how characteristic of him that he should write as follows of that experience: *"Two experiences of this period stand out in my memory. One was a 3A class—I have never been worked so hard as by that group – what enthusiasm and questioning. The other was a bursary class of four girls, one dropped out during the year. It was Mechanics and Statistics for bursary. The three girls, Vicki Mabin, Meryl Wastney and Anne Dean have gone on to careers in Applied Mathematics. Vicki Mabin recently completed a Ph.D. in Statistics in England and is back working in the A.M.D., Meryl Wastney went to Lincoln College and is now embarked in post-graduate work in the U.S.A."*

Mathematics requires those who are gifted and able to create its concepts and theorems and propagate them through the world-wide network of publications. Equally it requires those with Campbell's gifts to create mathematics as a living experience in the minds of those who seek from it understanding. Those many of us who have benefited from the exercise of that gift record our gratitude. One covets for all students of mathematics the experience of such a teacher.

Wilf Malcolm