

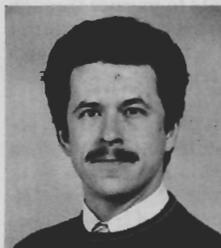
U SPECTRUM

A Newsletter for Alumni and Friends of the Department of Physics and Astronomy of the University of Nebraska-Lincoln

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M. Eugene Rudd, Editor

Ducharme Joins Department



Stephen P. Ducharme

In accordance with Departmental goals to increase the number of experimental faculty in general and to strengthen the condensed matter physics group in particular, a fifth experimental condensed matter physicist, Assistant Professor Stephen P. Ducharme, was hired last January. His appointment is two-thirds in the Department and one-third in the UN Center for Materials Research and Analysis (CMRA). Set-up funds for his new laboratory for studies of nonlinear optical polymeric and crystalline materials will exceed \$220K, funded mostly by the Nebraska Research Initiative through

the CMRA.

Ducharme received his B.S. degree in physics from the University of Lowell (Massachusetts) in 1981. His M.S. (1982) and Ph.D. (1986) degrees were received from the University of Southern California, where his thesis on "Photorefraction in BaTiO_3 " was supervised by J. Feinberg. From 1986-88, Ducharme was a postdoctoral research associate at the University of Utah studying microwave and radio frequency absorption in perovskite superconductors and photodarkening in chalcogenide glasses. He then took a Visiting Scientist position during 1988-90 at IBM Almaden Research Center, where he worked on the development of organic photorefractive, electro-optic and nonlinear optical materials. At UNL Ducharme's plans include the development, improvement, and investigation of polymer photorefractive materials as possible replacements for currently available inorganic photorefractive crystals. [See also *Research Highlights* on page 4.]

Scion from Newton's Apple Tree Planted at UNL

William Stukeley wrote about his friend, Isaac Newton, "... the notion of gravitation came into his mind. It was occasion'd by the fall of an apple as he sat in a contemplative mood." Newton himself wrote about his time at home in Woolsthorpe, England during the plague of 1665-66, "I began to think of gravity extending to the orb of the moon, and from Kepler's rule I deduced that the forces which kept the planets in their orbs must be reciprocally as the squares of their distances from the centers about which they revolve: and thereby compared the force requisite to keep the moon in her orb with the force of gravity at the surface of the earth." These are the sources of the famous legend in which Newton formulated the law of gravitation after watching an apple fall from his tree.

The very tree in Newton's farmyard which presumably played such an important role in the Newtonian Revolution now has an "offspring" just south of Behlen Laboratory. It all started some years ago when Edward Lyman, a retired physician in Lincoln, read a biography of Newton and wondered what variety of apple tree was involved in this momentous discovery. He and his friend Joseph Young, a retired UNL horticulture professor, were able to make contact with Dr. Richard Keesing, a physicist at York University in England who had made a study of Newton and had carefully researched the apple tree story. In his investigation of the story, Keesing had contacted a descendant of Edmund Turnor, the one who had purchased the Woolsthorpe estate shortly after Newton's death. The estate had remained in the Turnor family until recently. From early engravings of the estate obtained from the Turnor family, Keesing was able to identify an apple tree, still flourishing at Woolsthorpe, which closely resembled the one there at the time of Newton.

A graft of the tree had been made around 1800 and from that a cutting was made and transported to Lincoln a few years ago. After the required quarantine period, it was ready to be planted in its permanent spot south of Behlen Laboratory. This was done at a ceremony on April 4, 1991, attended by Professor Keesing and several University dignitaries. A plaque was placed by the tree which reads:

In 1991 this scion from Sir Isaac Newton's famous apple tree at his birthplace in Woolsthorpe Manor, Lincolnshire, England, was presented to the University by Dr. Richard G.W. Keesing of the Physics Department of the University of York, England. This tree is of the ancient cultivar, Flower of Kent.

Following the planting, a program was held in Brace Auditorium during which the horticulturists described how the tree came to Nebraska followed by a fascinating lecture presented by Keesing entitled "The Story of Isaac Newton's Apple Tree." In the evening he gave another lecture: "The Incomparable Genius of Isaac Newton."

The visit by Keesing was sponsored by the Departments of Horticulture, Physics and Astronomy, and Classics, by the Nebraska State-wide Arboretum, and by the University Research Council. Similar scions from Newton's apple tree may be purchased from the Horticulture Department. Contact A. F. Starace for details.



The planting of Newton's apple tree south of Behlen Laboratory. Left to right: Joseph Young of the Horticulture Department, Anthony Starace, Physics and Astronomy Chairman, and Richard Keesing from York University in England.