SYMPOSIUM ON THE MOLECULAR STRUCTURE OF FATS AND OILS[1]

INTRODUCTION TO THE SYMPOSIUM

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The enthusiasm which greeted the suggestion of organizing a symposium on the Molecular Structure of Fats and Oils for the American Chemical Society meeting in St. Louis (April, 1941) was gratifying and contagious. Without exception, every chemist with experience in the study of lipids who was consulted regarding the program expressed hearty approval of the proposal. The attendance and discussions at the meeting gave further evidence of the widespread interest and timeliness of the subject.

The fats and oils are far more complex than is generally realized, not only with respect to the multiplicity and variation in the types of materials present but also in the nature of the dominant group of compounds, the fatty acid glycerides. It seems necessary to emphasize repeatedly the fact that our knowledge of the molecular structure of the fats and oils is extremely fragmentary. The elementary concept of "glycerol and three fatty acids" is still held too widely as an adequate picture. To the chemist, who is in a position to appreciate the great importance of knowing the nature of the fundamental molecular units in any material that is used extensively, the study of fats and related lipid materials presents a worthy and exciting challenge.

The quantities of oils and fats that enter into commercial usage are impressive. We produce annually in the United States approximately 1.5 billion pounds each of butter and lard and nearly 2 billion pounds of cottonseed oil. We consume nearly half a billion pounds of oil in the highly technical paint and varnish industry, and we have a factory utilization of approximately 5 billion pounds of fats per year. Yet we know relatively little about many phases of their molecular structure or the chemical steps involved in the synthesis, breakdown, and reconstruction of fats in

[1] This Symposium was held under the auspices of the Division of Biological Chemistry and the Division of Agricultural and Food Chemistry at the 101st Meeting of the American Chemical Society, St. Louis, Missouri, April 7–11, 1941.

either animals or plants. It seems reasonable to suggest, then, that industry, agriculture, and even medicine are likely to reap a good return from continued fundamental research.

A special note of indebtedness for assistance in making the symposium possible is due the officers of the participating Divisions: Division of Biological Chemistry, H. O. Calvery, *Chairman*, and E. Brand, *Secretary*; Division of Agricultural and Food Chemistry, G. A. Fitzgerald, *Chairman*, and C. R. Fellers, *Secretary*. R. C. Newton and A. S. Richardson, who served as presiding officers, were also helpful in arranging many of the details of the program.