

# Award in Lipid Chemistry for 1979

**STEPHEN S. CHANG, Professor and Chairman,  
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With all the honors in the field of fats and oils he has received, former AOCS President Stephen S. Chang was deeply gratified this spring to receive the Award in Lipid Chemistry for 1979.

The award capped what have been two memorable years for Steve and his wife, Lucy. In 1977, Steve was named chairman of the Department of Food Science at Rutgers University in New Brunswick, NJ. Early this year he received an award from the Chinese Institute of Food Science and Technology in Taiwan for his contributions to the island's food industry, its principal economic activity. He is technical program chairman for the ISF/AOCS World Congress to be held April 27-May 1, 1980, and is honorary president for the ISF. (When the two groups last held a combined meeting in 1970, Steve was AOCS president.) And, during 1978, he and Lucy made their first visit to mainland China since they left more than three decades ago to come to the United States as students.

Steve was born Aug. 15, 1918, in Peiping (later Peking, now Beijing), China. He grew up in Shanghai, receiving a bachelor of science degree in chemistry from National Chi-Nan University in 1941. During World War II he worked in a factory converting tung oil into automotive fuel, a process which he says we may consider again during gasoline shortages. "We had a saying about gasoline that had to be brought in from outside China; 'One drop of gasoline equals one drop of blood,'" Steve recalls. Steve was the fourth of five sons and his father, a public official Steve describes as "far sighted and education minded," saw to it that all five went to college. All, except Steve, studied arts and literature.

After World War II, Steve became the second member of his family to travel to the United States for graduate studies. An older brother, now head of the movie industry in China, had studied drama at Yale, receiving his M.S. degree there. Steve left China in 1947 to study under Fred Kummerow at Kansas State University. He and Lucy met on board ship while en route to the United States. She was traveling to study dentistry in Kansas City.

Steve received his master of science degree in 1949 at Kansas State, majoring in organic chemistry with a minor in biochemistry. When Dr. Kummerow moved to the University of Illinois, Steve followed and received his doctorate there in 1952, majoring in food technology. Steve and Lucy were married June 2, 1952. "Lucy received her D.D.S. degree one day and we were married the next," Steve says. "She never became a practicing dentist. She handles all the family business—even fills out the tax forms—and she comes on weekends (to Steve's office) to type for me when I'm working." Lucy also does the gardening around their lovely landscaped home in East Brunswick, NJ.

After Steve received his doctorate he remained at the University of Illinois for three years, then spent three years as a research chemist at Swift & Co. "I was fortunate to be part of what perhaps was the strongest fats and oils group

ever gathered together," Steve says, noting the group included Rex Sims, Glen Jacobsen, Ted Weiss, Lars Weidemann and the late Karl Mattil, among others. From 1957 through 1960, he was a senior research chemist for A.E. Staley Co.

But "I always knew my major interests were in teaching and research," Steve says, and in 1960 he left private industry to become an associate professor at Rutgers.

When Steve arrived at Rutgers the food science department did not have any significant research programs in edible fats and oils. He sought support from the National Soybean Processors Association to study soybean reversion flavor problems. The growth of his now internationally recognized research program is outlined in Dr. Chang's Award in Lipid Chemistry Acceptance Lecture.

While being a department chairman at Rutgers doesn't mean an increase in salary, it does mean an increase in duties. Dr. Chi-Tang Ho now directs much of the routine work in the lab to provide Steve more time for administrative chores, such as budgeting, for a department of 18 faculty members whose research groups include fats and oils, flavor chemistry, biochemistry, nutrition, packaging, microbiology, and food engineering. Rutgers' geographical location is excellent for food research, Steve says, noting that General Foods, T.J. Lipton, Best Foods, Campbell Soup, Hoffmann-La Roche, Nabisco and other food firms have research centers in that area. The well-equipped Rutgers lab includes many pieces of equipment donated by industry.

Besides his administrative, teaching and research duties, Steve serves as a consultant to industry. These contacts help keep private research grants flowing. While Steve's projects are adequately funded, he is concerned that more than half the grants are coming from overseas. "There is disinterest by the American food industry in more basic and long range approach to industrial problems and developments," Steve says. "When the Fatty Acid Producers Council sought to improve color and odor of oleic acid, we found a way. But we couldn't find any American firm interested in developing the method commercially; companies in Europe and Japan took tremendous interest."

Steve sees a need for major research projects in order to assure an adequate supply of nutritious and nontoxic foods of good eating quality (flavor, color, texture) at the least cost to the consumer. For example, Rutgers investigators are trying to develop a quick, simple test to determine when frying fat should be discarded, "something like a litmus paper test" so that any employee could perform the test, Steve says. Such a test would prevent economic waste in that fat would not be discarded too soon, and could help restaurants avoid serving food cooked in overused fat, which may have "materials not beneficial to health," Steve says.

Steve sees a need for more research into the safety of food preservatives—synthetic and natural. His group has

found how to isolate the food preservative constituent in rosemary and is now seeking private firms interested in commercial development.

Steve wrote, for the back cover of a brochure for the food science department, "Freedom from hunger is a basic human right; a hearty meal is one of the enduring pleasures of human life; and the selection of nutritious and safe foods is the foundation of good health."

"What we are trying to do is use basic approaches to solving practical problems," he says. "There's no such thing as pure research—research for sheer curiosity—in our ag college or food science department. We have certain objectives to accomplish with each project."

Quite often the results of his work appear as technical papers in JAOCS. "AOCS has been nice to me," he says. "Its Journal is where I like to publish some of my papers; it provides good communication with others in the industry."

Steve first joined AOCS while an instructor at Illinois, but became actively involved during the early 1960s after arriving at Rutgers. He was the driving force behind the establishment of the AOCS Honored Student Awards, then known as the MacGee Award. He still believes AOCS should get more involved in promoting fats and oils chemistry training in college and universities. "Firms tell me they have to spend a year or two training chemistry graduates to be fats and oils chemists," he says. "Where in the United States can a student get practical fats and oils chemistry training? There aren't too many places." He

makes clear he does not refer to training in nutrition or lipids biochemistry, which he feels is more widely available than training in fats and oils chemistry. He believes that AOCS' Education Committee now deals primarily with the extension of education, after college graduation, by short courses, but there remains a need for the Society to get involved with the education of oil chemists at the graduate and undergraduate level in universities and colleges.

Steve has been active in more than a dozen committees and served two terms as a member-at-large of the AOCS Governing Board in 1966-68 before being elected secretary in 1968, vice-president in 1969, and serving as president in 1970.

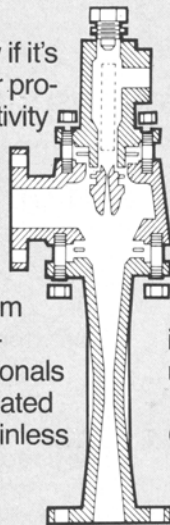
The return to China, however, must be the most memorable event during the past few years. "It was truly an emotional trip," Steve says. The month-long journey included some business, such as eight days of lectures and meetings with Chinese food scientists, with Steve reporting there is a strong desire for improved fats and oils technology and training in China. But most of the visit was spent at places and with people last seen thirty years ago.

As a bonus of the trip, Steve and Lucy, who have no children of their own, are in the process of adopting one teen-age daughter of Lucy's sister. She and her mother and a brother will arrive in the United States sometime within the year to begin a new life—just as Steve and Lucy did three decades ago—but they will be able to look forward to more frequent exchange visits with relatives in China. ●

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