

## ROBERT EDWARD BELL, 1918 - 1991

Bob Bell, as he was known to his many friends and colleagues, was a world renowned nuclear physicist. He belonged to the first generation of post-war physicists who had helped place Canadian nuclear research at the center stage of international nuclear physics. He was known for his pioneering experimental work on nuclear interactions, his invention and exploitation of the method for direct measurements of very short nuclear transition life-time, and his discovery of delayed proton radioactivity. At the peak of his scientific career, he was appointed the Principal and Vice-Chancellor of McGill University when leadership was needed to guide the university through the difficult turbulent times of the Vietnam war era. He was a scholar with a sharp mind and a quick but gentle wit.



Robert E. Bell

Born of Canadian parents on November 29, 1918 in New Malden, England, he grew up in Ladner B.C., and attended UBC on scholarships. He graduated with Honours in Mathematics and Physics in 1939 and obtained an M.A. in Physics in 1941. When World War II broke out, like many of his contemporaries, he joined the radar research effort at the National Research Council (NRC) in Ottawa. He worked on many aspects of antenna design and developed a K-band scanner. His flair for research was quickly recognized. The radar work brought him into contact with J.S. Foster, who was doing similar things at the Radiation Laboratory at the Massachusetts Institute of Technology (M.I.T.). Bob Bell was to recall amusingly that, on his first meeting with Foster, while looking at the working of the Foster Scanner on the roof of the Radiation Laboratory at M.I.T. and in response to a witty remark from Bell, Foster suddenly threw up his arms and emitted one of his famous laughs, almost knocking Bell off the edge of the parapet very nearly making that encounter their first and last. Fortunately that was, instead, the beginning of their long lasting friendship which helped bring Bell to McGill later.

When the war ended in 1945, Bell enrolled in the Ph.D. program in Foster's Radiation Laboratory at McGill and carried out his research at Chalk River under the supervision of Dr. Lloyd Elliot. He received his Ph.D. in 1948 for a piece of classic research: measurement of the deuteron binding energy. The subject of proton-neutron interaction was of immense interest at the time. He joined the staff at Chalk River upon his graduation. It was there he made the first observation of the Doppler effect on the nuclear transition. His instinctive flair for electronics and electronic instrumentation led him and Drs. R.L. Graham

and H.E. Petch to the invention of the direct electronic timing technique, the so-called "fast-slow coincidence system", for nuclear transition life-time measurements in the nanosecond and subnanosecond time range. This invention and its subsequent exploitation made him a world expert on the subject.

The McGill cyclotron was fully commissioned in 1949 and the field of nuclear research at accelerator energies was wide open for exploitation. In 1952 it was arranged to have Bob Bell on loan to McGill so that he could take advantage of the research opportunities offered by the new facility. He joined the staff at McGill in 1956 as Associate Professor. By then he was well recognized, and was already elected Fellow of the American Physical Society (1954) and Fellow of the Royal Society of Canada (1955). He succeeded J.S. Foster to the Rutherford Chair in Physics and the Directorship of the Radiation Laboratory at McGill in 1960. Bob Bell's scientific career was crowned with the discovery (with student R. Barton) of a new form of radioactivity---the delayed proton, in 1963. He and his student, J.C. Hardy, subsequently developed this work into a powerful spectroscopic tool for the study of nuclear isotopic analog states. With his induction into the Royal Society (London) in 1965, the award of the Canadian Centennial Medal (1967) and the CAP Medal for Achievement in Physics (1968), he was rewarded for his work.

His meteoric rise in fame in the scientific world coincided with the tumultuous changes in society, particularly on campuses across North America. Many universities were looking for new leadership to navigate them through the turbulence. The Board of Governors of McGill found it in one of its own eminent scholars, when, on June 1, 1970, Bob Bell was appointed Principal and Vice-Chancellor. He came to the Principalship with impeccable scholarly credentials. He applied scientific logic to university administration with great success. During his nine-year tenure in the post, he restored harmony, trust and financial solvency to the campus. He redirected the energy often wasted on futile academic debates back to the discovery of new knowledge. It was fascinating to watch him using his sharp mind and quick wit to bring a convoluted academic debate down to earth. Many McGill colleagues still remember vividly how refreshing it was to listen to their Principal delivering his "state of the union" addresses in the format of plenary talks in scientific conferences. He was the last Principal of McGill to be appointed with

unlimited term and voluntarily subjected himself to the "new rule" of five-year term which the Board of Governors had adopted at his urging. Upon his retirement from McGill in 1983, he took on the Directorship of the Arts, Science and Technology Center in Vancouver for two years, laying the foundation for its eventual evolution into an interesting institution called Science World. Unfortunately, he died at the age of 73, after a long and difficult illness.

Bob Bell was a modest man with an unassuming manner, and had a tendency to shun formality. He was generous, be it to praise another's accomplishment or to help a friend in need; he always had something good to say about his adversaries. He loved jazz music and shared an appreciation for English literature with his wife, Jeanne Atkinson, who was a Shakespeare Gold medalist graduate

from McGill. He was fond of rhymes and word play, and wrote several humorous poems. He was a cultured man.

In addition to the honours and awards already mentioned above, he received a great many others. Just to give a sample of them: President of the Canadian Association of Physicists (1965-66); honorary degrees from ten major Canadian universities; Companion of the Order of Canada (1971); Queen's Silver Jubilee Medal (1978); President of the Royal Society of Canada (1978-81); Centennial Medal of the Royal Society of Canada (1982). He held membership in a great many prestigious organizations. His long list of honours, awards and appointments identifies a remarkable man.

S.K. Tommy Mark, McGill University

## BOOKS RECEIVED / LIVRES REÇUS

The following books have been received for review. Readers are invited to write reviews, in English or French, of books of interest to them. Books may be requested from the book review editor Erin Hails by email at ehails@physics.uottawa.ca or c/o CAP Office, Suite 112, McDonald Building, 150 Louis Pasteur Avenue, Ottawa, Ontario K1N 6N5. Tel: (613) 562-5614; Fax: (613) 562-5615.

Les livres suivants nous sont parvenus pour la critique qui peut être faite en anglais ou en français. Si vous êtes intéressés de nous communiquer une revue critique sur un ouvrage en particulier, vous êtes invités à vous mettre en rapport avec la responsable de la critique des livres, Erin Hails par courrier électronique via ehails@physics.uottawa.ca ou a/s de l'ACP, bureau 112, Immeuble McDonald, 150 rue Louis Pasteur, Ottawa, Ontario, K1N 6N5. Tél. : (613) 562-5614. Télécopieur : (613) 562-5615.

### GENERAL INTEREST

**Fractography: observing, measuring and interpreting fracture surface topography**, D. Hull, Cambridge University Press, 1999; pp. 358, ISBN 0-521-64684-7 (pbk), 0-521-64082-2 (hc); Price: \$44.95 (pbk), \$100.00 (hc).

**An Introduction to Mathematical Physiology & Biology**, J. Mazumdar, Cambridge University Press, 1999, pp: 224, ISBN 0-521-64675-8 (pbk), 0-521-64110-1 (hc); Price: \$29.95 (pbk), \$74.95 (hc).

**Physics in the Real World**, J. McKee, Minerva Press, 1999, pp: 85, ISBN 0-75410-816-3; Price: \$8.99 (pbk).

**The Formation of Galactic Bulges**, Edited by C. Carollo, H. Ferguson and R. Wyse, Cambridge University Press, 2000, pp: 207, ISBN 0-521-66334-2; Price: \$69.95 (hc).

**Solitons: Differential equations, symmetries and infinite dimensional algebras**, T. Miwa, M. Jimbo and E. Date, Cambridge University Press, 1999, pp: 106, ISBN 0-521-56161-2; Price: \$39.95 (hc).

**Mother Nature: A History of Mothers, Infants, and Natural Selection**, S. Blaffer Hrdy, Random House of Canada,

1999, pp: 723, ISBN 0-679-44265-0; Price: \$49.95 (hc).

**Black Holes, Wormholes and Time Machines**, J. Al-Khalili, IOP Publishing, 1999, pp: 258, ISBN 0-7503-0560-0, Price: \$16.50 (pbk).

**Seven Wonders: Everyday Things for a Healthier Planet**, J.C. Ryan, Random House of Canada, 1999, pp: 98, ISBN 1-57805-038-3; Price: \$19.95 (pbk).

**Faster: The Acceleration of Just About Everything**, J. Gleick, Random House of Canada, 1999, pp: 324, ISBN 0-679-40837-1, Price: \$37.00 (hc).

**A Radar History of World War II: Technical and Military Imperatives**, L. Brown, IOP Publishing, 1999, pp: 543, ISBN 0-7503-0659-9, Price: \$38.00 (hc).

### UNDERGRADUATE TEXTS

**Lectures on Natural Philosophy**, Edited by D. Weaire, P. Kelly and D.A. Attis, IOP Publishing, 2000, pp: 404, ISBN 1-898-706-17-4, Price: \$59.00 (pbk).

**Seeking Ultimates: An Intuitive Guide to Physics**, P.T. Landsberg, IOP Publishing, 1999, pp: 293, ISBN 0-7503-0657-2, Price: \$32.00 (pbk).

**Measurement, Instrumentation and Experiment Design in Physics and Engineering**, M. Sayer and A. Mansingh, Prentice-Hall of India Private Ltd., 1999, pp: 359, ISBN 81-203-1269-4, Price: \$19.50 (pbk).

**The World in Eleven Dimensions: Supergravity, Supermembranes and M-theory**, Edited by M.J. Duff, IOP Publishing, 1999, pp: 513, ISBN 0-7503-0672-6 (pbk), 0-7503-0671-8 (hc); Price: \$49.00 (pbk), \$130.00 (hc).

### GRADUATE TEXTS AND PROCEEDINGS

**CP Violation**, I.I. Bigi & A.I. Sanda, Cambridge University Press, 1999, pp: 376, ISBN 0-521-44349-0 (hc); Price: \$95.00.

**Beyond Conventional Quantization**, J. Klauder, Cambridge University Press, 1999, pp: 311, ISBN 0-521-25884-7 (hc); Price: \$85.00.

**From Physics to Philosophy**, J. Butterfield & C. Pagonis, Cambridge University Press, 2000, pp: 229, ISBN 0-521-66025-4 (hc); Price: \$59.95.

**Spectral Asymptotics in the Semi-Classical Limit**, M. Dimassi & J. Sjöstrand, Cambridge University Press, 1999, pp: 220, ISBN 0-521-66544-2 (pbk); Price: \$39.95.