

# THE FOUR CORNERS . . .



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*Five commentaries have been included in the December "Four Corners" section printed here. Communications from H. Niewiadomski, T. Asahara, Helmut Korp, J. Evangelista, and a special report from N. D. Embree will appear in the January issue.*

## *Argentina . . . . . Nolly Sirkis*

Between April 6 and 8, 1967, the School of Chemical Engineering (University del Litoral, Santa Fe Province), organized a symposium on production, industrialization and marketing of oilseeds. Its objective was to analyze the facts that belong to each of these stages and propose necessary modifications for better industrial development.

The agenda was as follows: 1) Techniques and Equipment for Extraction and Refining of Oils; 2) Complete Utilization of the Vegetable Proteins from the Oilseed By-Products (Cakes and Meals); 3) Construction of Equipment for the Oilseed Industry; 4) Complete Utilization of By-Products, Such as Hulls, Wax, Soapstock, etc.; 5) New Uses for Oils; 6) Research of New Sources of Oil Products; 7) Study of the Oilseeds Phytotechnically Fit, from the Standpoint of Industrial Utilization; 8) Training of Specialized Personnel; 9) Influence of the Manufacturing Processes in the Biological Quality of Oils and Fats; 10) Study of the Additives Utilized or To Be Used in the Oilseed Industry; 11) Differential Biological Values of Oils and Fats; 12) New Analytical Techniques; 13) Bromatological Standards for the Manufacture and Sale of Fats and Oils; 14) Tax Rules; 15) Credit Conditions; 16) Labor Regime; 17) Governmental Function in the Production, Marketing and Industrialization of Oilseeds; 18) Foreign Exchange Rates for Export Systems; 19) Marketing of Oilseeds (Raw Materials, Finished Products and By-Products); 20) Certifying Quality in Oilseeds Exports; 21) Oilseed Product Prospects in the Internal and External Market; 22) Diversification in Oilseed Production.

### **Crops**

Final figures on the 1966-67 sunflowerseed crop will reach 1,050,000 metric tons, a significant increase over previous years.

Simultaneously, there is evident a trend towards lower cultivation of cottonseed, indicated by the smaller cottonseed crop of this year (150,000 tons). In the Chaco Province, from which comes almost 70% of Argentine cottonseed, part of the soil utilized formerly for cottonseed cultivation is now used for sowing wheat, corn, soybeans, sorghum and sunflowerseed, as the result of a policy of crop diversification launched some years ago by that State.

The reduction of cottonseed production has undoubtedly been the cause of closing down three important mills located in that province: Anderson Clayton, Fabril Financiera and Dreyfus.

Forecasts for the 1967-68 oilseed crop are that, despite the good commercial prospects for flaxseed, resulting from the reduced crops of this seed in the Northern hemisphere, the next Argentine flaxseed crop will be about 20% less than the present one, because of adverse climatic conditions in the main production areas during the sowing season.

### **Tax Modifications**

With the aim of encouraging development of the Argentine metal fabricating industry, a new income-tax law, in force from July last, allows deducting 100% of the invested capital (from June 1, 1967 through Dec. 12, 1968) in machinery, equipment and installation manufactured locally.

This fact means a turn towards the local manufacture of equipment, because those imported, besides not having the aforementioned tax exemption, must pay high custom duties.

On the other hand, the beneficiaries of foreign technical, financial or other assistance will be able to deduct for tax purposes 50% of each payment received in such concept, as expense or cost for such assistance.

## *Canada . . . . . Madhu R. Sahasrabudhe*

### **Fats and Oils Situation:**

A symposium, The Fats and Oils Situation in Canada—Present and Projected—was organized by the Canadian Committee on Fats and Oils at the National Research Council, Ottawa, on Oct. 12-13, 1967. More than 200 representatives from industry, universities and the federal government participated. Eleven invited speakers presented papers on specific topics covering the production and utilization of fats and oils, and a panel of eight discussed the status of research in the field of fats and oils.

G. Bastian (Bunge Corp., N.Y.) speaking about the world situation said that supply-wise the world has not done too badly. During the past 20 years the world supply of fats and oils has increased by 59.5% while the world population has gone up by about 30%.

### **Exports**

Projecting the current rate of increases to the year 2000, it is anticipated that supply of oils & fats will still be ahead with about the same average per capita consumption (27-29 lb). H. P. Armstrong (Dept. of Trade & Commerce) stated that the overall position of Canada in the world as an exporter of oil seeds has remained static for the past few years (7.1% in 1966), while the world net exports have increased by approximately 40%.

Oil seed crops in Canada, in order of importance, are rapeseed, flax, soybean and sunflower. Canada is the largest single producer of rapeseed and accounts for 61% of the world export of rapeseed. J. C. Woodward (Dept. of Agriculture) predicted a steady increase in the acreage of rapeseed from its present 1.7 million acres. He also indicated the possibility of developing a suitable winter rape for eastern Canada, and higher oil producing varieties of sunflower.

## Domestic Situation

Speaking on domestic consumption, E. I. Smith (Canada Packers) stated that the Canadian pattern differed from that in the United States in the usage of a greater variety of imported oils. Refiners in Canada generally have 8 to 10 different types of fats and oils in process at one time. Soybean or Rapeseed oils account for nearly half of the oils used.

Canada is becoming more self sufficient in oil production primarily because of increased production of Canadian rapeseed and marine oils.

W. E. Jackson (Standard Branch) reported for the margarine industry in Canada. In 1966, Canada produced 181 million lb of margarine. Soybean is the major vegetable oil used for margarine. Other vegetable oils include coconut, corn, cottonseed, palm, peanut, rapeseed and safflower. Herring oil is the major marine oil. Canadian margarines utilize vegetable oils—75%, marine oils—20%, and animal fats—5%. Future trends in quality indicate that in addition to flavor, consistency and keeping quality, more emphasis will be placed on the spreadability and the fatty acid composition.

S. O. Winthrop discussed the extent of the shortening industry in relation to specific usage. Oils used in shortening are as follows: Vegetable oils—68%; animal fats—28% and marine oils—6%. Soybean oil and rapeseed oil account for about 40% of the total. Reference was made to the strong price consciousness of the consumer and the resulting need for flexibility in interchanging oils dictated by prices and availability. Specific requirements for liquid shortenings and bakery shortenings were discussed.

D. J. Sommerville (Swift Canadian) spoke on the production of animal fats. In spite of a sharp increase in hog production, Canada imported 29 million lb of lard in 1966. The trend to leaner hogs continues to reduce the amount of lard per hog. Cattle industry continued to produce higher percentages of branded cattle; however, there is no significant change in the tallow production.

Dr. Lehberg (Dept. of Industry) discussed the need for further development of oleochemicals. The fatty acid producers in Canada are acutely aware of the growing importance of the oleochemical industry. It is estimated that Canadian imports of oleochemicals are in the order of 7 million dollars.

D. B. Goodwillie (Canadian Dairy Commission) showed some concern over the decline in butter consumption, particularly in view of the fact that this product is selling at 1¢ per lb less than it was in 1958. The supply and demand trend in dairy products was as close to being in balance in 1966 as it has been for many years, particularly when compared to 1960 when Canada had a surplus of 200 million lb. The profitable disposal of butterfat has been and will continue to be a problem not only in Canada but in world markets as well. It was emphasized that vegetable fat type ice-creams are not sold in Canada.

Dr. Ackman (Fisheries Research Board) gave an account of the production of marine oil in Canada. Prior to 1961, Canadian production of marine oils has been primarily based on the body oil from herring from the Pacific Coast. Recent years have shown a remarkable expansion of Atlantic Coast herring fisheries. A number of new plants are scheduled to begin operations in 1967–68 and the East Coast production is anticipated to increase by at least 40%. A large scale research program is under way at the Halifax laboratories of the Fisheries Research Board to investigate seasonal variations in the composition of herring meal and oil. Reference was also made to other species such as Capelin as sources of good quality oil and meal similar to herring.

## Regulation of Unsaturated Fats

T. K. Murray (Food & Drug Directorate) presented the proposed regulation on polyunsaturated fats. A considerable discussion followed. The Symposium was chaired by D. F. Chalmers, Procter & Gamble Co. The panel (C. G. Youngs, Chairman, H. R. Sallans, B. F. Teasdale, J. M. deMan, R. Greenshields, B. Costigliola, B. B. Migicovsky, D. F.

Chalmers and W. O. Lundberg) discussed several topics such as improved varieties of seed oils, nutritional requirements, the impact of the proposed Canadian regulation on polyunsaturated fats, the need for trained technical personnel and economic aspects of fats and oils production. At the business meeting following the symposium the Canadian Committee on fats and oils received research reports from several scientists from federal and university laboratories.

*Canbra Oil:* The Saskatchewan wheat pool has been successful in contracting for 10,000 acres of canbra oil producing strains of rapeseed.

*Chufa Oil:* Trial plantings of Chufa tubers (57% oil) gave a yield of 5 tons tubers (50% moisture) and 2½ tons of green tops for forage per acre.

## Publications

The Food Products Branch of the Canadian Department of Industry publishes a semiannual review on "Fats and Oils in Canada." The April 1967 issue contains statistical data on Canadian oil seeds, animal and marine oils, seed meals and reviews on production, export and import of specific products.

## France . . . . . M. Naudet

Since this is the first time a letter from France will appear in the "Four Corners," some generalities are probably necessary.

Fat industry in France is very much diversified.

Processing plants of every size of may be found from the largest, processing 500 tons and more a day, to the small artisanal olive oil mills. One must note that the three largest companies have been recently classified among the two hundred most important societies of France.

Plants are located either in the neighborhood of a harbor if they process principally imported seeds or fats, or in the vicinity of production areas for metropolitan raw products.

Among vegetable oils, peanut oil is the most important but one must note that at least one new high capacity plant, exclusively devoted to soybean and soybean oil processing, is actually under construction.

Rapeseed oil is, for its part, the leader of metropolitan oils.

For alimentary purposes, salad oil is used very extensively even for cooking. Consumption of solid fats is less than it is in anglo-saxon countries.

Among the industrial uses of oils and fats a particular position is to be given to castor oil as it is largely used for preparation of amino undecanoic acid, the monomer of Rilsan or Nylon 11.

Technical collective research is devoted to the Institut des Corps Gras (ITERG) and is elaborated in its two laboratories in Paris and in Marseille, the last one being also known as Laboratoire National des Matières Grasses. Other institutions like Institut de recherche pour les huiles et oléagineux (IRHO) and Centre d'études techniques pour les oléagineux métropolitains (CETIOM) are more concerned with agronomic problems.

Fundamental research is performed in university laboratories like Laboratoire de Chimie des Corps Gras in Marseille, or Laboratoire de Lipochimie in Paris for chemistry, and Institut de Chimie Biologique in Marseille for biochemistry.

Each year several short course meetings have been organized by ITERG, including a week-long meeting in Paris (Semaine d'Information), generally during the month of May; and a one-day session in Marseille (Journée d'étude) some days before Easter.

Scientists and technicians are joined in Groupement technique des Corps Gras, which every year presents the prized Chevreul Medal, named in memory of that great French chemist. The award was presented to A. R. Baldwin, AOCS, in 1965.

### Symposium on Surface-Active Lipids in Foods

The 1967-1968 session of the Oils and Fats Group of the Society of Chemical Industry, in addition to the monthly evening meetings at various centers, will include a symposium entitled, "The Functions of Natural and Synthetic Surface-Active Lipids in Foods." This symposium will be held at the School of Pharmacy, Brunswick Square, London W.C.1, on Thursday and Friday, March 21-22, 1968, and the following papers will be presented:

- J. de Gier (Netherlands): Evaluation of Properties of Membrane Lipids in Model Systems
- T. L. Harris (U.K.): Surface-Active Lipids in Chocolate
- G. S. Hartley (U.K.): The Mechanism of the Promotion of Emulsification by Surface-Active Lipids
- W. H. Knightly (U.S.A.): The Role of Surfactants in Baked Foods
- K. Larsson (Sweden): Structures of Emulsifier-Water Phases
- W. R. Morrison (U.K.): Surface-Active Lipids in Milk and Milk Products
- B. W. Nichols (U.K.): Plant Lipids
- L. Saunders (U.K.): Molecular Aggregation in Phospholipid Solutions
- N. H. Tattrie (Canada): Lipoproteins and Lipids of Egg Yolk
- M. van den Tempel (Netherlands): Effects of Emulsifiers on the Crystallization of Triglycerides
- J. J. Wren (U.K.): The Importance of Physical State in the Application of Fat-Derived Emulsifiers
- Discussion: Functions of Flour Lipids and Fat-Derived Emulsifiers in Continuous Bread Baking

A period will be allowed for discussion after each paper and there will also be general discussions.

Application forms to attend the symposium can be obtained from the General Secretary, Society of Chemical Industry, 14 Belgrave Square, London S.W.1, U.K. Abstracts of papers will be sent to all who register before the Symposium.

### Oil and Colour Chemists' Technical Exhibit

The Oil and Colour Chemists' Association are holding the 20th O.C.C.A. Technical Exhibition at Alexandra Palace, London, from March 25-29, 1968. Copies of the Official Guide, which will be available early in 1968, may be obtained free of charge by those intending to visit the Exhibition by written application to the General Secretary of the Oil and Colour Chemists' Association (Wax Chandlers' Hall, Gresham Street, London E.C.2.)

The Council of the Oil and Colour Chemists' Association have instituted the Jordan Award in memory of the late L. A. Jordan, who was Founder-Director of the Research Association of British Paint, Colour and Varnish Manufacturers from its inception in 1926 until his retirement in 1959. It is intended that the first Award shall be made at the time of the Association's Jubilee Celebrations in May 1968 and thereafter it is hoped to make the Award biennially.

### Conference on Modern Chemistry in Industry

A conference entitled "Modern Chemistry in Industry" under the auspices of the International Union of Pure and Applied Chemistry is to be held at Eastbourne from March 11-14, 1968. It is designed to promote an increasing flow of school leavers into science and of science graduates into industry and will describe and illustrate the volume and quantity of scientific research carried out by industrial

organizations. The Conference is open to all who wish to participate and will include professors, lecturers and post-graduate research workers in universities, senior science masters from schools and representatives from industry. Forty well-known speakers will address the Conference, including Lord Beeching, C. E. Bawn, J. C. Collingwood, J. W. Cornforth, M. E. Spaght and F. N. Woodward. Subjects covered at the specialist sessions will include the modern science of petroleum and of food production, the invention, design and operation of chemical processes such as those involving homogeneous catalysis and the new products of the chemical industry such as polymeric products and biologically active chemicals. The Hon. Secretary is F. J. Griffin, 14 Belgrave Square, London S.W.1 and arrangements for hotel accommodation have been made through Thos. Cook & Son Ltd.

### India . . . . . K. S. Krishnan

#### December Symposium in Nagpur

A symposium on "Various Aspects of Oils, Fats and Oil-Based Products" will be held by Laxminarayan Institute of Technology, Nagpur, in December 1967. This Institute, with P. S. Mene as Director, is engaged in teaching and research in oil technology. It is celebrating its Silver Jubilee in December 1967.

#### Symposium and Convention of OTA

The next Symposium and Convention of the Oil Technologists' Association of India will be held in the Regional Research Laboratory, Hyderabad, Feb. 9-11, 1968, presenting the following program:

##### Friday, February 9

Session 1.1 & 1.2 Discussion: "Sources of Oil," based on factual material collected and pre-distributed.

Session 1.3 Panel Discussion: "Factors to Stimulate Economy of Oils."

##### Saturday, February 10

Session 2.1 & 2.2 Discussion: "Detergents," based on collected factual material and research papers.

Session 2.3 & 2.4 Discussion: "Hydrogenation," based on factual material and on research papers.

##### Sunday, February 11

Session 3.1 & 3.2 Discussion on research papers on structure of fats, minor and unusual fats, phosphatides, esterification and inter-esterification and epoxidation.

Session 3.3 Seminar: "Detection of Adulteration of Fats."

#### OTA Southern Zone

At a meeting held in the premises of Regional Research Laboratory, Hyderabad on July 22, 1967, the Southern Zonal Branch of OTA with its office in Hyderabad, was formed by a group of industrialists and scientists engaged in the field of oil chemistry and technology. The following were elected office-bearers for 1967-68:

President: K. S. Murti; Vice Presidents: J. S. Aggarwal, K. T. Achaya, S. D. Thirumala Rao, V. S. Krishnamurti, B. T. Devendrappa; Secretary: M. R. Subbaram; Joint Secretary: Ansar Ahmed; Treasurer: M. A. Sivasamban; Members: R. Kaparthi, S. Kutumba Rao, G. V. Sirur, D. Balakrishna Murti, U. S. Kini, K. C. Dandena, M. R. Chandrasekhara and R. V. Ramani.

#### OTA Digest News

The OTA, Delhi Branch, has done well in publishing the *OTA Digest*. The first issue (April-June, 1967) contains, among other items, the gist of the talk, "Acute Shortage of Vegetable Oils and Fats in India," given by T. R. Seshadri, and "A Note on Solvent Extracted Oils," by Dr. Sadgopal. Kailash Chand, the editor, and his devoted team have made a valuable contribution in founding the *OTA Digest*.