

## LETTERS / LETTRES

## NOBEL LAUREATES

(November/December 1999 issue of *Physics in Canada*)

I enjoyed the recent article in PiC of Nobel Laureates with Canadian connections. I was surprised, however, that there was no mention of Myron Scholes (economics 1997). Although a winner in economics, Scholes has been a great inspiration to the legion of physicists who are now working in finance. All of these rocket scientists are familiar with the Black-Scholes equation for risk management, a mathematical theory that has made (and lost!) billions. Scholes was born in Timmins, Ontario and studied at McMaster University before making the journey southward.

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## EASE HIS PAIN: JOSEPH GRAY OR ARTHUR COMPTON

(January/February 2000 issue of *Physics in Canada*)

The article by Innes K. MacKenzie in *Physics in Canada* (Vol. 56, p. 43) provokes me to offer a comment on the background behind the confirmation of DeBroglie's equation relating wavelength with the momentum of travelling particles, and the fact that important roles were played by people who are scarcely, if ever, mentioned, one of them a Canadian.

My Professor of Physics when I was an undergraduate was G.P. (Sir George) Thomson, who is credited with one of the first demonstrations of the phenomenon of electron diffraction. Thomson's main interest had been the conduction of electricity through gases, for which his father (J.J. Thomson) was awarded the Nobel Prize (although it was said that G.P. had done most of the work!). While at the University of Aberdeen in 1925, G.P. had a young graduate student named Reid, and suggested that he insert a piece of celluloid into the electron beam in a tube similar to a Crookes Tube, and see what happened. It produced rings corresponding to a Debye-Scherrer pattern on the screen. The preliminary results were published jointly by Thomson and Reid (*Nature*, 119, p. 890, 1927) and more definitively by Reid alone (*Proc. Roy. Soc. A* 119, p. 663, 1928). However, Reid was, it seems, a keen motorcyclist, and within just a few days of the appearance of the Royal Society paper, he had a collision and was killed. But Thomson later received half the Nobel Prize for the discovery.

Nobody ever mentions Reid, although G.P. himself, when he lectured to us on this subject, always spoke of "Mr. Reid and I".

While Thomson and Reid were working in Aberdeen, Davisson and Germer were working in the Bell laboratories in New Jersey, where they had just recruited a young Canadian named Chester Calbick. I had come to know Chester through conferences on electron microscopy in the 1960's, establishing a friendship cemented when we and our wives shared a compartment on a very uncomfortable train journey between Prague and Vienna in 1964. Calbick grew up in Nelson B.C. (where he learned to drive on the left hand side of the road!), and ultimately achieved a Ph.D. from Toronto, from whence he went to the Bell Labs.

In 1926, Davisson and Germer were attempting to demonstrate electron diffraction using a low energy beam and a reflection grating (a nickel crystal), collecting the scattered electrons with a Faraday Cylinder. They made scans, attempting to find a minimum between the central maximum of the diffusely scattered electrons, and where they calculated the first order diffraction maximum to lie, and failed. Frustrated, they went off to have coffee, leaving Calbick alone with the equipment. It seems he had been virtually only an observer in the experiment, and not really integrated into the discussions, but while Davisson and Germer were at coffee, he jacked up the voltage of the accelerator toward its maximum, and made another scan, demonstrating a minimum in the right place. When Davisson and Germer returned, Calbick said to them "Here - is this what you were looking for?". I don't remember exactly what Calbick said about what happened then, but I think they went and consumed something more interesting than coffee! Their results were published in *Phys. Rev.* 30, p. 707, 1927. Davisson later received the other half of the prize along with Thomson.

Having told me this story, I asked Chester "Don't you feel at least a bit miffed that you did not get even a mention in this discovery?" He replied "Naw - I really had no idea what I was doing". However, although I feel he was being overly modest, he did go on to say he thought Germer was short changed, in that only Davisson shared the prize with Thomson.

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## ERRATUM

On page 7, in the January / February issue of *Physics in Canada*, we published a list of the recipients of the Premier of Ontario's Research Excellence Awards. The list was compiled from an announcement received from the Premier's Office. Unfortunately, we were not aware that other CAP members had received similar awards in earlier rounds. These include:

Z.Y. Jeff Chen; statistical physics of biological macromolecules.  
Marc Michael Dignam for theoretical investigations in semiconductor nanostructures.  
John R. Dutcher for investigation of the mobility and thermal stability of polymer molecules confined to thin films.  
Michel J.P. Gingras for theoretical investigation of the influence of random

disorder on superconducting and magnetic systems.  
David Holdsworth - (no details available at this time).  
André Longtin for biophysical and computational studies of sensory information processing using an electric fish model.  
Donna Strickland; coherently controlling dissociation of molecules.  
Christina Diana Wilson; case studies in the Milky Way and other galaxies.