Activities of the American Meat Institute as Related to the Fats and Oils Industry[1]

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YOUR program chairman has asked me to outline to you what the American Meat Institute and the American Meat Institute Foundation do, with particular reference to their research activities relating to fats and oils.

The American Meat Institute is a trade, research, and educational organization of the meat packing industry. We have about 400 members of all sizes, located in all parts of the country. The annual payment of dues is based on the number of head of meat animals slaughtered by each company that conducts slaughtering operations, and on the tonnage of meat and by-products handled by those companies who do not slaughter livestock.

The Institute conducts various industry activities in such fields as livestock producer relations, public relations, marketing, packinghouse practice and research, advertising, nutrition, and scientific research. It's the scientific research activities that I wish to discuss because they embrace the activities in which you are most interested.

Meat Packing Industry Interest in Fats and Oils

First, I want to explain the interest of the meat packing industry in fats and oils. This interest stems from the fact that a large segment of the production of the meat packing industry consists of animal fats. For example, approximately 15% of the live weight of a hog consists of pork fats, most of which is rendered into lard, and total lard production in the 1952-53 marketing year amounted to nearly 2.6 billion pounds. An important by-product of cattle consists of tallow, both edible and inedible, and grease. In the past marketing year the production of these products amounted to about 2.8 billion pounds as the following table shows.

Another way of stating the interest of the meat packing industry in fats and oils is that over 40% of the total production of all fats and oils produced in this country consists of rendered animal fats (not including butter).

Scientific Research an Important Activity

It's no wonder, with these contributions made by the meat industry to the production of fats and oils, that the American Meat Institute has had a significant and continuing interest in these products. Scientific research projects, relating to animal fats, have been conducted by the Institute's Department of Scientific Research for more than a quarter of a century. Research work in this field was started by the Institute in the late '20's, under the direction of the late W. Lee Lewis, then director of the Department of Scientific Research, and his colleague, the late Frank C. Vibrans. H. R. Kraybill succeeded Dr. Lewis as the director of the Institute's Department of Scientific Research in 1941, and he and his research associates have continued, on an intensified basis, research in the field of animal fats.

The research work was enlarged considerably in 1944, with the formation of the American Meat Institute Foundation, a non-profit organization affiliated with the University of Chicago and located on its campus. The Foundation moved into its new laboratory building on the campus of the University of Chicago in 1949. This structure, with all of the equipment, represents an investment of about three-fourths of a million dollars. The funds for building and equipping this building were contributed by several hundred meat packing companies—from the smallest and largest—and by some companies in allied industries. The annual budget of the Foundation, amounting to several hundred thousand dollars, is obtained from contributions made annually by a large number of meat packing companies and others, and by special grants and contracts made from time to time by various government agencies and others, for conducting specific kinds of research relating directly or indirectly to products of this industry.

Some Outstanding Research on Animal Fats

This continuous and expanding research with animal fats has produced some significant research accomplishments. I wish to refer briefly to two of these developments. You will hear more in detail about the various research projects of the American Meat Institute Foundation later from Dr. Kraybill, L. R. Dugan Jr., B. S. Schweigert, and A. J. Siedler, of the American Meat Institute Foundation staff, and other fats and oils experts.

The first of these research accomplishments to which I wish to refer briefly relates to the substantial improvement that has been made in the quality and keeping-quality of lard and other animal fats. The Foundation has developed a highly effective antioxidant (BHA and mixtures containing BHA) which retards development of rancidity in lard and other animal fats and which also carries through and retards rancidity in the foods made with animal fats. It is estimated that currently about one billion pounds of lard and other animal fats are stabilized with this antioxidant annually. The development of a carry-through antioxidant has made it possible to prepare shortenings from animal fats that have stabilities comparable to those of vegetable shortenings.

You may be interested in knowing how the American Meat Institute Foundation made this antioxidant available to all members of the industry. The Tennessee Eastman Company prepares this antioxidant and makes it available to the trade for a very reasonable charge.

New Use for Animal Fats

Another significant development that has resulted from research is the development of information demonstrating the feasibility of large scale commercial use of stabilized non-food animal fats in animal feeds, particularly dry dog foods and poultry rations. Over two billion pounds of tallow and grease currently are produced annually in this country. Traditionally the major portion of these fats has been used in soap manufacaure. Smaller amounts have been used for other industrial purposes and for export. In recent years, according to Foundation officials, technological developments introduced competitive materials from other sources in the form of synthetic detergents. These products have found substantial acceptance for many uses previously served by detergents made from animal fats. This new research, supported by contract with the Eastern Regional Research Laboratory, United States Department of

[1] Presented at the 27th annual Fall Meeting, American Oil Chemists' Society, Chicago, Nov. 2-4, 1953.

Estimated Production of Fats and Oils, Year Beginning October, 1953 with Comparisons

Item	1953[a] mil. lbs.	1952[b] mil. lbs.	Average 1942-46 mil. lbs.	Average 1937-41 mil. lbs.	1953 change from 1952	1953 change from 1942-46	1953 change from 1937-41
					%	%	%
Lard and rendered pork fat	2,350	2,570	2,514	2,091	−9	− 7	+12
Edible beef fats	200	215	197	225	−7	+ 2	−12
Inedible tallow and greases	2,500	2,550	1,782	1,303	−2	+40	+92
Rendered animal fats	5,050	5,335	4,493	3,619	−5	+12	+40
Other fats and oils	7,139	7,324	5,465	5,081	−3	+31	+41
Grand total	12,189	12,659	9,958	8,700	−4	+22	+40
Percentage rendered animal fats	41.4%	42.1%	45.1%	41.6%			

[a] Forecast based on October 1, 1953, crop estimates and other indications.
[b] Preliminary.
Source: United States Department of Agriculture.

Agriculture, has uncovered a new and potentially large market for animal fats, and these new outlets should help reduce the surplus of these animal fats and thereby improve the value of these products from meat animals.

The Foundation also has carried out, in a pilot plant rendering unit and in some of the plants of member companies, experiments on the effect of conditions of rendering on the quality of lard. Engineers on the Foundation staff have devised equipment for recording automatically the temperature of the charge in the melter, for determining the proper end point, and for controlling automatically the process of rendering. This equipment records the actual temperature more accurately than other equipment currently offered the industry.

The Service Laboratory of the Foundation provides not only an analytical service for the industry but also advisory counsel which functions as an aid in controlling the quality of animal fats.

All of the research findings of the American Meat Institute Foundation are reported from time to time in various scientific journals, including the Journal of the American Oil Chemists' Society, and also by bulletins issued periodically by the Foundation.

Research of the National Live Stock and Meat Board

I have been asked to mention the activities of some other organizations that have an interest in animal fats and that have been doing some research with these products. One of these organizations is the National Live Stock and Meat Board. The National Live Stock and Meat Board, an organization sponsored and financed by livestock producers, feeders, meat packers, and other segments of the livestock and meat industry, has been carrying on its program of education and research for the past 30 years. It conducts meat cutting and meat cooking schools and demonstrations and disseminates information about the nutritional facts about meats, methods of cooking, and methods of serving meat. It encourages a considerable amount of research on meat and lard through grants-in-aid to colleges, universities, and medical centers. Among these research projects that the Board has sponsored and encouraged are: the study of animal fats, particularly the nutritive value of lard, and the use of lard in the treatment of eczema. Some interesting studies also have been sponsored concerning the human requirements of the essential fatty acids contained in lard.

Research of the National Renderers' Association

Another organization interested in animal fats is the National Renderers' Association. It is an organization consisting of processors of inedible animal fats. During the current year this organization raised and contracted an initial sum of $25,000 to be used for laboratory research to find new major uses for inedible animal fats. Some of this research will be conducted by the American Meat Institute Foundation. It also has several marketing projects under way, designed to promote the increased sale of its products, according to F. B. Wise, secretary-treasurer of the National Renderers' Association.

Outlook for the Future in Animal Fats

In conclusion, it is our belief that members of the American Meat Institute and other friends of the American Meat Institute Foundation, who contribute funds to that organization, are research-minded and have faith in the value of scientific research. They are aware that research is a continuing project, that a considerable amount of basic research has to be done before practical applications of the findings can be put into use, and that much of the work done may prove to be of a negative character. But the industry believes that, in the long run, the research results will be worth the funds invested in the research program, and an important segment of this industry research, as far as we are concerned, relates to animal fats.

We hope to be able to continue this work, and we hope that additional new uses and improved acceptability of the products of this industry will be found.

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EMERY INDUSTRIES INC., Cincinnati, O., have started construction of a new $800,000 research center. Adjacent to their plant in Cincinnati, the new building will provide new and larger quarters for the departments of basic research, development, and chemical engineering. Completion of construction is predicted for late 1954.

Chicago Fat and Oil Chemists Meet at Builders Club

THE Builders club was the scene of the opening meeting of the fat and oil chemists and engineers in Chicago on February 4, 1954. One hundred and eighty-three men and women from various industries and laboratories all over the Chicago area came to dinner and heard Ralph H. Potts, technical director of Armour and Company, describe his interesting experiences in Europe last summer. Dr. Potts visited the various fatty acid, soap, and glycerine installations on the continent, in England, and the Scandinavian countries. He brought to an interested audience an excellent picture of improving conditions in Europe.

Among the distinguished members of the audience were five past presidents of the American Oil Chemists' Society: J. P. Harris, 1933; H. C. Dormitzer, 1939; S. O. Sorensen, 1946; V. C. Mehlenbacher, 1949; and E. M. James, 1952. C. E. Morris, vice president and president-elect of the Society, introduced the speaker. Other outstanding members were Victor Conquest, vice president in charge of research, Armour and Company, and Norris D. Embree, director of research, Distillation Products Inc.

Of the 183 persons present, 120 were members of the American Oil Chemists' Society. This represents approximately 50% of the Society members in the Chicago area. All those present were in favor of the formation of a local oil chemists' group, and most of these signified a desire to take an active part in such a group.

At the next meeting on March 24 in the Builders club at 6 p.m. election of officers and selection of a name for the organization will be part of the business program. Another outstanding speaker has been obtained for this coming meeting, R. T. Milner, chief, Northern Regional U.S.D.A. Laboratory, Peoria, Ill. He will speak on the subject of fats and oils problems being studied by government laboratories or subject to research for further improvement. Dr. Milner is well qualified to consider the shape of things to come in the field of fats, oils, and glycerine.

From the favorable reports of the first meeting of this group in the Midwest it would appear possible to predict a successful future for the activities of oil and fat chemists in the Chicago area.

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Discuss Wax Polishes

A.S.T.M. Committee D-21 on Wax Polishes and Related Material and all of its subcomittees held meetings on February 4 and 5, 1954, during Committee Week in Washington, D. C.

The subcommittee on performance tests has concluded a significant contribution to flooring slipperiness testing with the publication of two proposed methods for measuring the static and dynamic coefficient of friction of waxed floor surfaces in the February A.S.T.M. Bulletin. The subcommittee discussed these methods and recommended the use of a ground glass plate as a standard flooring surface sample in preference to the tentative official test linoleum (T.O.T.L.).

The subcommittee on raw materials reported that two proposed methods will be published in the A.S.T.M. Bulletin: test for concentrating additives of waxes and test for the index of refraction of Carnauba wax and other high melting point natural and synthetic waxes. The chromatographic method for the determination of paraffin in waxes was discussed. New work under way includes the development of methods for determining sap. number and acid number of waxes. Ester and acid determination of waxes are under discussion.