

Periodic Tabloid

Chemistry and Chemical Engineering Division at Caltech

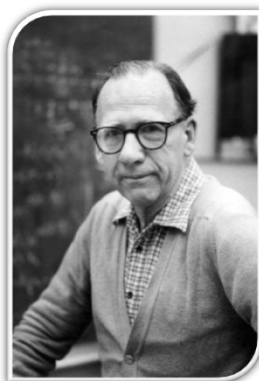
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CCE Receives a Generous Gift from Edward and Ruth Hughes

Edward and Ruth Hughes left their estate, which is valued at almost \$4,000,000, to the Division of Chemistry and Chemical Engineering.

It came as a surprise, it was heart-warming to all who knew them, to learn that Edward W. and Ruth H. Hughes left their estate valued at almost \$4,000,000 to the Division of Chemistry and Chemical Engineering. Edward (almost always "Eddie") died 23 years ago at age 83 and Ruth in February, 2009. The Division has undergone major changes in recent years. In consequence, it is appropriate that more should be known about the couple, whose gift is somewhat unusual in that neither was an alumnus, but both became very deeply embedded in the Division and its affairs in the latter halves of their lives. Because their roles were so different, it seems fitting to discuss their early careers separately.

Eddie Hughes was born in 1904 in Wilkes-Barre. He first became enamored of chemistry when he took it as an add-on to his course schedule in high school. He attended Cornell and earned his bachelor's degree in chemistry in 1924 and a PhD in 1935. He worked on crystallography in the Physics Department and worked for (later Sir) Lawrence Bragg when Bragg came to Cornell as a visiting professor. In this period, Eddie acted as a technical editor for *The Crystalline State: a General Survey*, written by Bragg for the Cornell University Press. Then in 1938, he came to Caltech at the invitation of Linus Pauling to help with the editing of Pauling's *Nature of the Chemical Bond* and do independent research in crystallography. In 1940, he made an important contribution to x-ray diffraction studies of crystals by introducing least squares analysis for comparing the actual experimental



data with that which would be expected for the data corresponding to various trial structures. He assisted in the war effort by training x-ray technicians and participating in research directed to isolating oxygen from the air at low pressure for high altitude use in bombers subject to enemy machine-gun fire. He then worked for the Shell Development Company, but returned to Caltech as a Senior Research Associate in 1946. In 1951, he took sabbatical leave to serve as Research Lecturer at the University of Leeds and, to the supposed surprise of all concerned, he returned with a wife, nee Ruth Joanna Heprer. The story of how this all happened is a bit less impulsive.

Ruth Hughes was born and educated in Germany. She could not be admitted into university, being Jewish, so she went into training as a nurse. Her family recognized the dangers of staying in Germany and immigrated rather piecemeal in the late

The CCE Division is tremendously grateful for the Hughes endowment and for a matching grant of two million dollars from the Gordon and Betty Moore Matching program. Along with the generous gifts by the Rawns and the Dow Chemical Company (see page 4), we are now able to endow 10 new graduate fellowships in CCE. This fellowship support provides a critical resource to the Division and helps us towards our goal of reaching 40 new fellowships in CCE.

thirties. Ruth was the last to leave in 1939, just two weeks before war broke out, to England where a cousin was a medical doctor in Birmingham and again entered nursing until the war was over. She had a quota number for entry to the US and in 1946 came to New York. But, on the train to the Portsmouth, she was fortunate to meet Barbara Low, a young crystallographer who became a lifetime, warm and caring friend. Low was then on her way to Pasadena for work with Linus Pauling. Ruth got her New York nursing license, but when Barbara Low suggested she move to Boston, she was pleased to go, but she had to now obtain a Massachusetts nursing license and here, in 1949 coming from the hospital in a very bloody nursing uniform, she first met Eddie Hughes as introduced by Barbara Low. After some good times with Barbara in Boston, Eddie invited her to California, where she stayed with one of Eddie's friends and enjoyed Caltech, Santa Barbara and San Francisco. With her US visa scheduled to cancel, she returned to England in 1950 to finish her degree work. The next year, Eddie arrived for a sabbatical leave at the University of Leeds and they were married on Halloween Day in 1951. They honeymooned partly in England where Ruth became well acquainted with many more crystallographers, then to Europe, Africa and South America including Machu Picchu. Finally back to



Pasadena, in September, 1952, and after a stay at the Athenaeum, they bought a house within walking distance on Rose Villa and became one of the most popular couples in the Caltech community.

Ruth was a tremendous communicator to the Caltech women and wanted them to be more active together and within the local community. Her first visit to the first Caltech Women's Club of the year was interesting and with a Belgian and a Swiss acquaintance, they found there were two meetings, a senior group in the afternoon and a younger group in the evening of the next week. Seeing the senior group coming in hats and gloves, they felt out of place and went instead to the subsequent meeting, which had small groups led by Dora DuBridge, the President's wife discussing how the younger women, wives of young faculty, postdoctorals and graduate students could get acquainted with Caltech and help their husbands be more productive. Ava Helen Pauling, Linus Pauling's wife, was a staunch member of the rising women's movement of time, took Ruth aside and gave her quite different marching orders, which developed over time with the establishment of Chem Wives and other ways of bringing the chemistry wives, with special attention for those from abroad, together for their benefit and strong social interactions, as well as having access to a pool of furniture, household and infant equipment for loan much of it stored in the Hughes garage.

A major responsibility for Eddie and Ruth was to help Linus and Ava Helen with the stream of distinguished scientific visitors that required to be picked up, brought to housing and shown around the Institute and California highlights. They were extremely good at this and made many friends, who were grateful for their knowledge of Caltech and its environs as well as the wonderful cheery way the Hughes operated.

When Linus began to campaign for cessation of nuclear testing, Ruth worked hard for him in helping with his scientist petition drive. Eddie was unhappy with her being involved because he felt Linus was better as a scientist than a politician, especially when the news media swarmed on him with criticisms whenever he made a political mistake. Nonetheless, Eddie did help Ruth with the petitions near the climax of the drive.

With the departure of Linus Pauling, Eddie and Ruth's lives changed but they did not give up their activities in making newcomers welcome and helping with organizations like the Women's club and the Caltech Service League.

Eddie and Ruth were wonderful people and left a legacy, which will highlight their devoted service to the Division of Chemistry and Chemical Engineering, as well as to Caltech broadly, for years to come.

Lacey Lectureship Series



This series of distinguished lectureships is named in honor of Dr. William Noble Lacey.

The recipient of the 2010 Lacey Lectureship is Bruce C. Gates, of the Chemical Engineering & Materials Science department at the University of California, Davis. He will lecture on "Molecular Organometallic Catalysis on Surfaces" and "Spurring Chemistry: Catalysis and Chemical Technology." The lectures will be on Tuesday, February 9 (technical lecture) and Thursday, February 11, 2010 (lecture geared toward a more general audience).



Schlinger laboratory nearing completion

The Schlinger Laboratory dedication ceremony is scheduled for March 9, 2010. The Division has been watching with excitement the last stages of transformation of what was once an empty space into a beautiful state of the art laboratory facility.

The hardscape around the building is completed. The new hardscape includes meandering paths on both sides of Schlinger Laboratory for improved circulation on campus leading to adjoining buildings. These paths provide accessibility and meet ADA code. A new courtyard has been built between Schlinger Lab and Noyes Lab to serve as a site for Division events. There is a private sitting area on the east side that includes the refurbished Noyes benches, with provisions for twenty-eight bicycles around the building. The landscaping is currently being planted. The landscape plan utilizes California native plants for sustainability, and was designed to integrate with the hardscape.

We can hardly wait until March 9, 2010 to celebrate bringing chemists and chemical engineers together under one roof to carry out the very best in research and education.

Grant Managers in the Fiscal Office are all Certified Research Administrators

The staff members of the fiscal office of the division have all successfully completed the requirements to be designated a Certified Research Administrator (CRA). The five members of the fiscal office grants management team are Tuyen Dang, Cece Manoochehri, Nannette Pettis, Carlette Thompson and Alvin Torres. They are the only individuals that are Certified Research Administrator at Caltech.



The designation of Certified Research Administrator (CRA) means that an individual has met the requirements of the Research Administrators Certification Council's eligibility which are 3 years of experience in research or sponsored programs administration, at least a Bachelor's degree and pass a written test that includes knowledge of Project Development and Administration, Legal requirements and Sponsor Interface, Financial Management, and General Management.

The grant managers of the division assist the faculty and staff with proposal preparation, reporting and monitoring the awards for their duration, and handling the administration of the awards as needed.

The annual report for Fiscal Year 2009, prepared by the Office of Research Administration at Caltech, indicated that the Division of Chemistry and Chemical Engineering faculty or their group members submitted 221 proposals with a dollar amount of \$58,719,957. In that same period the division received a total of 189 awards for a dollar value of \$45,529,393.

A Generous Contribution from Barbara and Stanley Rawn, Jr.



Stanley R. Rawn, Jr. (BS '52, MS '53) recently made a gift to create the Barbara and Stanley Rawn Endowed Fellowship in Chemistry and Chemical Engineering. Trustee and Alumnus Stanley Rawn, Jr. has been a Caltech trustee since 1974 and a senior trustee since 2000. Mr. Rawn has served on a number of specialized trustee committees, and earned his BS and MS at Caltech, in Applied Chemistry and Chemical Engineering, respectively.

Rawn is a director of Victory Ventures, LLC (a venture-capital partnership), and a founder and former director of First International Oil Corporation. Involved in the oil industry for much of his career, Rawn first worked as a research engineer for Chevron Research Corporation before leaving to cofound a private oil company in 1958. He was a founder, chairman of the board, and chief executive officer of several oil companies, including Pan Ocean Oil Corporation and Adobe Resources. He has also been involved in numerous venture-capital, start-up, and leveraged-buyout investments. Rawn was chief executive officer of Noel Group, Inc., from 1994 to 1999, and has also served as senior managing director and director of Swiss Army Brands, Inc.; director and chairman of the executive committee of Career Blazers Inc.; and a director of Hudson River Capital LLC. A native of Minnesota, Rawn served three years in the Navy.

Stan and Barbara Rawn have been true friends of the CCE Division for many years and we thank them for their generous gift.

Dow Chemical Company Graduate Fellowship in Chemical Sciences and Engineering

In November, 2009 the California Institute of Technology and the Dow Chemical Company announced the creation of the Dow Chemical Company Graduate Fellowship in Chemical Sciences and Engineering.

The fellowship will be granted to a second- or third-year doctoral student who shows excellence in research, leadership, and interpersonal effectiveness, and whose research program aligns with broad areas of interest to Dow, such as alternative energy sources, the development of novel specialty chemicals, and the investigation of new polymer systems. Dow's \$500,000 gift will be matched by \$250,000 in funds from the Gordon and Betty Moore Matching Program.

Each recipient will be selected by the chair of the Division of Chemistry and Chemical Engineering, and will hold the fellowship for up to two years. The first recipient of the fellowship is Jacob Kanady, who is working with the Agapie group on CO₂ activation by multimetallic complexes.

"We are pleased that Dow and Caltech are building this relationship to support innovative research as a basis for new technologies," says Jacqueline K. Barton, the division's current chair.

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