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Nobel laureate honored anew for his enzyme breakthroughs

By Susan Kelley

Cornell chemist James B. Sumner (1887-1955), who was recently honored by the Division of Nutritional Sciences and the American Chemical Society for his Nobel Prize-winning work, got used to adversity at an early age.

While grouse hunting at 17, he was accidentally shot in the left arm by a companion; his arm had to be amputated below the elbow. Having been left-handed, he had to learn to do things with his right hand -- and he later excelled in such athletics as tennis, skiing, skating, billiards and clay-pigeon shooting, according to his Nobel biography.



Lindsay France/University Photography

Cornell Physical Sciences Chemistry Librarian Leah Solla and Patrick Stover, director of the Division of Nutritional Sciences, unveil a plaque honoring the work of Cornell chemist James B. Sumner (in photograph).

Although he was a whiz in chemistry, he was advised by a mentor at Harvard to take up law, assuming that a one-armed man would never succeed in chemistry. Sumner ignored him and earned a B.S. (1910) and Ph.D. (1914) from Harvard. In 1915 he joined what was then Cornell Medical School in Ithaca as an assistant professor of biochemistry.

In 1917 he undertook the task of isolating for the first time an enzyme in pure form.

"A number of people advised me that my attempt to isolate an enzyme was foolish, but this advice made me feel all the more certain that if successful the quest would be worthwhile," he later said in his 1946 Nobel speech.

Enzymes were technically difficult to isolate at the time. They were in low concentrations in raw materials and exceedingly unstable. Working with the enzyme-(urease) rich jack bean, Sumner at first used a coffee mill and then a pestle and mortar to grind the beans; later he and colleagues built an electric mill to do the job. He isolated many of the possible chemical compounds in the bean, paying particular attention to proteins, hypothesizing that urease could be a protein.

For many years Sumner was unsuccessful, and at times, abandoned the work. But finally, in 1926, he succeeded, though most biochemists ignored or disbelieved his isolation and crystallization of urease. But it did bring him a full professorship in 1929. His later studies dealt with more than a dozen other enzymes and resulted in several publications.

In 1946 he and two colleagues shared the Nobel Prize for his discovery that enzymes can be crystallized.

 E-mail article

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On Sept. 22, 65 years after the Nobel Prize win, Cornell's Division of Nutritional Sciences dedicated a plaque in the lobby of Savage Hall for a recent award from the American Chemical Society -- The Division of the History of Chemistry's Citation for Chemical Breakthrough -- in honor of the historic research.

The 40 people at the ceremony heard from Patrick Stover, director of the Division of Nutritional Sciences, and Malden Nesheim, professor emeritus and provost emeritus, and heard various personal anecdotes about Sumner. James C. White '39, Ph.D. '44, for example, who worked as a graduate student in Sumner's lab, recounted various stories and described how Sumner would walk around Stocking Hall with test tubes tucked under the stump of his amputated arm.

Cornell Physical Sciences Chemistry Librarian Leah Solla, M.S. '97, shared some of her research about Sumner, including photos of the early crystallized enzymes that secured Sumner the Nobel Prize. The Nobel medal is locked in a safe in the Cornell archives, she added.

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| [September story index](#) | [Cornell Chronicle Online Home Page](#) |