

3 Cornellians Share Buckley Prize



Robert C. Richardson, left, and David M. Lee, professors of physics in the Cornell Laboratory of Atomic and Solid State Physics, examine a helium dilution refrigerator similar to the one used in their 1971 discovery of the superfluid phases of helium 3.

Discovery Was Made 'by Accident'

Three researchers who discovered the superfluid phases of helium 3 "by accident" in a Cornell Laboratory in 1971 will share the 1981 Oliver E. Buckley Solid State Physics Prize of the American Physical Society.

The prize, considered to be the premier award in the field of condensed matter physics, will go to David M. Lee and Robert C. Richardson, both professors of physics at the Cornell Laboratory of Atomic and Solid State Physics, and to Douglas D. Osheroff, a Cornell graduate student at the time of the discovery and now a research scientist at Bell Laboratories, Murray Hill, N.J.

Lee, Richardson and Osheroff will discuss their 1971 findings and subsequent research during presentation ceremonies at the March 17, 1981, meeting of the American Physical Society in Phoenix, Ariz. Established in 1953, the Buckley Prize is valued at \$5,000.

Their initial accomplishment was a discovery "in the pure sense of the word," Richardson recalls. "It was an accident — impossible to predict. We weren't looking for the superfluid phases. Then Osheroff noticed some funny 'bumps' in the chart recorder tracing of readings on the pressure gauge."

The three physicists were performing an experiment with solid helium 3, the rare isotope of the more common form of the element, known as helium 4, one night just before Thanksgiving. Scientists had known as early as 1911 that helium 4 could become a superfluid — that is, flowing with virtually no friction — when chilled to the proper temperature near absolute zero (-273.16 degrees Celsius or 0 degrees Kelvin). But helium 3 was thought to become a superfluid only at unat-

tainably low temperatures, a few millionths of a degree above absolute zero.

Taking advantage of an unusual property of helium 3, the fact that it becomes colder rather than warmer when compressed, the researchers were subjecting a small amount of the liquid and solid forms of the material to pressure and extreme cold in a specially-constructed vacuum cell. They were hoping to observe the magnetic properties of the solid helium, and were watching the strain gauge of the experimental apparatus as the pressure increased.

When the temperature dropped to .0027 of a degree above absolute zero, the instrument recorded a slight but abrupt change in pressure. Another change or "bump" was noted at .0021 degree.

Further experimentation at Cornell and elsewhere confirmed that the pressure changes were, in fact, due to transitions to the superfluid phases in the liquid helium 3 rather than magnetic transitions in the solid helium 3. It was the first new superfluid to be discovered in six decades.

The Buckley award to the physicists is as much in recognition of their subsequent research as for the initial discovery. Superfluid helium 3 is radically different from superfluid helium 4 or other known superfluids, the researchers learned as they continued to study its physical properties. For example, superfluid helium 3 flows faster in one direction in a magnetic field than in the other direction.

In 1976, the trio was awarded the Simon Memorial Prize of the Institute of Physics, London, for their pioneering work in low-temperature physics.

Richardson, who joined the Cor-

nell laboratory as a research associate in 1966 and became a professor of physics in 1975, received his B.S. and M.S. degrees from Virginia Polytechnic Institute and the Ph.D. degree from Duke University.

A member of the Cornell faculty since 1959, Lee received the A.B. degree from Harvard, the M.S. from the University of Connecticut and the Ph.D. from Yale. He was named a professor of physics at Cornell in 1969.

Osheroff received his undergraduate education at California Institute of Technology and completed the Ph.D. degree at Cornell in 1973.

Chemistry Professor Wins Dreyfus Grant

Paul L. Houston, assistant professor of chemistry, has been awarded a Camille and Henry Dreyfus Teacher-Scholar Grant, one of 16 made this year to faculty members throughout the nation on the basis of past performance and future promise in basic research.

A member of the Cornell faculty since 1975, Houston specializes in the application of lasers to chemistry. His recent research deals with energy transfer, photodissociation and the interactions of vibrationally-excited molecules with surfaces.

Houston completed his graduate training at the Massachusetts Institute of Technology and post-doctoral work at the University of California at Berkeley.

Established by the Dreyfus Foundation in 1969, the grants provide funds to enable young faculty members in chemistry and related sciences to develop their potential as teachers and scholars.

Council Passes Resolution On Exam Scheduling

At its meeting last week the Campus Council passed a resolution "strongly requesting" that the Dean of the Faculty not allow faculty members to reschedule a final or make-up exam on a non-test day unless it is requested by an entire class.

In other action, the council approved a \$1,000 funding request from the Draft Counseling Service to finance an \$850 stipend for its coordinator, Steven Hooper, and \$150 for operating expenses.

Monies were also approved for the Cornell chapter of the American Association of University Students in the amount of \$557.70.

The original request was for

\$1,372.70, which included \$685 in transportation costs for 12 participants to attend a conference at Duke University in Durham, N.C. and \$130 for participants to attend a coordinators meeting. Transportation funding was not approved.

The American Association of University Students is a non-profit organization which was formed in 1979 to "facilitate student evaluation of their educational institutions on a comparative and constructive basis." Issues which are addressed by the group include academic affairs, minority affairs, student life, women's affairs, student government and tuition and financial aid.

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Jobs

The following job openings are new this week. For information on vacant positions listed in previous issues of the Chronicle, contact Personnel Staffing Services, 440 Day Hall. Cornell is an affirmative action employer.

Administrative/Professional Systems Programmer III, CP5 (Engineering)

Supervisor, Technical Services, CP4 (Center for Research Animal Resources)

Administrative Manager, CP4 (Ecology & Systematics)

Farm Manager II, CP4 (Animal Science, Hartford, NY)

Applications Programmer II, CP4 (Engineering)

Research Support Specialist I, CP3 (Agricultural Engineering)

Assistant Director, CP3 (Arts and Sciences Admissions)

Clerical

Administrative Aide, GR20 (Engineering)

Secretary, GR20 (Poultry & Avian Sciences)

Administrative Aide, GR19 (Animal Science)

Secretary, GR19 (CALS Dean's Office, Development & Alumni Affairs)

Museum Assistant, GR19 (Johnson Museum)

Secretary, GR18 (Agronomy)

Accounts Assistant, GR18 (Finance & Business Office)

Library Aide, GR18 (Univ. Libraries, Serials/Olin)

Secretary, GR17 (Public Affairs Law School)

Secretary, GR17 (Poultry & Avian Sciences)

Secretary, GR17 (Nutritional Sciences)

Accounts Assistant, GR16 (DCS, Administration)

Dish Machine Operator, GR16 (Dining Services)

Custodian, GR16 (Varied)

Sales Assistant, GR15 (Campus Store)

Line Server, GR14 (Dining Services)

Door Checker, GR14 (Dining Services)

Service and Maintenance

Cook, GR22 (Dining Services)

Short Order Cook, GR18 (Dining Services)

Material Handler, GR18 (Dining Services)

Food Service Worker, GR17 (Dining Services)

Cashier, GR17 (Varied)

Print Machine Operator, GR23

(Graphic Arts Services)

Rink Assistant, GR18 (Physical

Education & Athletics)

Dairy Worker, GR18 (Animal Science) (Night Shift)

Dairy Worker, GR18 (Animal Science)

Animal Attendant, GR17 (Poultry & Avian Sciences)

Program Aide, GR17 (Cooperative Extension (Jamaica, NY) (2)

Technical

Technician, GR18 (Plant Breeding & Biometry)

Technician, GR18 (Ecology & Systematics)

CHESS Operator, GR24 (Cornell High Energy Synchrotron Source)

Part-time and/or Temporary

Photographer, GR21 (Computer Graphics)

Secretary, GR18 (B&PA)

Technician, GR22 (Plant Breeding & Biometry)

Electronics Technician, GR20 (Cornell High Energy Synchrotron Source)

Temp. Service Clerk, T-2 (Diagnostic Laboratory)

Temp. Admissions Clerk, T-2 (Sage Graduate Center, Admissions)

Temp. Administrative Aide, T-2 (Latin American Program)

Academic

Assistant Professor (Physics)

Asst. Professor in Dance (Theatre Arts)

Instructor, half-time for 1 semester (City and Regional Planning)

Lecturer (Modern Languages & Linguistics)

Due to the holiday vacation, the Job Opportunities List will not appear in the last two weeks in December. The last issue in December will be published on Dec. 17. Departments wishing to post a position in that issue must have the requisition form in the Personnel Staffing Office by noon Thursday, Dec. 11. Requisitions received after that date through noon, Wednesday, Dec. 31, will be posted in the Jan. 7, 1981 issue.