

THE FOUR CORNERS . . .



By RAYMOND REISER, Chairman,
International Relations Committee;
HELMUT KORP, F. P. KHYM, H. JASPERSON,
J. E. EVANGELISTA, and H. NIEWIADOMSKI

Chairman's Comment . . . Raymond Reiser

This letter will be my last as Chairman of the International Relations Committee. I anticipate that the duties of my laboratory and my other responsibilities to the Society will be all I can handle for the next couple of years.

It has been most pleasant to have made the acquaintance of the Corresponding Secretaries through the mail and to have met those who have been able to attend the American Oil Chemists' Society meetings. The success of the program and of the Four Corners has been most gratifying. According to our Executive Secretary, Mr. Carl Hauber, this section of the Journal is unique among organs such as ours and promises to be most successful. The success is all yours.

It is to be anticipated that the Four Corners will eventually be a monthly feature, and one of the most read in the Journal.

Mr. Eugene I. Marshack, of Eugene Marshack Associates, has kindly consented to accept the responsibilities of the International Relations Committee. I am sure that most of you are already acquainted with Gene and know that he is ideally qualified to head up this committee and continue with the Four Corners. He travels extensively, can drop in on you on occasion, and is generally well-liked. The program is bound to prosper under his interest, personality, enthusiasm and ideas.

Sweden Helmut Korp

Fat Symposium at Abo, Finland, Aug. 31-Sept. 2, 1965

The fourth Scandinavian fat symposium, held at Åbo (Turku), Finland, provided a broader view of fat chemistry than the earlier symposia, which concentrated more specifically on rancidity problems. A total of 120 scientists attended the lectures held in four different sections: 1) Composition of Fats and Oils; 2) Fat Oxidation; 3) Oxidation of Fat in Foodstuffs; 4) Milk Fat.

Several of the Swedish papers presented at the symposium are as follows: A. Appelqvist, "Variation of Linoleic and Linolenic Acid Content in Rape- and Mustard Seed Oils," and "Studies on the Glyceride Structure of Spring Rapeseed and White Mustard"; U. Riiner, "Investigations of Phase Transformation of Fats with a Recording Differential Calorimeter"; R. Wettström, "Determination of Solid Fat Contents with NMR"; Inga Wilton, "Investigation of Fat Crystallization with the Microscope and DTA"; Ulla Holm, "The Oxidation of Triglycerides and Flavor Reversion"; R. O. Fredriksson, "Kinetic Investigation on Fat Oxidation at Low Oxygen Pressure"; U. Persmark, "Carbonyl Compounds in Hardened Marine Oils"; R. Marcuse, "Fat Oxidation and Modern Food Preservation"; P. Swartling, "The Importance of Unsaponifiable Matters in Butterfat."

The fifth Scandinavian Fat Symposium, 1967, will be held in Sweden.

Symposium, "Polyunsaturated Fatty Acids as Nutrients," Tylosand, Aug. 26-28, 1965

About 50 representatives from science and industry attended a symposium with 10 papers covering different

aspects of polyunsaturated fatty acids and their role in nutrition. Papers were given by E. Stenhagen, Gothenburg; J. Elovson, Lund; R. Holman, Austin, Minnesota; S. Lindstedt, Stockholm; H. Dam, Copenhagen; and L. Söderhjelm, Sundsvall. S. Bergström reported that he and his co-workers had isolated a group of new compounds, the prostanglins, and he described how these substances are formed from free fatty acids. Nicolay-Eeg-Larsen, Oslo, gave a survey of the content of polyunsaturated fatty acids in different foodstuffs. E. M. Ahrens, New York, discussed problems in decreasing cholesterol level in blood by different dietetic methods, mainly consumption of polyunsaturated fatty acids. The last paper of the symposium was given by Dr. Frantz, Minneapolis, who described the difficulties and problems with the American National Diet-Heart Study.

New Margarine Plant at Karlshamm

KF's new margarine plant was officially opened Sept. 24, 1965. The new plant has an area of 12,000 square yards; it has a capacity of 200 tons of margarine per shift and approximately 80,000 parcels of imitation ice cream daily. The plant is considered to be the most modern in the world and is highly automated.

Margarine Factory Moves to Hälsingborg

Pellerin/Zenith announced a rationalization and extension plan and will move their margarine factories to Hälsingborg with a direct connection to the harbour and industrial tracks. At the beginning of 1968 the present production in Malmö and Gothenburg will gradually be transferred to Hälsingborg.

Convention of Swedish Food Technologists, Ronneby, March 31-April 2, 1966

This year the theme of the convention was "Cooperation Between the Consumer and the Producer." The first day's meetings covered the more general aspects of the relation of the consumer and the food industries. The papers of the second day showed the relations between the edible oil industries and their customers. The opening speaker was H. Korp, who gave a lecture on product development in the edible oil industries. Fat problems of different food industries were given in a series of papers:

Joseph Dahlén, "Rapeseed—A Domestic Raw Material"; Agne Johnsson, "Margarine Manufactures—Position Between Raw Material Suppliers and Food Consumers"; W. Andersson, "Fat Problems in Chocolate Industry"; P. Swartling, "Milk Fat as Raw Material in Dairy Industries"; S. G. Grufstedt, "How Can the Designer of Deep-Fat Frying Equipment Stop Fat Destruction"; B. A. Schatz, "Some Investigations on Cooking Oils"; K. E. Wallenberg, "Packaging of Fats and Fat-Containing Foodstuffs."

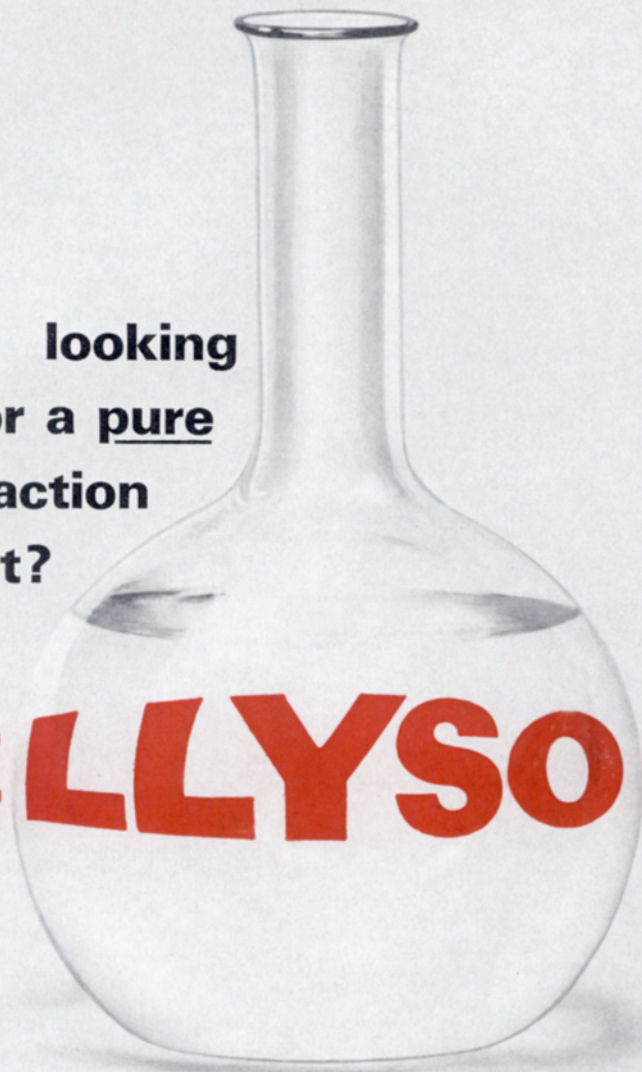
On the third day of the convention, papers covering original research were given, some in the field of fat chemistry: I. Rasmusson, "Headspace GLC of Volatile Compounds in Peas"; U. Holm, "Thermal Oxidation of Fats by Frying and Deep-Fat Frying"; U. Riiner, "X-Ray Diffraction of Fats"; I. Wilton, "Polymorphic Fat Crystallization" (a motion picture).

The convention was organized by K. E. Thomé, Alnarps; B. Drake, Gothenburg; and H. Korp, Karlshamm. The

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meeting was attended by 200 food technologists. Excursions have been organized to Reymersholms Food Manufacture plant and to Karlshamn, visiting the new margarine plant and research laboratory.

Men on the Move

BENGT ULF, formerly executive vice president of SEF, Stockholm, is now with Pellerin/Zenith, Malmö.

W. TIGNELL has been appointed executive vice-president of SEF, succeeding Bengt Ulf.

AGNE JOHNSON, Pellerin/Zenith, Malmö, was promoted to vice-president, production and engineering.

T. HERMANSSON, formerly of Bostik AB, Hälsingborg, is now with AB Karlshamns Oljefabriker as product manager for fatty acids and animal feeding stuffs.

L. HINSELL, formerly with AB Felix, Eslöv, is now with AB Karlshamns Oljefabriker as product manager for consumer goods, mainly for export markets.

Mexico F. P. Khym

The increase in Mexico's economic growth rate in the last two decades reveals the growing potential and the increasing opportunity for profitable investments in that nation. In the past decade Mexico has expanded its agricultural program immensely in order to obtain additional quantities of crops having oil-bearing seeds. Particular attention has been given to the increase in growth of safflower seed. This crop has grown from 80,000 metric tons of seed per year to this year's estimation of 200,000 metric tons, which will produce approximately 70,000 metric tons of oil for edible purposes. The over-all edible crop for 1966 is approximately 400,000 metric tons. Copra is now being exported from Mexico as a result of accelerated growth of coconut palm trees.

Just recently an international section of the American Oil Chemists' Society was formed in Monterrey, Mexico. This society will be very helpful to the fat and oil industry within the Republic of Mexico and to the engineers and technicians affiliated with the industry.

The Monterrey Section is planning to hold its first short course at the Instituto Tecnológico de Estudios Superiores de Monterrey, Jan. 23-25, 1967.

Great Britain H. Jasperson

The Eighteenth Technical Exhibition of the Oil and Colour Chemists' Association was held in London on March 14-18, 1966. It was opened by the Earl of Kilmuir, who is President of the British Standards Institution. Exhibits indicated trends in raw materials, intermediates and finished products for the surface coating and allied fields; included were the first tall oil fatty acids made in Great Britain.

Among publications of interest to lipid chemists are the Proceedings of the Nutrition Society, Volume 29, No. 1, 1966, containing the papers given at the Symposium on "Nutritional and Toxicity Problems Associated with Fats," which was held in Cambridge on July 2 and 3, 1965. Papers on human nutrition dealt with nutritional evaluation of hydrogenated fats (H. J. Thomasson, J. J. Gottenbos, J. Kloeze and R. O. Vles), heat-induced changes during processing and use of edible fats (C. B. Barrett and Caryl M. Henry) and pesticide residues in fat-containing foods and in human fat (H. Egan), while those on animal nutrition included a paper on the effects of moderate levels of oxidized fat in animal diets under controlled conditions (K. J. Carpenter, J. L. L'Estrange and C. H. Lea) and adverse effects of cyclopropenoid fatty acids (G. G. Shone).

Following the success of the oil palm conference held in London in May 1965, the papers presented at the conference have now been published under the title "The Oil Palm" by the Ministry of Overseas Development and an Oil Palm Advisory Bureau has been set up which plans to issue the "Oil Palm News" at six monthly intervals. The first issue, which is available from the Tropical Products Institute, will shortly appear.

The Oils and Fats Group of the Society of Chemical

Industry has completed its winter session with the Annual General Meeting followed by the annual dinner at Liverpool on April 26th. A paper entitled "The Industrial Significance of the Biodeterioration of Oilseeds" was given by H. O. W. Eggins from the International Biodeterioration Centre at the College of Advanced Technology, Birmingham (which publishes the International Biodeterioration Journal). W. D. Raymond continues as Chairman of the Group for the session 1966-67.

Increasing development in crushing units in the tropics has restricted the supply of oilseeds to the United Kingdom seed crushing industry. Features of interest in the market position of edible oils are that groundnut oil is competitive again with other soft oils, rapeseed oil tends to be used increasingly in conventional fats, margarines and shortenings, and there has been a decline in the use of lard to only about 5% of all oils and fats used in conventional fat formulations, the lowest since 1961.

Republic of the Philippines J. E. Evangelista

The Republic of the Philippines is the world's leader in the production and export of coconut products. Approximately 60% of the world copra and coconut oil imports came from this country; about 75% of this is in the form of copra.

In spite of the large volume of copra exported, practically all handling of copra from farm to ship is done manually. There is still no copra bulk handling terminal, although several attempts have been made towards the establishment of such terminals.

Recently, the Philippine Coconut Administration (Philcoa), the government agency which is charged with the promotion of the industry, in close cooperation with the Philippine Coconut Producers Federation, launched a program to establish bulk handling facilities throughout the islands.

As a starter, Philcoa commissioned the McNally-Pittsburg International, Inc., of Pittsburg, Kansas, to make the design and preliminary engineering of the first copra bonded terminal ("Cobonter") to be located at the Port of Plaridel in the Island of Luzon. This will include facilities for storage, receiving and loading, inspecting, sampling and testing of copra. Engineering will be done by McNally-Pittsburg in cooperation with the technical staff of the Philcoa and the E. J. Nell Company, McNally-Pittsburg's agents in the Philippines.

The advantages of the proposed copra bonded terminals are:

- 1) Considerable reduction in the cost of handling of the copra.
- 2) Improve the quality of the copra since all export copra will be shipped thru these terminals. Copra will have to be inspected and tested carefully before being allowed to be exported.
- 3) It will make copra, like sugar, bankable. Small producers will benefit from this aspect of the proposed Cobonter system. And this will only be practical if there is a strict and uniform system of grading and classifying copra, which is proposed by Philcoa for the Cobonters.

Poland I. Niewiadomski

Before giving the latest news from Poland concerning the economical and scientific problems of fats I think it is necessary to give some introductory information regarding edible fats in Poland.

Our own raw material base includes the cultivation of rapeseed exclusively. The crops of those seeds increased from 56,000 tons in 1950 to 413,000 tons in 1965. In this way Poland became the greatest rapeseed producer in Europe, and, after the Asiatic countries, greatest in the world. In the same time-period the consumption per head of margarine increased from 0.8 kg to 4.4 kg and the share of vegetable oils in the total consumption of fats increased from 14.9% to 32.7%, respectively. Those figures indicate, in an indirect manner, the development of oil industry here. The prewar oil industry in Poland had been almost com-

pletely destroyed. Since the war the old factories have been rebuilt and whole groups of new establishments created. They include a closely cooperating industrial system for the extraction, refining, and hardening of oil as well as the production of margarine. Much modern equipment has been installed, such as that for neutralizing by means of separators, continuous bleaching, and semicontinuous deodorization. More than one third of the refinery production and three fourths of the extraction processing is being carried out continuously. The production of margarine has been increased five times during these last 15 years. Today margarine is mainly produced according to the "Votator" system.

Recently in the Industrial Fat Institute a continuous method was worked out for removing vegetable oil sludge and obtaining lecithin. That method is based on the hydration of oil with pure water with a slight excess. Among the other known methods it is distinguished by the speed of the process as well as by delicate parameters which do not badly influence the chemical structure of the product. Further, there is a high recovery of the phospholipids contained in the oil. The highly reliable equipment with small overall dimensions ensure a continuous operation, low energy costs, and a minimal labor expenditure. Further, they may be fully automatized. As a result of that process steady commercial edible lecithin is obtained. It requires no refining. Its humidity does not exceed 0.2%, and the acid number of the acetone extraction is 3 to 5, depending upon the kind of oil used. The oil without sludge contains less than 0.01% of phospholipids calculated over to phosphorus, less than 0.05% of humidity, and is suitable for further refinement as well as for long-time storing.

Scientific work in the field of chemistry and fats technology is carried out at the universities and industrial laboratories.

Since 1960 there has been a Department of Fats Technology (headed by Prof. Dr. H. Niewiadomski) at the Gdansk Technical University which prepares students for obtaining master-of-science degrees and leads to a doctoral thesis in this field. That department is subdivided into two laboratories, viz., one for edible fats and the other for nonedible fats (headed by Assoc. Prof. Dr. W. Zwierzynski). Further, there is a pilot-plant installation.

Its latest scientific achievement is the development of a prototype gas chromatograph, which is especially sensitive and suitable for analyses in the field of fats chemistry. In the very near future, industrial production of that instrument will be commenced.

At the Agricultural College at Olsztyn there is a Department of Food and Preservation Technology (headed by Prof. Dr. A. Rutkowski). Specialists with master-of-science degrees are also trained there, as well as those with doctors degrees, attained mainly in the field of using oily seeds and extraction meal for fodder. That department has a laboratory for physiological experiments.

In addition to the university institutes there are also two industrial institutes in Warsaw. One of them belongs to the oil industry (it is headed by Dr. A. Jakubowski) and the other to the chemical industry. In the latter institute there is one department devoted to nonedible fats and first of all to detergents (it is headed by Prof. Dr. Rutkowski).

A congress of the International Society for Fat Research took place at Gdansk in 1960. It is most probable that in 1967 an International Symposium devoted to rapeseed oil chemistry and technology will take place also at Gdansk.

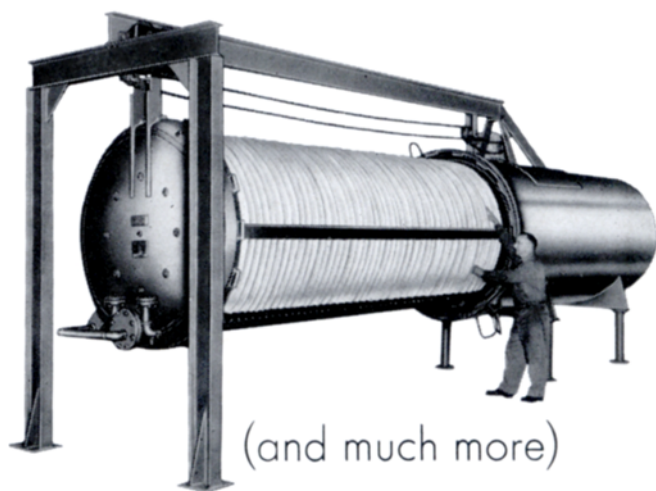
All of the above mentioned scientific institutions here give their greatest attention to that domestic oil. Its chemical composition as well as that of its minor substances are being continuously studied, and the most reasonable methods are being developed for its refining and hardening as well as for the production of margarine.

India K. S. Krishnan
Oil Supply and the Five Year Plans

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