THE ELEVENTH ANNUAL

JAMES C. SMITH LECTURE

Department of Psychology and the Program in Neuroscience, College of Arts and Sciences

Friday, March 15, 2019
Psychology Building Auditorium

Welcome and Introductory Remarks	Dr. Sam Huckaba Dean, College of Arts & Sciences Florida State University
Introduction of Speaker	Dr. Alan C. Spector Distinguished Research Professor of Psychology and Neuroscience Florida State University

The Concept of Flavor and How Specific Odorants Can Enhance Sweetness

Linda M. Bartoshuk, Ph.D.
Bushnell Professor
Department of Food Science and Nutrition, Institute of Food and Agricultural Sciences, University of Florida, and Member, U.S. National Academy of Sciences

Linda Bartoshuk, Ph.D.

Dr. Linda Bartoshuk was trained in experimental psychology with a specialty in psychophysics. She obtained her PhD in 1965 under the tutelage of Carl Pfaffmann at Brown University. Dr. Pfaffmann believed that behavioral and neurophysiological analyses should go hand-in-hand, and so Dr. Bartoshuk did her thesis work recording from taste nerves. After various teaching and research stints at Brown, Clark University, and Natick Labs, she accepted a faculty position at the John B. Pierce Foundation and the Department of Epidemiology and Public Health at Yale University where she moved through the ranks to eventually become Professor in the Department of Surgery as well as Psychology.

At Yale her laboratory focused on the health consequences of the two major sources of oral sensory variation: genetics and pathology. Her work on measurement theory led to the discovery of supertasters, those who experience the most intense taste sensations, and also provided a way to quantify taste dysfunction in certain clinical populations. Through the application of these psychophysical tools, Dr. Bartoshuk and her colleagues were able to simulate the taste phantoms (i.e., taste sensations in the absence of stimulation) that are experienced by some patients, by anesthetizing specific combinations of taste nerves, findings which provided support for her emerging model of the complex interactions among the nerves transmitting oral sensory information

to the brain. The sensory methods developed by Dr. Bartoshuk engender powerful implications for psychology and medicine and extend far beyond into fields like economics and philosophy.

In 2006, Dr. Bartoshuk moved to the University of Florida where she took a position as the Bushnell Presidential Endowed Professor in the College of Dentistry and joined the University of Florida Center for Smell and Taste. Working with her colleagues she combined and analyzed data from decades of clinical study and discovered that taste input normally inhibits other oral sensations; mild taste damage, such as can occur with middle ear infections and tonsillectomy, releases that inhibition, paradoxically intensifying flavor and oral sensations produced by fats. Dr. Bartoshuk believes that these changes lead to enhanced preference for high-fat foods and ultimately to weight gain.

In 2013, Dr. Bartoshuk moved to the Department of Food Science and Human Nutrition in the Institute of Food and Agricultural Sciences at the University of Florida, where she began exciting new collaborations with colleagues in Horticulture in which they grew 80 tomato varieties and analyzed their chemical and volatile constituents in an effort to create the perfect tomato. They conducted sensory and hedonic evaluations applying new psychophysical methodology developed by Dr. Bartoshuk and used regression models to look for associations between tomato constituents and tomato liking. In the process, they discovered that some volatiles contribute independently to sweet taste, above and beyond the sugars present in the tomato. While the chemosensory field has known for some years that retronasal olfaction (i.e., perception of food volatiles from the mouth) and taste were integrated in the brain such that volatiles could enhance sweetness, it has not fully appreciated the extent to which this phenomenon contributes to the core sweetness of fruits and other plant-based foods. This work has implications for industry as well as for patients with damaged taste nerves; certain volatiles could bypass the insult and enhance the flavor of sweeteners, which is otherwise blunted by the injury, at the taste centers in the brain.

Dr. Bartoshuk has been the recipient of many prestigious awards and honors over her professional life including the election into the American Academy of Arts and Sciences in 1995 and into the National Academy of Sciences in 2003. She is also the recipient of this year's Distinguished Scientific Contributions Award from the American Psychological Association.

The James C. Smith Lectureship Series

Established by a generous gift from Mr. Stan and Mrs. Paula Warmath, long-time friends and associates of Dr. James C. Smith, the annual lecture features an invited internationally renowned speaker who is conducting behaviorally oriented research on scientific problems in neuroscience. The Warmaths' gift, coupled with continuing donations from other friends, former students, and colleagues of Dr. Smith, as well as support from the

Department of Psychology, the Program in Neuroscience, and the College of Arts and Sciences provides the opportunity for FSU faculty and students to interact with these distinguished scholars during their visits to campus.

If you are interested in contributing to the James C. Smith Lecture Endowment please contact Nancy Smilowitz (nsmilowit@fsu.edu; 850-294-1034) in the College of Arts and Sciences for more information.

James C. Smith, Ph. D.

James C. Smith, Ph.D.

After he earned his Ph.D. from Florida State University in 1959, Dr. Smith joined the faculty, and since that time has received every award that the university has to offer. In 1992 Smith was named a Robert O. Lawton Distinguished Professor, the highest award bestowed upon a faculty member by the University. Dr. Smith was also the recipient of the University Distinguished Teacher Award based on a lifetime of teaching excellence, and in 2005 the College of Arts and Sciences honored Dr. Smith as their Graduate of Distinction. Dr. Smith has also received international recognition for his scientific achievements including The Distinguished Career Award from the Society for the Study of Ingestive Behavior, a National Sigma Xi Lectureship, and the Mozell Award for Outstanding Achievement in the Chemical Senses from the Association for Chemoreception Sciences. After 52 years on the Department of Psychology faculty, Dr. Smith retired and is currently Professor Emeritus at Florida State University.