

Four Corners



EUGENE MARSHACK, Chairman, International Relations Committee—M. BERGEL, R. MARCUSE, J. POKORNY, and A. UZZAN, Corresponding Secretaries

Czechoslovakia Jan Pokorný

France A. Uzzan

Fat and Oil Chemistry Meeting

The 15th Annual Meeting of the Czechoslovak Oil Chemists took place in Smolenice (Slovakia) on June 28-30, 1976. The meeting opened with lectures by J. Urban, general director of Fat Industry, Prague, and S. Schmidt, general director of Palma Nat. Corp., Bratislava. In the section on zero erucic acid rapeseed oil, experiences with rapeseed grown in Czechoslovakia were discussed from the standpoint of economics (J. Scholz), medicine (A. Bucko), processing (A. Prikryl), and applications for edible fats (E. Mares) and baker fat (W. Schwarz). In the section on lipid oxidation, papers were presented on the oxidative rancidity of hydrogenated oils during storage (M. Prudel and J. Pokorný), effect of antioxidants on the enzymic oxidation of lipids (J. Kalác), formation of polymers during the processing and storage of edible oils (H. Parízková et al.), and changes of lipids on irradiation (Z. Salková). Among the technological papers, three were of particular interest. These dealt with the investigation of interesterification reactions during the processing of sunflowerseed oil (J. Sládek), the effect of interesterification on rheological properties of soft margarines (J. Cmolík and P. Stern), and the application of vegetable oils for production of adapted (humanized) milk preparations for infant nutrition (J. Jirousková et al.). In the analytical section, V. Koman explained applications of computers for the evaluations of analytical data in lipid chemistry. Among other analytical papers, two contributions showed the application of modern instrumental techniques: those of S. Schmidt, Jr. (use of high efficiency capillary columns in lipid analysis) and Z. Svoboda (use of DSC for the evaluation of solid fats).

5th International Symposium of Household Chemistry

The symposium, traditionally held in the spa Piestany (Slovakia), June 28-29, 1976, consisted of plenary lectures and of sections on detergents and cosmetics. In the section on detergents, several papers concerned new raw materials and products manufactured in the Soviet Union, Poland, Hungary, Bulgaria, German Democratic Republic (GDR), and Czechoslovakia. In addition, P. Tzotschewa and T. Cvetkov (Bulgaria) presented a lecture on the effect of mechanical treatment on the crystalline structure and quality of soap. K. Ueberschaer (GDR) discussed his experience with the research and development of detergents for mixed polyester-cotton fabrics. D. Caniew et al. (Bulgaria) discussed various applications of sulfosuccinic acid esters for detergents and cleansing agents. G. Wasow (GDR) proposed a new method of determination of foaming power, using conditions close to those of practical washing. The use of higher secondary alcohols for the manufacture of nonionogenic surface active agents was treated in the paper by M. Bares et al. Two papers in the section on cosmetics were of interest to a detergent chemist: the review paper on the use of anion active surfactants in cosmetic preparations (M. Morák, Czechoslovakia) and that on polyol emulsifiers (L. Petkov, Bulgaria).

Scientific Events

In 1976, France was or will be the host country of several international events concerning oils and fats and related products.

In June, the International Association of Seed Crushers held its 53rd Congress in Monte-Carlo. More than a thousand specialists attended and had the opportunity to hear the report of the chairman of the IASC, J.E. Randag, as well as the lectures of Mr. Chappuis, deputy-manager of the Chemical Industries Department of the French Ministère de l'Industrie et de la Recherche, of Mr. Rohr, West German Agriculture Secretary, of Mr. Cellerier from the EEC, of S. Johnson, chairman of the American Soybean Association, and of Lowell Rasmussen, chairman of the National Soybean Processors Association. The activity reports of the various organizations of the IASC, i.e., FOSTA, GAFTA, and NIOP, were presented as well.

From August 29th to September 4th, the 13th ISF World Congress will take place in Marseilles. Its program has already been announced in *JAOCS*. This meeting will allow about 500 participants to hear more than 200 plenary scientific lectures, reports, and original papers.

Some days later, the International Conference on the Biochemistry of Lipids will be held in Paris. This one will allow all the specialists to review their knowledge in this important scientific field.

And last, still in Paris, the 3rd IUPAC International Symposium on Mycotoxins will take place in September.

These numerous events will give occasion to many of our colleagues from several countries to stay in France and visit research institutes such as ITERG.

European Club of Centers for Lipid Research

On the 3rd and 4th of September, during the 13th ISF Congress, the European Club of Centers for Lipid Research will hold its annual meeting following an invitation from ITERG. The 12 Club members, each one representing an important European research institute on fats and oils, will review their research activity in 1975 and set up the agenda of their cooperation in 1976 and 1977.

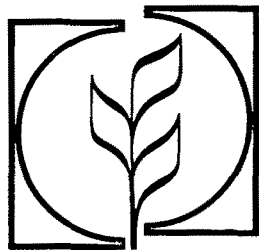
Association Francaise Pour l'Etude des Corps Gras (French Association for Oils and Fats)

The Board of this Association recently elected the Chevreul Medal Laureates for 1976. They are Prof. Umberto Pallota from the University of Bologna (Italy) and Francois Pouillaude, Société Lesieur-Cotelle et Associés (France). The Medal will be given to them during a meeting taking place in Paris next December, 1976.

Groupe d'Etude des Proteines de Soja: GEPS (Association for Soy Protein Study)

This Association has elected its new Board. Guy Deneck (SIO-Unipol) has been elected chairman, Joseph d'Orlando (Laboratoires Miles) deputy-chairman, and Michel Durand (Société ASTRA-CALVE) treasurer-secretary. Aldo Uzzan

has been confirmed as general delegate. The GEPS has set down the symbol shown for representing soy proteins in human nutrition. Several scientific events are being prepared for 1976 with the help of the American Soybean Association.



Industrial Activity

The persistent drought which France is enduring will bring several modifications in industrial activity. The winter rapeseed crop seems to be only slightly injured, if at all, and thus the oil supply will not be too greatly disturbed. On the contrary, grains and pastures have suffered very much from lack of water. We must expect an increased demand in meals importations which will be covered by importations of soybeans and soy meals.

Sweden Reinhard Marcuse

Lipid Research at the Department of Food Hygiene, R. Veterinary College, Stockholm

Research is being done on problems related to rapeseed, since these are high priority problems in Swedish agriculture and the Swedish edible oil industry.

This work is directed by Lars-Åke Appelqvist, recently appointed associate professor of food hygiene, specializing in food biochemistry, who for many years has been engaged in work to develop low erucic acid rapeseed oil and low glucosinolate rapeseed meal at the Swedish Seed Association at Svalöv.

Although the problems relating to the production of very low or zero erucic acid rapeseed with a very low content of glucosinolates have been solved at a scientific level, and in many of the rapeseed-producing countries will also shortly be solved in actual farming, the problems of producing high linoleic and low linolenic acid rapeseed are still mainly at the basic research level.

Efforts are being made to integrate analytical, biochemical, cell physiological, and macrophysiological information in order to better understand the important problems of the regulation of the linoleic-cod linolenic acid content in developing oilseed tissues. A major problem in practical conditions is the rather high sensitivity of the linoleic and linolenic acid content of rapeseed plants to macro-environmental changes. This has been studied by several series of experiments using the Phytotron at the College of Forestry, Stockholm. Problems relating to the autonomy of chloroplasts and the cytosol in fatty acid biosynthesis are being approached by isolation of chloroplasts from various types of tissue and by tracer studies with *in vivo* and *in vitro* experiments.

Another project is related to the variability in patterns of minor lipids in high and low erucic rapeseed oil from different genetic lines. This phenomenon is of interest from a technological point of view, since the organoleptic stability of different low erucic acid rapeseed oils differs in a way which is not related to the linoleic or linolenic acid content or anti- or prooxidative factor. It is also of interest as a "tag" of rapeseed oil, regardless of fatty acid patterns.

In a joint project with the College of Agriculture,

Uppsala, studies are being undertaken on the variability in cholesterol content of eggs and how these levels can be influenced by various feeding techniques.

Further, as a natural extension of previous studies on the variability of total amino acid patterns in various *Brassica* oilseed crops, undertaken at the University of Lund, and other earlier research on rapeseed protein concentrates, the detection and quantitative determination of non-meat protein in meat products is also being studied. Studies are also in progress on rapeseed protein concentrate RPC produced on a pilot plant level.

(Lars-Åke Appelqvist)

Research at the Norwegian Herring Oil and Meal Industry Research Institute, Bergen, Norway

The Norwegian Herring Oil and Meal Industry Research Institute (Sildolje-og Sildemelindustriens Forskningsinstitutt) in Bergen is a branch institute owned and run by the Norwegian herring oil factories and organizations of Norwegian fishermen. At present, the staff of the institute consists of about 60 members.

The projects being studied include composition and properties of raw materials and parameters of production processes as well as composition and properties of products. They require research on technological, chemical, biochemical, and nutritional aspects.

In the area of chemical research, the composition and properties of marine oils are being studied, particularly the dependence on raw material, fishing season, fish freshness, and conditions of production.

Part of the fat will remain in the fish meal, where it can easily be subject to oxidation. Research on oxidation and protection against oxidation of the residual fat in the fish meal has been going on for several years, especially with respect to a possible influence upon digestibility and nutritional value of the protein and fat as well as the aroma of the meat after feeding.

Further investigations are in progress to study the content of trace elements in the oils which may inhibit the catalysts used for hydrogenation of the oils.

Studies are being carried out on the occurrence of lipolytic enzymes in fish and in the bacteria causing deterioration of fish.

The institute has a pilot plant for the production of meal and oil from fish, facilities for carrying out feeding experiments with several kinds of domestic animals, and laboratories equipped with both conventional and special apparatus (e.g., equipment for micro-determination of sulphur).

(Nils Urdahl)

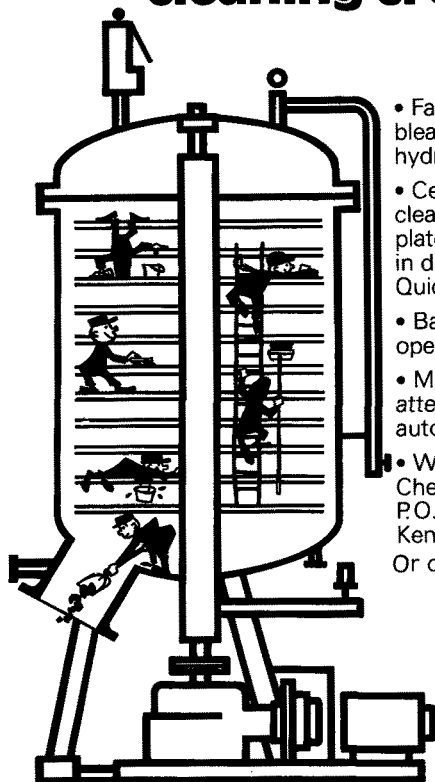
Research Activities at A/S Grindstedvaerkets Laboratories, Brabrand, Denmark

In European agriculture there is an increasing interest in the growing of new types of special, highly productive wheat varieties. However, these new types of wheat have poor baking properties and may in the long run cause problems for the baking industry. A/S Grindstedvaerkets Laboratories have, therefore, started a research project aimed at solving the baking problems that arise when these new wheat varieties are used. The application of food emulsifiers in this connection is being studied.

Further, there are continuous research activities with the purpose of studying the functional properties of food emulsifiers in various types of food, e.g., margarine, ice cream, bakery products, mayonnaise, etc. Besides this, flavor research is being carried out, especially concerning flavors of fats and fat-containing foods.

The mesomorphic behavior of food emulsifiers in aqueous systems has been studied and found to be respon-

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sible for some of the specific effects of food emulsifiers, but mesophases can also cause problems during food processing.

In emulsions, surface active lipids form mono- or multi-molecular interfacial films. Formation of liquid-crystalline structures at the interface has been found to be a stabilizing factor against coalescence. In imitation creams and similar products, emulsion stability is mainly due to the proteins present, and emulsifiers are used to give the aerated product the desired rheological properties. This depends on the agglomeration of the fat globules in the liquid state of the cream; agglomeration is promoted by emulsifiers which do not form liquid-crystalline interfaces.

The formation of liquid-crystalline structures is undesirable during manufacture of spray-dried emulsifier compositions which are used as aerating agents in, for example, cake mix. The formation of a mesophase of hexagonal type in emulsions containing GMS (= glycerol-monostearate) will cause increased viscosity and separation of the GMS-water mesophase from the emulsion. Emulsifiers like propylene glycol esters used in combination with GMS prevent formation of mesomorphic phases in such emulsions. When adding distilled GMS to ice cream emulsions, a similar problem can arise during the pasteurization process. The GMS particles swell into the gel-like particles consisting of a mesophase which tends to separate during filtration of the mix before homogenization.

A/S Grindstedvaerket sells its food emulsifiers all over the world. Subsidiary companies have been established in the UK, Germany, France, and Brazil and will soon include a subsidiary company in the USA at Kansas City, MO, called Grindsted Products, Inc.

(Niels Krog)

Argentina M. Bergel

Evaluation of Anti-Inflammatory Activity of Steroids

At the VI Latin-american Congress of Pharmacology in Buenos Aires, Meny Bergel reported on a special dermatitis produced in white male mice fed a semisynthetic diet containing 10% of autoxidized unsaturated fatty acid. This nonspecific dermatitis, which is localized principally in the tail and ears, is very important because it responds to steroids giving a typical linear curve of dose response. Taking this fact into account, it is used as a method of evaluating the anti-inflammatory activity of steroids. In this method, the number of anti-inflammatory cells of the dermis of tails is used to validate the anti-inflammatory activity of a compound. Valerate of betametasone is used as a control.

New Product Form of Vitamin A

Some pharmaceutical companies are selling vitamin A as propionate in the form of a very light colored, yellow powder derived from oranges. This powder is readily water soluble and in taste resembles orange juice. In sealed envelopes at room temperature, the product can be kept for months. The same procedure may be used for ascorbic acid, or vitamin C. ■

R.A. Morck Named Nabisco Division Vice President



Nabisco has announced the appointment of Roland A. Morck to the position of divisional vice president—research.

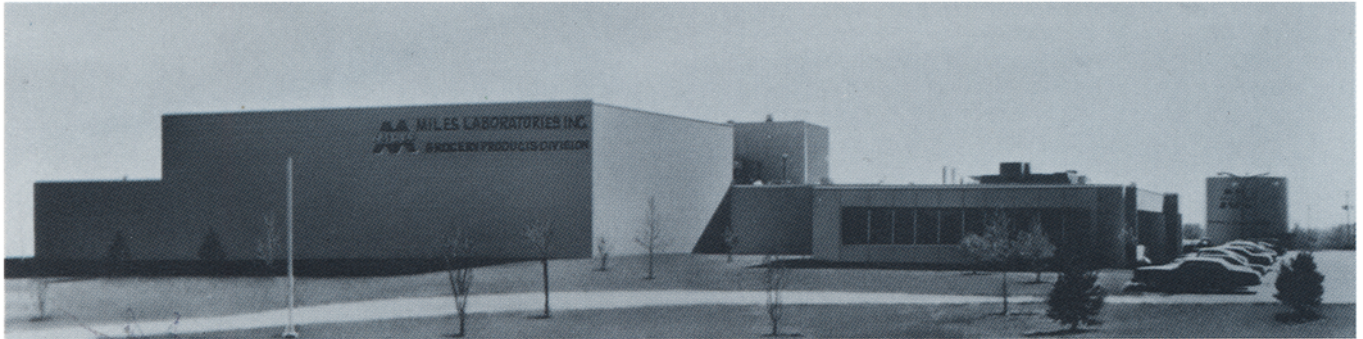
A graduate of St. Olaf College in Northfield, MN, Morck received his Ph.D in biochemistry from The Pennsylvania State University. Since joining Nabisco in 1955, he has held numerous executive positions at the company's Fair Lawn, NJ, Research Center. In 1971, he was named director of technological planning and in 1972, director of research and development.

Morck has been a member of AOCS since 1956. ■

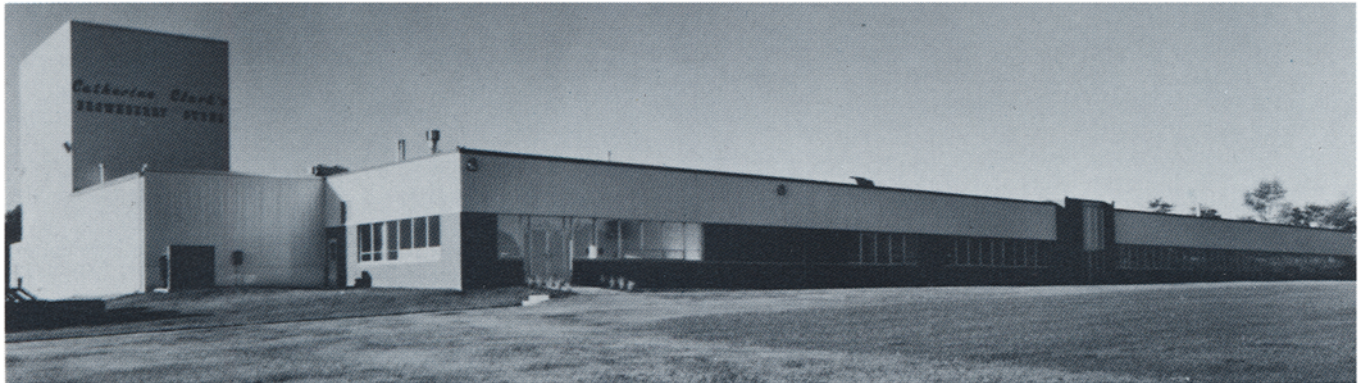
McKee

offers complete capability and single-source responsibility for the design, engineering, procurement and construction of facilities for the food and beverage industries.

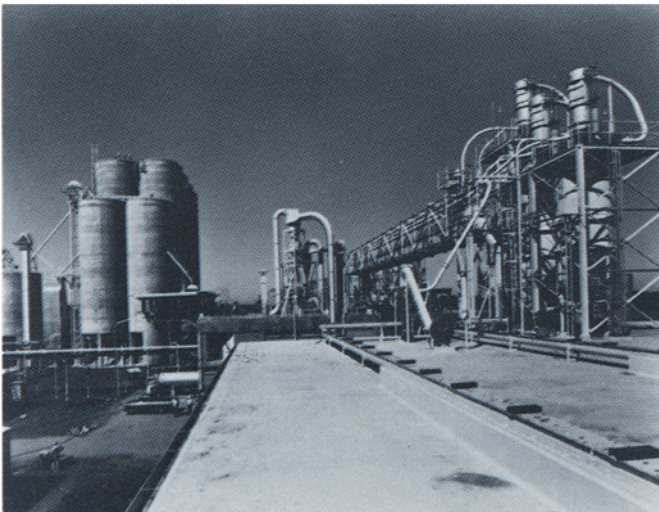
- Dairy processing
- Vegetable oil extraction, refining and finishing
- Meat packaging and processing
- Fish and seafood processing
- Corn and cane sugars
- Vegetable and synthetic proteins
- Convenience food processing
- Grain, cereal and bakery processing
- Brewery, distillery and beverage facilities



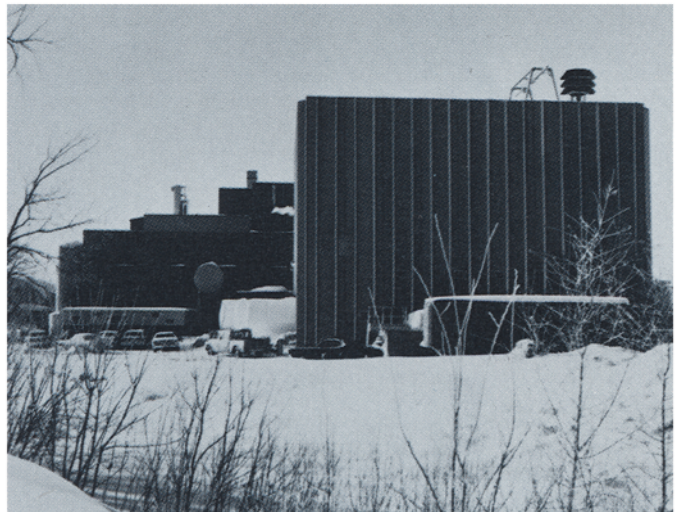
Textured Vegetable Protein Plant, Miles Laboratories, Incorporated, Schaumburg, Illinois.



Bakery, Brownberry Ovens, Inc., Twinsburg, Ohio.



Wet Corn Milling Plant, Staley Argentina S. A., Chacabuco, Argentina.



Protein Synthesis (Torula Yeast) Plant, Amoco Foods Company, Hutchinson, Minnesota.

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