



Deep River Science Academy

Summer Lecture Series

Co-sponsored by
Canadian Nuclear Society
Chalk River Branch



Using Evolution in the Lab – No Longer a “Theory”

The Chalk River Branch of the Canadian Nuclear Society and the Deep River Science Academy are pleased to welcome Dr. Paul Unrau of the COSRAY Technology Centre, Deep River, at their next seminar on Thursday, July 13, 2006. Paul will speak on Using Evolution in the Lab – No Longer a “Theory”.

Darwin’s theory of evolution is sometimes criticized or rejected because it has not attained the status of a law. However, history has shown many examples of questionable theories that were later proven to be true, such as theory of the earth being round, and the earth revolving around the sun.

One step in the progression of a theory to becoming a law may be when the theory leads to experimental procedures or tests based upon the theory. An example of this progression is the development of nuclear reactors, years after the theory of the atom was first proposed. Similarly, experimental procedures are being used based on the elements of the theory of evolution, and these procedures constitute a test of the theory.

Stripped to essentials, evolution demands random variation as one step, and differential reproduction or selection as the other step. This simple protocol can be used in the lab to evolve biomaterials with new or unpredicted properties. Experiments based on this evolutionary law involving protein, RNA, and DNA show that materials can be evolved in the lab to fit new criteria. The only intelligent intervention is defining the desired end product, and devising the selective protocols to attain that end.

Given the 3.5 billion years of life on earth, and the present highly-evolved organisms inhabiting the earth, it is obvious that similar evolutionary processes will occur wherever conditions suitable for life are found and enough time is allowed to elapse.

Born in Saskatoon in 1942, Paul grew up in Edmonton after a stay in Pullman, Washington. Paul earned a B.Sc. degree (with honours) and a M.Sc. in Genetics from the University of Alberta. He earned his Ph.D. from University College, London, UK, also in Genetics. Afterwards, he worked as a post-doctoral researcher in Oxford and then in London at the National Institute for Medical Research, studying the genetics of recombination and recombination repair of DNA damage. Paul started working for AECL in 1975 as a Research Scientist in the Radiation Biology branch, studying ionizing radiation effects in micro-organisms mutant in various DNA repair pathways.

Paul retired in 1998, then bought and developed COSRAY Technology Centre with his wife, Ann. They presently provide West Nile virus testing to Ontario health units on mosquitoes identified by collaborator Gerry Chant. Paul is interested in the uses of evolution as a practical lab procedure, suggesting that evolution has advanced from a “theory” to a practical lab protocol.

Dr. Paul Unrau
COSRAY Technology Centre, Deep River

6:30 PM
Thursday, July 13, 2006

Bennett / Mackenzie Room, J.L. Gray Centre
(Entry via rear security entrance)

Refreshments will be served – ALL ARE WELCOME

Further information: Blair Bromley at 584-8811 Ext. 3676, or 584-1518