Fat and Oil Research *of the Regional Research Laboratories*

OF the Federal agencies concerned with the chemistry and technology of fats and oils, most—but not all—are in the U. S. Department of Agriculture. The Bureau of Fisheries is interested in marine animal oils; the Food and Drug Administration in food standards, adulteration, contamination, and related fat and oil problems; and the Custom Service in imports. The agricultural agencies include the Bureaus of Dairy Industry (butter); Plant Industry, Soils, and Agricultural Engineering (oilseeds in relation to breeding and cultural practices); Animal Industry (animal fats in relation to breeding, feeding, etc.); Human Nutrition and Home Economics (nutrition); and the Production and Marketing Administration (administration of grain standards).

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More broadly concerned is the Bureau of Agricultural and Industrial Chemistry. Its over-all program, conducted in four regional laboratories and affiliated field stations, includes research on all domestic oil-bearing raw materials, their derived oils and fats, by-products, and many processed fat and oil products. These laboratories are among the best equipped in the world for such work. They are staffed with specialists trained to apply every known applicable tool and technique to improve fat and oil production and utilization. Available facilities permit investigations ranging from studies of fundamental chemical and physical properties to pilot plant processing and product development.

SINCE The Journal of the American Oil Chemists' Society is one of the principal means of communicating the findings of these laboratories, no purpose would be served by enumerating or discussing them here, but current research will be summarized briefly.

The Northern Regional Research Laboratory, Peoria, Illinois, conducts research and development work on oils derived from soybeans, safflower, flaxseed, and minor oilseeds. The composition and properties of oils are studied, new analytical methods developed, and new processes and products investigated. Current studies concern the autoxidation of linolenic acid; the chemistry of phosphatides; reactions of active halogen compounds with fatty acids; and the products responsible for flavor deterioration in edible oils. Work is also in progress on the application of X-ray diffraction to fatty acid structure; on the effect of sludge on oil refining loss; on the color of vegetable oils; on metal scavengers; and on modified oils for use in protective coatings, plasticizers, road oil additives, and hydraulic fluids.

The Southern Laboratory at New Orleans investigates cottonseed, peanuts, sesame, tung, rice bran, and other minor oilseeds. Field stations conduct related investigations at Bogalusa, Louisiana (tung); Houma, Louisiana (sugar cane oil and wax); Winter Haven, Florida (citrus seed and pulp oils); Olustee, Florida (rosin acids). Current studies concern stability and antioxidant activity; hydrogenation and interesterification; determination of thermal, dilatometric, and solution properties; pigments, waxes, phosphatides, and other minor constituents of oils and oilseeds. Analytical methods are improved and developed, new products are evaluated, and the composition and properties of oilseeds and oils are investigated.

The Eastern Laboratory at Philadelphia confines its investigations to animal fats, devoting major efforts to the preparation of fatty derivatives having industrial uses. This work includes the preparation of polymerizable derivatives of fats and their evaluation as plastic modifiers. Considerable research also is conducted on the composition, odor and flavor deterioration, metal contamination, and graininess of lard and tallows; on synthetic detergents from fats; and on the constituents of wool grease and suint.

The Western Laboratory, Albany, California, has no major fat and oil research program but is investigating a number of problems, particularly on food processing and preservation, which involve lipid chemistry and technology. Work is under way on the lipase of rice bran and methods of inhibiting its activity; on the isolation from rice bran of antioxidant concentrates; on minor oil-producing crops and materials with particular reference to agricultural wastes or residues; on fats and oils in connection with poultry and egg processing, particularly the stability characteristics of egg lipids in relation to those of dried eggs. Effects of processing and storage variables on the stability of poultry fat, including turkey fat, and the usefulness of antioxidants or improved packaging procedures in reducing fat deterioration also are being studied.

RELATIONS between the American Oil Chemists' Society and the regional laboratories have always been mutually advantageous. Particularly worthwhile are the opportunities provided by the Society for close association with other scientists having common interests and goals. Approximately 70 Laboratory staff members are active members of the Society. Many are now, or have been, national officers or members of national and local committees. Such service is considered a privilege. It is entered upon with seriousness, and the attending obligations are accepted and discharged conscientiously. On the other hand, the semi-annual meetings and the Journal of the Society are indispensable media for information about the work and accomplishments of these laboratories, and the Official and Tentative Methods are essential to their research.

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