Profile

HERBERT DUTTON

Herb Dutton's enthusiasm for his work is contagious.

It's particularly catching when you hear him talk about three decades of pioneering research on lipid composition, reactions, and methodology at the USDA's Northern Regional Research Center in Peoria, Illinois.

Since he joined the NRRC as a research chemist in 1945, his scientific accomplishments have brought many honors, including the AOCS Award in Lipid Chemistry, the Glycerine Research Award, the Canadian Award of Merit for contributions to the scientific literature of fatty oils, the Bailey Award, numerous governmental awards, and invitations from around the globe to speak on his research, including presenting the Third Hilditch Memorial Lecture in 1972.

Dutton, now chief of the NRRC's Oilseed Crops Laboratory, says his first love remains lab research – "where the test tubes are rattling, that's where the action is."

His fondness for experimenting goes back to his youth in southern Wisconsin, where his father was a minister. As a teen-ager he built a crystal radio set and got it working just in time to hear KMOX provide election night returns of the 1928 Hoover-Smith presidential contest. His interest in science was nurtured by supportive high school teachers. At one time, Dutton tried to build a carbon arc in the school basement as a prelude to making glass. "I could have killed myself," he says in retrospect, "that was really a foolish thing to try."

Dutton was a Depression era college student. He enrolled as a freshman at the University of Wisconsin in 1932, majoring in physical chemistry. To scrape together enough funds to stay in school, he hunted for a job and found one in the laboratory of a Madison, Wisconsin, meat packing-house. Having to work enough hours to be able to afford college took its toll, however, and he recalls being hurt when he applied for graduate school in chemistry and was told by Farrington Daniels, "Dutton, we like the research you do here, but we want graduate students with a better grade point."

Dutton's enthusiasm lagged only briefly. He enrolled in biochemistry in graduate school, obtaining his masters and his doctorate degrees at Wisconsin. His 1941 doctoral work on photosynthesis provided the first conclusive evidence that plant pigments other than chlorophyll could carry out photosynthetic activity. In recent years, he has returned to photosynthesis investigations in seeking ways to increase soybean yields.

As an undergraduate at the University of Wisconsin he met a Liberal Arts student, Nona Walker, who studied, sang, and danced her way into his heart. Dutton relates that in one week's time in graduate school, he passed his French exam, prelimns, and greeted the first of three daughters. They are now teaching music, chemistry, and English at the collegiate, high school, and primary levels. As well, they gave him and Mrs. Dutton, until her passing in 1974, four grandchildren.

Dutton was offered a job at the Western Regional Research Lab during World War II, working on the deterioration of lipids in dehydrated vegetables and eggs. Having had to struggle through the Depression, Dutton says, may have biased him toward the relative security of government employment. Later, when numerous offers were to be made by private industry, he remembered the "succession of comets that would rise and fall" in the hierarchy of the meat packing firm where he worked as a college student. He always chose to stay with the government.

In 1945, Dutton transferred to the NRRC. A firm believer in Claude Bernard's statement, "Every scientific advance is first an advance in technique," Dutton began to formulate questions about soybean oil, and then develop techniques to find the answers. The NRRC soybean researchers were then studying flavor reversion. How do you evaluate flavor? Dutton helped develop statistically valid taste panel methods to evaluate vegetable oil flavors. What was in soybean oil that caused off-flavors? Dutton directed experiments showing the flaws in the then-accepted theory of even distribution of glyceride structure, touching off new theoretical work on fatty acid distribution patterns and eventually focusing on linolenic acid as a factor in off-flavor.

Dutton became a supervisory chemist in 1955 and then in 1958 took charge of NRRC investigations into physical and chemical properties of oilseed crops. Despite a preference for lab work over administration, Dutton says he realized he would influence research pathways more if he wore an administrative hat as well as a lab smock.

It isn't that he dislikes administrators, it's just that he thinks sometimes paperpushers in faraway offices don't realize what needs to be done. Such as when he was pondering ways to figure out if and how metabolic systems differentiate between isomeric fatty acids. A technique could be developed to radioactively label specific fatty acids and feed them to a hen who would produce one egg a day – an "automatic daily biopsy." The egg lipids could then be analyzed to see how the hen's system handled the fatty acids. The problem was that there was a ban on live animals in the center at the time. Dutton smuggled Henrietta, the first hen, into the lab. And, of course, Henrietta got loose one of the first nights, becoming immortalized by a security guard's description as "that rooster that lays radioactive eggs."

Later in the 1960s, Dutton foresaw the need for computers in oilseed research. He took a course at nearby Bradley University in computer programming, and his enthusiasm for the possibilities grew. Knowing that permission to buy a computer probably would not be approved at higher echelons, Dutton requested funds for a "reaction rate simulator." Approved. The NRRC, from that beginning with a simple analog computer, now has a Mod Comp II central computer directly wired to analytical instruments (mass spectrometers, gas chromatographs, and high performance liquid chromatographs) throughout the building. Data results come back almost instantly and also are stored for future retrieval. When Dutton first took his computer programming course at Bradley, putting the data from a mass spec run into usable form took three days. Now it is available in five minutes. The computerization program was the topic for his address in 1969 when he received the Award in Lipid Chemistry.

Based on techniques growing out of the egg-laying rooster and with the help of computers, NRRC researchers

now are exploring the metabolic fate of isomeric fatty acids in humans. Dutton is particularly proud of this work because it is directed and carried out to a large extent by young researchers he recruited to the lab. Some began by doing routine preparatory lab work on a part-time basis while they were undergraduates at Bradley University. Now they are research leaders. Dutton's leadership of this team has been called "inspiring and progressive." As he shows a visitor around the center, he offers words of praise and encouragement to researchers. The group is known for its innovative skills, the quality of its work, high morale, and a large production of scientific publications. Dutton gives the credit to the researchers.

Dutton explains that his work, in all its diversity of areas of interest, people, personalities, world travel, and study, is his hobby. Someway still he finds time to take his turn in the pulpit, sing in the choir, "play at" an old church organ he acquired for his home, garden, and fret about his past hobbies of ham radio and beekeeping. Most recently he is to be seen in the company of his fiance, Jean Singer, who as secretary to the Oilseed Crops Laboratory, "runs" the office and frees Herb a few hours each day to sneak back to the laboratory to do some work in photosynthesis or to check on the progress of some new oilseed methodological idea.

Herb Dutton's enthusiasm also shines in the clear, forceful expression of his publications, at times punctuated with Biblical and literary quotations.

During his 1968 Bailey Award acceptance talk, he spoke of how computers can relieve man of routine and tedium to permit "creative thought, planning, and interpretation."

"Perhaps we might even have time to put our feet on the desk, lean back, and consider the smooth running system that our mind has devised and even to have the leisure, perhaps, to philosophize over the smooth running universe, be it the macroplanetary system or the microelectron orbitals, and over the great Intelligence that must pervade it."

In his 1972 Hilditch Memorial Lecture, "Some New Approaches in Lipid Research," Dutton paid tribute to Prof. Hilditch's curiosity and thoroughness in exploring the fats and oils of almost every type: "Regarding my title, 'the new approaches,' the words of translators commissioned by King James come thundering down the corridors of time with the rhetorical question, "Is there anything whereof it may be said, See, this is new? It hath been already of old time . . . . There is no new thing under the sun . . . ."

Dutton's gift for articulate expression has made him an unofficial ambassador for the NRRC, greeting visitors to Peoria as well as traveling elsewhere to explain NRRC programs and find new suggestions.

Dutton joined AOCS in 1945. He has served as an at-large member of the Governing Board, chairman of the Bond Award Committee, and a member of the Lipids Editorial Advisory Board and the Publications Committee. He has resisted the temptation to get more involved, he explains, because he cherishes time to be in the lab, "where the tubes are rattling."

His enthusiasm for research never fades.