Department Head's Report

The CSRS (Cooperative States Research Service) review of the department was held September 14-18. The review team was composed of Dr. Richard Garner (Chairman), U.S.D.A. C.S.R.S., Washington, D.C.; Dr. Frank Busta, Univ. of Minnesota; Dr. Robert Cassens, Univ. of Wisconsin; Dr. Robert Pearl, Univ. of California-Davis; and Dr. Lowell Satterlee, Penn State Univ. This review is held about every five years and is mandated for programs that receive federal (U.S.D.A.) funding, i.e. Land-grant University programs. The comprehensive review covered the teaching, extension and research programs of the department. The final report has not been received yet, but a verbal report was given to faculty and administration at the end of the review. In general, the department received a strongly favorable endorsement of its programs in all three areas. With the new Center for Aseptic Processing and Packaging Studies and the Southeast Dairy Foods Research Center, it was noted that additional space for personnel, students and visiting scientists will become a critical need. The review team recommended immediate initiation of steps to meet these anticipated space needs. The team noted that an appropriate balance between basic and applied programs has been maintained, while strengthening the basic research component. The undergraduate B.S. program was recognized as one of the strong, viable programs in the U.S., but it was recommended that a program of student recruitment be initiated to halt and reverse the trend to decreasing enrollment in the program. Departmental faculty are awaiting the receipt of the final report in order to more fully study it and initiate appropriate response to the recommendations in cooperation with college administration.

After considerable negotiations, the contract for the Southeast Dairy Food Research Center is being finalized and should be effective January 1, 1988. Subsequent to that date, operations of the Center should begin, although it will still be necessary to sign a subcontract with Mississippi State University, our partner in the Center. It is planned that project proposals will be obtained and evaluated by the Technical Advisory Committee early in 1988, so that funding may be awarded and research projects initiated as soon as possible. The Technical Advisory Committee (TAC) is composed of the three co-directors (Drs. Klaenhammer and Swaisgood, NCSU; Dr. Charles White, Mississippi State Univ.) and a scientific representative of the National Dairy Promotion and Research Board. The projects recommended by the TAC will be reviewed by the Operational Advisory Committee to ensure that proposals selected for funding fit within the objectives of the Center. The Director of the Center will then approve those research proposals to be funded. The research funding should result in additional graduate students, postdoctoral fellows and visiting scientists working in the department. Funding is for an initial five-year period.

ALUMNI, we need your help. We want to begin including items of alumni news in this Newsletter. I have noted this once or twice before and it has come up in conversations with some of you. Please send us items of interest related to promotions, moves, job changes, etc. We will try to publish as many of them as we can. Mail your items to Dr. Max Gregory or myself so that they can be included in subsequent Newsletters.
Graduates. During summer session and fall semester, nine students received degrees in Food Science at NCSU. Those awarded B.S. degrees were Laura Anderson (Delaware), Oscar Lizarazu (Columbia, S.A.) and Sandy Matho (New York). M.S. degrees were completed by Judy Dudzicki (Minnesota), Melissa Fulp (Durham), Michele Keziah (Raleigh), Debbie Varon (Raleigh), and Ruth Hamrick Watkins (Gary). The Ph.D. degree was bestowed on Farid Sadeghi (Iran).

Scholarships. Scholarships have been awarded to 17 undergraduate students for the 1987-88 academic year. Recipients include the following baccalaureate students: Jeanette Beavers (Mt. Olive), Terry Cawiezell (Lakeview), Mindy Daughtrey (Smithfield), Ginger Goodman (Salisbury), David Hall (Denton), Maya Kruger (Florida), Stanley Leslie (Cary), Caroline Mauro (Raleigh), Angela Moberg (Greensboro), Elizabeth Rushin (Raleigh), and Fran Vesco (New York). In the two-year Food Processing, Distribution and Service curriculum, the recipients were Ronnie Brummel (Bethel), Nancy Harris (Henderson), Johnny Hayes (Dunn), Patricia Mayfield (Nolana), Darrell Smith (Selma), and Elaine Wheelier (Gary).

The dairy processing industry has initiated a scholarship program to encourage two-year students to prepare for careers in dairy manufacturing. The scholarships are in response to the need for increased formal education for mid-level supervisors. The dairy industry will assist in the recruitment and provide summer work experience in addition to the scholarship. High school students and current employees of the dairy industry may get details from Dr. Lynn Turner, Coordinator of the Food Processing, Distribution and Service program.

Minor in Food Science. The department is developing an academic minor in Food Science for baccalaureate students. The minor is designed to provide students with principles and concepts important in the food industry. It should give a competitive edge to the individual seeking employment in the food or pharmaceutical industry as a chemist, microbiologist, engineer, nutritionist, business specialist, or technical writer. It will also provide technological information to the student desiring to improve their knowledge base and understanding of food and its manufacture.

A proposal for the minor has been submitted to the administration for implementation Fall, 1988. It consists of 16 credits of Food Science courses, including an introductory course (Food Science and the Consumer); two of four core discipline courses (Food Chemistry, Food Microbiology, Food Engineering, and Food Processing); and two Food Science elective courses.

Any student in a baccalaureate program may elect to minor in Food Science. Students majoring in biology, microbiology, chemistry, biochemistry, engineering, production agriculture, or other science are expected to have the prerequisites for Food Science courses as a part of their major. Business and liberal arts majors will have to elect organic chemistry and possibly biological science in addition to the 16 credits of Food Science required for the minor.

New Department Personnel

Donn R. Ward
Gary D. Cartwright

Donn R. Ward, is the new Specialist-in-Charge and Associate Professor, Food Science Extension, and will be assuming his responsibilities on Feb. 1, 1988. He received his B.S. in Biology from V.P.I. in 1972, his M.S. in Food Science and Technology from V.P.I. in 1975, and a Ph.D. in Food Science and Technology from Texas A & M in 1981. Previously, he was Project Supervisor, Marine Advisory Service, Texas A&M Extension Service. Before his tenure in Texas, he was Extension Specialist (Seafood Technology) and Superintendent, Seafood Processing Research and Extension, V.P.I. & S.U. Don and his wife, Nora, both natives of Virginia, have two children.

Gary D. Cartwright, a native of Elizabeth City, NC is the new manager of the N.C.S.U. Dairy Plant. Gary received his B.S. in Food Science from our department in 1979. After graduation, he worked for Havoc-Rich Dairies Inc., Miller Brewing Co. and was Vice President of a family business, Cartwright Wholesale Inc. He and his wife, Cynthia, have two children.

Departmental Staff Changes

Personnel changes in the dept. include: Cindy H. Bryant, D.R. Lineback’s Admin. Asst. for the past three years, has resigned and accepted a position with the Fed. Govt. in Atlanta, John J. Miles, manager of the N.C.S.U. Dairy Plant since 1985, has resigned and is employed as a research technician and will pursue a graduate program with K.R. Swartzel.
Department Faculty Receive Award


Three faculty in the department have received one of the highest awards given annually by the N.C. Public Health Association, the 1987 Norton Group Award. The faculty members are F.B. Thomas, M.E. Gregory, and J.E. Rushing. The award was presented at the annual meeting of the association held in Fayetteville in October. The award is given in memory of Dr. J.W.R. Norton, who served as state health director from 1948 to 1965.

The award recognizes contributions by the three toward better public health in working with the food industry and food regulators. Those contributions include:

— helping with development of a food protection short course essential for training new sanitarians responsible for food safety and protection.
— establishing and maintaining a program for training restaurant and food service personnel through cooperative efforts with local and state public health officials and agricultural extension personnel.
— assisting state health officials in developing training programs for dairy processors and dairy sanitarians.
— striving to improve communication between food service regulators, food processing and service industries, and university researchers.

Department Retirement

L.W. "Len" Aurand, retired effective Dec. 31, 1987, after 38 years of service to N.C.S.U. He is a native of Pennsylvania with a Ph.D. from Penn St. Univ. His research has been in food chemistry with particular interest in milk flavors. "Len" was a consultant in Chile and Bolivia and had several other overseas assignments. He has authored two textbooks, "Food Composition and Analysis" and "Food Chemistry", in addition to a lab manual, and he has also written chapters in other textbooks. Len and Eleanor have three children: "Becky", 38, who has two children and is a housewife and nurse at Duke Univ.; "Tom", 38, Ph.D. from Cornell and working for Ocean Spray Co. and "Sally", 32, housewife with two children. "Tom" and "Sally" are B.S. grads of our dept. Eleanor is a retired food service director, Gov. Morehead School. The Aurands plan to continue living at 921 Trailwood Drive, Raleigh, NC 27606.

L.W. Aurand

Up-Date on CAPPS

North Carolina State University has established an industry-university cooperative Center for Aseptic Processing and Packaging Studies (CAPPS) with funding from the National Science Foundation (NSF) and industrial sponsors.

The Center, approved by the University of North Carolina Board of Governors, is one of 40 centers that have been established nationwide under NSF's Industry-University Cooperative Research Centers. A communication specialist, Ms. Joanne Giles, who previously was secretary to V.A. Jones, has been hired to work exclusively for CAPPS. Joanne will be handling the majority of correspondence, newsletters, financial statements and some recruitment. She can be reached at the new CAPPS number (919) 737-7249.

Six projects are currently being funded and are in various stages of development. Most are in the start-up and staffing stage. The research will be carried out by NCSU's Departments of Food Science, Biological and Agricultural Engineering, and Chemical Engineering. Some research will be carried out at VPI&SU in Blacksburg, VA. New proposals, which are currently being sought, will be considered by the member organizations at the CAPPS meeting in February, 1988.

An Academic Policy Committee has been appointed for CAPPS consisting of Thomas S. Elleman, Assoc. Dean, School of Engineering; Ronald J. Kuhre, Interim Director, Ag. Res. Ser., CALS; D.R. Lineback, Head, Food Science; David F. Ollis, Head, Chemical Engineering; Earl Pulliam, Director, Contracts and
Grants, NCSU; James H. Ruff, Head, Biol. & Ag. Engineering; K.R. Swartzel (Ex Officio), Director, CAPPs, Food Science.

Total Quality Systems participants

New Workshop Held in Department

A Total Quality Systems Workshop for the Dairy Industry Program was conducted on Dec. 10 in Schaub Hall. This workshop was aimed at supervisory personnel and encompassed many of the systems used to ensure a quality product, including Hazard Analysis and Critical Control Points (HACCP), Good Manufacturing Practices (GMP) and Sanitation. Training emphasized the development of a HACCP system for an individual dairy plant and the integration of HACCP with other elements of the plant's total quality system. The one day workshop was sponsored by the N.C.S.U. Dept. of Food Sci., and the N.C. Ag. Ext. Ser., in cooperation with the National Cheese Inst. Those serving on the advisory panel were: Rudy Ellinger, Pres. and Principal Consultant, R.H. Ellinger & Associates, Northbrook, IL; Joseph Byrnes, Vice Pres., Quality Control Operations and Technology, Kraft Inc., Glenview, IL; Neil Webb, Webb Technical Group, Raleigh, NC and Adjunct Prof. of Food Sci., NCSU; Lynn B. Turner, Dept. of Food Sci., NCSU; Kent Jones, President, Kent Wilson Jones Co., Minneapolis, Minn. J.E. Rushing coordinated the program.

Department Honors and Activities

H.R. Ball received a $40,000 grant from Southeastern Poultry and Egg Assoc. for "Development of a Fiber-like Structure in Meat Products Using Mechanically Deboned Poultry Meat Refined by a Surtimi-like Process." R.E. Carawan received the tenure award for twenty years of service to U.S. Govt.; received $5,000 funding (in cooperation with F.R. Tarver, Jr.) from the Equity Group to study "Reduction in Waste Load from Breaded Foods Plant"; gave an invitational presentation at the Food Processing Waste Conf. in Atlanta in Sept. G.L. Catignani and P.M. Foegeding are project directors for $192,000 grant received from USDA for doctoral fellowships through the National Needs Fellowship Program in Food Science and Human Nutrition. Our proposal was one of three that was selected in the U.S.A. and individual grad. stipend will be $15,000 annually. E.A. Foegeding received $8,750 funding from Le Sueur Isolates, Le Sueur, MN for study of Rheological Properties of Whey Protein Gels; Evaluation of Parameters Predicting Functionality of Whey Protein Gels in Comminuted Meats." H.M. Hassan was awarded a Fulbright grant for 1987-88 to conduct research in Paris, France, where he is presently on leave. He is an authority on superoxide dismutases; a class of enzymes that are important in protecting living cells against oxygen toxicity, cancer, mutagenicity, aging and against many diseases. D.D. Hamann gave invitational presentations in August in Aberdeen, Scotland, UK, and in Sept. to Oscar Mayer Foods Corp., Madison, Wisc. A.P. Hansen received $38,296 funding for a new project entitled, "The Effect of UHT Processing, Package Materials, Ingredients, Flavorants, Oxygen and Storage on the Flavor Stability of UHT Products" from the Center for Aseptic Processing and Packaging Studies; gave an invitational presentation in Sept. at Food Proc. Waste Conf., in Atlanta. T.R. Klaenhammer received $42,350 new funding from Miles Laboratories Inc. for study of "Localization and Cloning of Genetic Determinants Encoding Bacteriophage Resistance in Lactic Streptococci"; received $190,000 new funding from USDA - competitive Grants/Animal Molecular Biology to study "molecular characterization of the strR region - directed phage resistance in lactic streptococci"; taught a graduate mini-course at University College, Cork, Ireland; gave invited seminars in Wageningen, The Netherlands at FEMS Second International Symposium on Lactic Acid Bacteria, Genetics, Metabolism and Application in Sept., at Nestle Research Centre, Vevey Switzerland in Sept., and Univ. of Minn. in Nov.; has a new Post-Doctoral Research Associate - Dr. John Luchansky from Iowa St. Univ. T.C. Lanier visited laboratories in New Zealand in Oct. in preparation for sabbatical, Jan.-Dec., 1988, in Nelson, New Zealand under the auspices of the New Zealand Market Development Board. He will conduct research on surimi and related products with the New Zealand Dairy Research Inst.; will travel to Kuwait Inst. for Scientific Research in Safat, Kuwait to assist in study of potential production of surimi from local fish species; organized international conference entitled "Fatty Fish; From Feed to Food" held in Dec. in Raleigh. D.R. Lineback has been named to The Board of Directors, Council for Ag. Science and Technology (I.F.T. representative 1988-91); was named to Content Panel for proposed Society of Nutrition Education (SNE)-PBS TV series on food; attended meeting of Japanese Society of Starch Science in Osaka Japan and visited Nagoya Univ, as part of N.C.S.U. team to develop cooperative relations; invited speaker at the American Chemical Society Tour, Provo Utah; Logan, Utah and Idaho
Falls, Idaho; organized and chaired a session at Gorman New Products Conf. Ft. Lauderdale, FL and a session on Granule Structures at Starch Round Table Conf., Nashville, TN; participated in panel discussion at N.C. Agricultural Leadership Symposium, Wilmington, NC. D.H. Pilkington was on leave at University College, Cork Ireland for a two month study in the areas of air dried meat products and the use of starter cultures for the meat industry. S.J. Schwartz received $47,800 new funding from the Center for Aseptic Processing and Packaging Studies for study of "Physicochemical Factors Affecting Color and Appearance in Aseptically Packaged Foods"; gave invitation paper in Amsterdam, The Netherlands, in July. B.W. Sheldon was awarded the Amer. Egg Board's Outstanding Research Award for 1987 at Oreg. St. Univ. in Aug.; received $5,000 new funding (in cooperation with R.E. Carawan) for "Pollution Reduction in Duck Processing Plants" from Concord Farms, and $6,000 from Degussa Corp. for study of "Efficacy of Hydrogen Peroxide Disinfection in Poultry Hatcheries"; gave invitational seminars to N.C. Broller Breeder and Hatchery Management Conf. in Statesville in Nov., and to Food Proc. Waste Conf. in Atlanta in Sept. K.R. Swartzel received $36,375 new funding from the Center for Aseptic Processing and Packaging Studies, for the "Development of New Techniques for Thermal Process Evaluation With and Without Particulates." F.R. Tarver, Jr. was given the annual Car-Va IFT Distinguished Lectureship Service Honor. Carolyn J. Lackey, Spec., Foods and Nutr., Ag. Ext. Ser. was given Associate Status in our dept. in Sept. New adjunct faculty members in our dept. are: N.B. Webb, President, Webb Technical Group, Research Triangle, in Oct., and Takayuki Akahane, Director, Research and Development, Kibun Products International, Inc., Raleigh, NC in Jan. 1988. Dr. Akahane was the lecturer for the Phi Tau Sigma fall program in Nov.

Department visitors include: Dr. Serze Perez and Ms. Ann Imbert—INRA Nantes France; Dr. Fumio Yamauchi, Tahaken Univ., Sendiso, Japan; Dr. Audrey Jarvis, New Zealand Dairy Research Inst., Palmerston North, New Zealand; Dr. Tim Cogan, Agricultural Inst., Moorepark Research Centre, Cork Ireland; Dr. Charles Daly, Dean, Dept. of Food and Microbiology, University College, Cork Ireland.

Aseptic Processing and Packaging Conference

Over 75 food industry personnel attended the Aseptic Processing and Packaging Conference Nov. 9-14, 1987. The conference was divided into two portions: a "Better Process Control School" for certification, and a "Symposium on Application and Advances in Aseptic Technology." In addition to Food Science faculty, others on the program included persons from the Nat. Food Proc. Assoc. and F.D.A., as well as selected university and industry authorities from outside North Carolina.

J.E. Rushing and K.R. Swartzel coordinated the activities.