Obituary: **RICHARD BELLMAN**

It is with great regret that we report to our readers the death of Professor Richard Bellman in Los Angeles on 19 March 1984. He had served as Editor of the *Journal of Applied Probability* since its inception in 1964, and his broad expertise in stochastic processes, control theory, optimization and systems analysis was of great assistance to the journal, particularly in its formative years.

Richard was born in Brooklyn, New York City on 26 August 1920 into a Jewish family of agnostic tendencies; his paternal and maternal grandfathers had emigrated from Russia and Poland respectively to establish themselves in the United States. His father was ruined by the Great Depression, but despite many hardships Richard succeeded in obtaining a solid college education first at the City College of New York, and later at Brooklyn College where he was awarded his BA in 1941. In his autobiographical essay 'Eye of the Hurricane' which became available in typescript form in 1978, he describes vividly his early experiences, his voracious reading, his love of the New York museums, his delight in the 42nd Street Public Library, and his first encounters with mathematics starting with Schultze's *Elementary and Advanced Algebra* which he worked through at the age of eleven.

Richard was a brilliant student; after obtaining his MA from the University of Wisconsin in 1943, he worked at Princeton under Solomon Lefschetz and was awarded his Ph.D. in 1946 for his research work, later published as the *Stability Theory of Differential Equations*, issued as a book by McGraw-Hill in 1953. He served briefly as Assistant Professor of Mathematics at Princeton University between 1946 and 1948, and later as Associate Professor of Mathematics at Stanford University from 1948 to 1952. In 1953, he joined the RAND Corporation, Santa Monica, and after 12 very active years, during which he pioneered the discovery of dynamic programming, he was appointed Professor of Mathematics, Electrical Engineering and Medicine at the University of Southern California, Los Angeles. He remained in this post until his death; in recent years, his work had concentrated mainly on the application of mathematics to biology and medicine. Throughout his career, Richard published extensively: he wrote over 620 papers, 41 books, and 7 monographs several of which were translated into Russian, Japanese, Spanish, Polish, German, Romanian, Italian and Chinese.

Richard Bellman was the recipient of many honours, among them the first Norbert Wiener Prize in Applied Mathematics of the American Mathematical Society and the Society for Industrial and Applied Mathematics in 1970, the John von Neumann Theory Award of the Institute of Management Sciences and

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the Operations Research Society of America in 1976, the Gold Medal of the IEEE for Dynamic Programming in 1977 and the Heritage Medal of the American Council for Control in 1983. He was awarded honorary doctorates by the University of Aberdeen in 1973, his own University of Southern California in 1974 and the University of Waterloo in 1975. He was elected to Fellowship of the American Academy of Arts and Sciences in 1975 and Membership of the US National Academy of Sciences in 1983.

It was Richard Bellman's conviction that mathematics (including probability) should be concerned as much with applications as with theoretical developments, a view which he shared with the Editors of the Applied Probability journals. His own work achieved an exciting fusion of both the theoretical and applied strands in mathematics.

We shall all miss Richard greatly, not only as an outstandingly creative mathematician but also as a human being of courage and integrity.

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