

OBITUARY

HENRY MAURICE FINUCAN 1917-1983



Henry, as he was universally known within the mathematical fraternity, was born in Brisbane on the 6th July, 1917. From 1946 until his death on the 28th February, 1983, he was a member of the academic staff of the Department of Mathematics at the University of Queensland. He thus participated in and contributed to bringing about the great transformations that occurred in mathematics departments of Australian Universities in the decades following the end of the second world war.

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In writing about Henry it is no easy task to produce in a few pages an account which adequately summarizes his interests, contributions and achievements. It is hoped that the following gives sufficient recognition to one of Australia's most highly respected mathematical educators.

As a youth Henry attended St. Joseph's College, colloquially known (from its location) as Gregory Terrace. His success at the College was outstanding and in 1934 he was awarded an Open Scholarship to the University of Queensland. From 1934 to 1937 he undertook a B.A. degree specialising in mathematics. He gained a number of prizes and scholarships and graduated with first class honours in mathematics. His academic performance throughout the four years was such that he was awarded a Gold Medal in 1937, one of only two awarded by the University in that year. He was chosen as the 1938 Queensland Rhodes Scholar and was accepted into Balliol College, Oxford. While waiting to depart for Oxford, Henry undertook some teaching at the University of Queensland. At Oxford he graduated with first class honours in mathematics with distinction in probability and statistics. Immediately on completion of his studies at Oxford he spent two terms at Cambridge University studying general biometrics and, particularly, the design of agricultural experiments. He returned to Australia towards the end of 1940 and from October 1940 until February 1942 was employed as a biometrician in the Queensland Department of Agriculture and Stock.

In March 1942 Henry enlisted in the army and saw service in Australia, New Guinea and Borneo. From March to June 1942 he was a gunner (anti-aircraft). In July 1942 he was promoted to Sergeant and became an instructor in the Army School of Radiophysics. In September 1942 he was commissioned with the rank of Lieutenant and in March 1944 was transferred to the Operational Research Section. He was demobilised in October 1945, at which time he held the rank of Captain.

While awaiting demobilisation he applied for and was appointed to a lectureship in the Department of Mathematics at the University of Queensland, the appointment dating from February 1946. The requirements of the position included a specialised knowledge of statistics. Henry was promoted to Senior Lecturer in 1952 and to Reader in 1959.

In 1962 he married Meg Ritchie.

It is difficult these days to appreciate the situation in which Henry found himself in 1946 as a young lecturer in mathematics at the University of Queensland. Universities had certainly been greatly neglected during the war years, but even prior to 1939 their funding was inadequate. Consequently when, at the end

of the war, student numbers were vastly inflated by returning service personnel, staff and accommodation were insufficient to cope adequately with pre-1939 numbers, let alone the increased enrolments. During the early years the situation was made more complicated by the move of the University from its site in the central city area to St. Lucia in the western suburbs. This led, for a period, to a split campus with all the problems which that involved. Although Henry was appointed to handle the statistics area, staffing difficulties meant that he, like all members of the staff at that time, taught in many areas outside his own specialisation and this for a large number of contact hours. In 1955 E. F. Simmons retired as Professor and Head of the Department of Mathematics and C. S. Davis succeeded him. The department thereupon changed markedly. Syllabuses were modernised and expanded, prospective honours students separately streamed from early years, tutorials introduced and much more emphasis given to research. Henry, by now a senior member of the staff, played a full and important role in these changes.

Attention was paid to mathematical education in, and liaison with, the schools. For many years Henry was Chief Examiner for the main mathematics subject in the matriculation examination and he would hold meetings each year with teachers to discuss the paper and student errors. He was involved in the introduction of a Mathematics Competition for Schools, later taken under the umbrella of the Association of Mathematics Teachers, but he was responsible for the setting of the questions and the evaluation of the solutions until his death.

Henry had both a broad and deep knowledge of statistics. By the beginning of the 1960's, with an easing of the staff shortage, he was able to concentrate his teaching in this area and to spend time on research. Old habits, however, die hard and he was always willing to lecture for many more hours than was the departmental average. Henry's reputation as a lecturer was widespread. He had his own method of teaching, together with his own order of introducing topics. Frequently the order he used was contrary to standing practice but there are a large number of graduates who can testify to his success. Henry's door was always open for statistical consulting, a time-consuming activity. Polite and courteous as always, Henry was willing to help all comers. He established a personal association with the Department of Statistics of University College, London, where he spent considerable time in each of four extended periods of study leave, between 1963 and 1976.

Henry played his part in professional societies. He was a foundation member of the Australian Mathematical Society and served several periods as its business manager. He was a member of the Society's Council 1980-81. He was president of the Australasian Region of the Biometrics Society for 1974-75. On the foundation of the Queensland branch of the Statistical Society of Australia in 1981, Henry became the secretary and a year later, the president.

Although his academically related endeavours took a large amount of time, Henry was able to engage in a variety of other activities. He was keen on sport. In his student days he had established his prowess in a number of areas, although tennis was his favourite. In excess of six feet in height and of fine physique, Henry was an imposing figure on the sports field. He had an enviable reputation as an after-dinner speaker. His speeches were always witty, relevant and not too long. He had a love of words and etymology; this ensured that one always had a conversation with him, never just a talk. He had a working knowledge of about half-a-dozen foreign languages.

Henry did more than his share of work on staff matters, serving as president of the University Staff Association in 1960-61, and when the University of Queensland Club was established in 1965 he became its first president. He was an expert on various voting methods and was always in demand to act as returning officer, especially if proportional representation was involved.

In 1949-50 Henry obtained a reputation in the general community when he was called upon to give evidence to the Royal Commission enquiring into matters relating to the State Lottery. Henry's evidence concerned the randomness of winning numbers. A side-effect of this was that from then on, Henry received many requests from outside the University for assistance in a range of mathematical problems. Henry replied to every request with typical courtesy and with all the assistance he could render.

Sadly, in the early 1980's his health deteriorated. A heart complaint, which had been present for some years, reached the state where in January 1983 an emergency operation became necessary. It was thought that the operation had been a success and he was discharged from hospital early in February 1983. Unfortunately he had to return not long afterwards and he died on 28th February, 1983.

Henry's mathematical publications fall naturally into two groups. One group consists of his research papers and the other, reflecting his great love of teaching, consists of mathematical articles and notes aimed at teachers.

His published research (papers [1]–[12] in the bibliography) mirrored his very special, and some might say unusual, statistical interests. In the main, each of his topics was of a self-contained nature and in many cases the topic had been around for a long while. In producing his solution to a particular problem, Henry would simultaneously pull together any known results relating to the problem, showing their equivalence where this was relevant and resolving any apparent contradictions in other cases. Thus, the short publication [1] dealt with the mode of a frequency distribution which has been grouped into classes. There was, at the time, disagreement in text-books as to how the point mode of the distribution should be estimated. Henry provided evidence that one of the two proposed

procedures was superior to the other. In [2], a much more substantial paper dealing with the mode of a multinomial distribution, he collected together the previous work on the problem and proposed a procedure for locating possible modes in an efficient way, and also indicated possible configurations of joint modes. His paper [3] on kurtosis was vintage Henry. He noted that the original interpretation of kurtosis was as an indicator of a distribution having a “prominent peak and a prominent tail”. Henry recorded that he had rediscovered this original interpretation, showed that such curves have high fourth moments and commented on what he considered to be “the recent decline of the correct classical interpretation”. In [4] he considered an aspect of a well known statistical problem of the two regression curves. Although he dealt primarily with the bivariate case, he subsequently considered analogous results for three random variables. Paper [5] was concerned with deriving formulae for sampling moments in simple random sampling from a finite population. The problem had been considered previously by several authors and a number of methods for obtaining the moments were known. Henry and his co-authors considered that their method (which used a basic polynomial dependence on sample size) was the simplest for the lower order moments and provided the smoothest approach to the multivariate case.

The blood-testing problem [6] entails identifying the infected members of an assemblage by testing in groups and then testing individual members of those groups found to be infected. This can be more economical than testing each individual member of the whole assemblage. Henry provided an algebraic treatment and then expanded his results to deal with a more general situation. The paper [7] considered a problem in operations research. Very briefly, a beam is to be cut to a specified length but it is often convenient to make first a preliminary rough cut which leads to a portion of longer length than is required. The precise cut is then made on this portion. The problem is to control the rough cut so as to minimise total waste. Henry gave an analytical solution under less restrictive conditions than a previous graphical result published some 25 years earlier. The joint paper [8] elucidated the paradox that while the mean time between collisions for a molecule in a gas is t (say), when the molecule is observed at random the mean time between collisions is $2t$. The four remaining papers [9], [10], [11] and [12] are, in their own way, further examples of Henry's interests and ability.

The second group of Henry's published contributions consists of mathematical articles and notes on a wide variety of topics, published, in the main, in the *Australian Mathematics Teacher* (papers [13]–[43]) and the *Mathematical Gazette* (papers [44]–[60]). Just a few of the many topics covered are the following: the teaching of introductory theorems on the ellipse [17]; finding moments of inertia without using calculus [44]; use of a slide rule in approximating Stirling's formula for $x!$ when x is fractional [45]; a note concerning quadratic equations [51]; a rule

for calculating stationary probability vectors for Markov chains [54]; the vector triple product [58]. The articles and notes illustrated different methods of dealing with traditional topics, or pointed out pitfalls and, in some cases, difficulties or errors in existing or proposed techniques. No doubt some of his suggestions were considered unorthodox (as, indeed, were some of his teaching methods at the University) but they show very careful thought and an agile mind. Perhaps the best known of all the articles and notes is [52] which dealt with the derivation of the formula for homogeneous products, ${}_n H_r$. (For example, this paper was cited by W. Feller in his book *An Introduction to Probability Theory and its Applications*, Volume 1, (John Wiley & Sons, 3rd Edition (1967) page 28).)

It is indeed true that no person on our earth is essential; the world continues to revolve with or without them. But there are some people who, because of their innate ability and knowledge, their kindness and their willingness to help others, make life that much more pleasant for their friends, colleagues and students. Henry was one such person.

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