

# THE FOUR CORNERS...



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International Relations Committee;

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With this issue the AOCs International Relations Committee introduces Eduardo Vioque, as "Four Corners" corresponding secretary from Spain.

Dr. Vioque received his Ph.D. from the University of Madrid in 1954, and has served as Assistant Professor of Analytical Chemistry in the University of Meville. He has been an Assistant Collaborator in the "Instituto de la Grasa y sus Derivados" of the Patronato "Juan de la Cierva" in Seville in 1954; a Scientific Collaborator in the same Institute from 1955 to 1965; and a Research Fellow since 1965.

Research work outside of Spain has included a Juan March Foundation fellowship at the Rowett Research Institute, Aberdeen, Scotland, in 1959, working under the direction of G. A. Garton. On a fellowship granted by the National Academy of Sciences, he worked for two years at the Hormel Institute with R. T. Holman.

Currently he is engaged in a study of the lipids of the *Dacus oleae* fly, as a part of a general program for the eradication of that disease-carrying insect. He has also undertaken studies on the lipids of *leguminosae*.

## Argentina . . . . . Nolly Sirkis

### Meetings

From June 10-15, 1968, the first Argentine Symposium of the food industry will take place in Buenos Aires, organized by the Argentine Chemical Association and the Chemical Engineers Association, under the theme "Argentina, Producer and Exporter of Elaborated Food."

The objective of this symposium is to modify our national status as an exporter of raw food material into that of an exporter of elaborated products of high technological quality, in the hopes of improving our economic development.

The agenda will include the following: 1) formation and qualification of professional staff and specialized technical experts; 2) food legislation, its adaptation to present conditions on an international level; 3) modern technologies in food production, including a) raw materials; b) auxiliary materials; c) equipment and installations; d) elaborated products; e) containers and packaging; f) analytical controls on process and products; 4) economical financial problems of food industry. Following are titles of papers connected with fatty materials and derivatives.

"General Procedure for the Preparation of Highly Concentrated Monoglycerides," Macchi, Kuck, Crespo (C.I.G.A.).

"Highly Concentrated Monoglycerides from Fatty Materials of Different Type," Macchi, Kuck, Crespo (C.I.G.A.).

"Procedure to Obtain Acetoglycerides; Simple Triglycerides and Mixed Triglycerides Containing Two Radicals of the Same Acid," Macchi, Kuck, Crespo (C.I.G.A.).

"Contents in Cyclopropanoic Acids of a Cottonseed Expeller," S. Longo, M. Bertoni, P. Cattaneo (University of Buenos Aires).

"Antioxidants, Their Use and Rules for Food Legislation," M. Bertoni (University of Buenos Aires).

"Protein Concentrations of Animal Origin: Fish Meal—Contribution for the Solution of the World Problems of the Scarcity of Nourishing Proteins," J. C. Sanahuja (University of Buenos Aires).

"Quality Index in Fish Meal," M. Sambucetti."

The second symposium of the oil industry will take place in Santa Fe from May 9-11, 1968, organized by the school of Chemical Engineering of the local University. The program includes the following: Technological Section: Technological Aspects of the Industry, Present and Future. Economic Section: Prospects of the Argentine Vegetable Oils Industry, Thorough Study of the Internal and External Market. Food Chemistry Section: Use of Antioxidants in Oils and Fats.

The XVth yearly asphalt meeting took place in Mar del Plata on April 15, 1968. The use of cationic emulsions was dealt with in some of the work presented. These are already being used in Argentina but in a smaller proportion than those of the anionic type.

### Oilseeds Marketing

A new regulation for the marketing of the sunflower seed, flax and peanuts is being intensively studied. La Junta Nacional de Granos (National Grain Board), an official institution, and representatives of the associations of producers and of manufacturers are taking part in this study.

The different projects presented coincide, in that the factors to be taken into account for the marketing must be: the oil content of the seed, the acidity of the fatty material of the seed, and the moisture. At present, the oil content in the oilseeds is not taken into account for its marketing but for other characteristics generally connected to its quality. For the sunflower seed, for instance, besides the already mentioned characteristics of quality, the percentage of kernels is also considered, a factor which has only a relative connection with the oil content of the seed.

In the next few months the Ministry of Agriculture is expected to announce the new rules for marketing of sunflower seed, the study of which is more advanced than that of peanuts and flax.

### Crops

The following is a brief report on the prospects of 1967-68 crops.

*Sunflower.* The outlook is not yet well-defined due to the sowing system. Sunflower is only partly a principal crop, a portion of the seed being sown over stubbles of the wheat harvest, which is late and exposed to autumn weather changes. A total of 800,000 to 900,000 tons has been predicted.

*Peanut.* The peanut crop is estimated at about 400,000 tons (unshelled).

*Cotton.* It is inferior to last year's crop reaching only 110,000 to 120,000 tons, keeping up the tendency of reduction of sown area. The higher prices paid to pro-

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ducers this year are likely to induce them to increase the sown area.

**Flax.** The crop is inferior to that of last year, estimated at 380,000 tons.

**Soybean.** Did not suffer any considerable changes in comparison with last crop, maintaining a level of 20,000 tons. This oilseed, in spite of the promotion carried out for its sowing, has not found any great response among the producers.

**Safflower.** It has been sown in a very small scale; only 1,000 to 2,000 tons are anticipated. The oil obtained in the last crop was almost all exported as raw oil.

**Miscellaneous Reports.** A considerable increase is observed in the consumption of margarine at the expense of butter as a consequence of the scarcity of the latter and the resulting price rise. The margarine industry is reckoned to increase its production for 1968 by 20%, reaching an annual volume of 12,000 tons.

The first brand of soft margarine produced by Molinos Rio de la Plata, has been launched.

In 1967 the export of stearic acid increased considerably, especially within the Lafta system (Latin American free trade Association) reaching 1,470 tons. The export in 1966 was 665 tons and in 1965, it was 414 tons. The main producers are: Conen, Jabón Federal, Molinos Rio de la Plata, Varela and Veresit. The annual production of tallow (edible and industrial) is about 280,000 tons, with an export surplus of 70,000 to 80,000 tons. The main producers of edible fats are Anglo, Cap, Frigoríficos Argentino and Swift.

At the end of 1967, Renderol opened its new meat meal plant, producing 600 tons per month, with a capacity of three times this amount.

Four firms will establish or enlarge their factories for the production of fish meal and oil: Mar del Plata Fishing Company, capacity 60 tons a day of raw material; Promasa, 150 tons per day; Haripez Necochea, 75 tons per day; and EPAS, 150 tons per day.

In the chair of Food Chemistry of the University of Buenos Aires, with the direction of P. Cattaneo, professor in this subject, complete studies have been made of composition and characteristics of every oil produced in Argentina. These studies were published in the magazine: "Anales de la Asociación Química Argentina."

The characteristics of the oils of the protaceas seeds (*Grevillea Protea*, *Proupala* and *Hakea*) have lately been studied.

Those interested in obtaining details of the works performed may write to the Universidad de Buenos Aires, Dr. P. Cattaneo, Ayacucho 1245, Buenos Aires.

## Japan . . . . . T. Asahara

### Japan Joins ISO in Surfactant Field

The Japanese Industrial Standards Committee (JISC) became a participating member of Technical Committee 91 of the ISO this past March.

The Japanese Oil and Fat Processing Industry Association and the Japanese Synthetic Detergent Manufacturers Association will cooperate through JISC with Technical Committee 91 by establishing the Japanese Surface Active Agents Standards Committee for ISO (JSSC). The office of the latter is in the Japanese Oil and Fat Processing Industry Association.

Their major purpose is to establish international standardization of soaps, detergents and surfactants, as well as domestic specifications, and, further, to provide for continued research and development of these products.

### Additional Developments

A draft of the Revised Testing Methods for Synthetic Detergents was completed in March and submitted for hearings. Publication of the revision will be completed within the year.

The 5th International Federation of Societies of Cos-

metic Chemists (IFSCC) was held from May 12 to 17 in Tokyo at Tokyo Prince Hotel. Registered attendance was estimated at over 500, with more than half of the participants coming from outside of Japan.

A profile of the edible oils, soaps and detergents industries in 1967 gives estimates as follows in thousands of metric tons: Edible oil consumption total, 902; industrial oil, 335; export, 77. Raw materials consumed in production of soaps and detergents: alkylbenzene, 68; sodium tripolyphosphate, 83; sodium sulfate, 117; sodium silicate, 54; sodium carbonate, 12; 100% sulfuric acid, 77 and 97% caustic soda, 60.

Production of soaps and detergents amounted to 667 (thousands of metric tons), of which, detergents were 76%, or 509. Per capita production of soaps and detergents in 1967 is estimated at 6.58 kilograms.

## Philippines . . . . . Jose E. Evangelista

### Proposed Integrated Coconut Processing Plant for the Philippines<sup>1</sup>

The National Economic Council (NEC) of the Philippines and the US Agency for International Development (USAID) engaged the Economic Development Foundation of the Philippines to develop a preliminary techno-economic study of the feasibility of setting up an integrated coconut processing central to optimize the utilization of the coconut.

The specific project envisions a coconut central located in a coconut producing area where procurement and transport of fresh coconuts would be relatively easy. The central is to process 300 tons of whole coconuts (about 250,000 nuts) daily to produce approximately 30 tons of high grade oil, 12 tons of edible grade coconut flour, and 30 tons of export grade coconut coir. In addition, about 45 tons of coconut shell would be available for fuel. Coir dust and other wastes from the coir plant will be briquetted and used as additional fuel. The study did not include the possible utilization of the coconut water.

The primary objective of NEC-USAID in sponsoring this study is to promote active participation of potential investors in more serious consideration of the project as a private commercial venture. USAID is prepared to discuss with prospective investors the possibility of a dollar loan for the foreign exchange requirements of the project of about \$1 million.

Of particular interest to oil chemists is the proposed oil and coco-flour processing plant. Only known technology and certain features of successful coconut ventures were adopted in the technical study. The fresh coconut meat undergoes the following operations: preparation, solvent extraction, and flour milling and bagging.

The preparation of the coconut meat includes low temperature fluidized bed drying to reduce moisture content from about 50% to about 10%. The breaking and flaking of the dried comminuted coconut meat is accomplished by passing the material through specially designed rollers.

The prepared material undergoes a solvent extraction process to recover as much of the oil as possible without exposing the material to high temperature.

The preparation of the coconut flour from the desolventized meal involves principally a size reduction, drying, and screening operations.

The coconut flour produced experimentally was found to have the following analysis:

Moisture	8%
Oil	1%
Protein	20%
Crude fiber	8%
Ash	6%
Carbohydrate	50%

<sup>1</sup> Excerpt from the report of the EDF to the USAID. Permission has been granted by USAID for its publication in the AOCs Journal.

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Moreover, the studies conducted on the product indicated good taste appeal, mild coconut flavor, ease of mixing and blending in all food products which require filler or extender material. The high protein content of coco-flour makes it suitable as a low cost food supplement. The fiber content, being on the high side, makes its use for infant feeding quite doubtful. Studies show however that the fiber content is not objectionable to humans over five years old.

The economic study showed this project to be profitable; with it a desirable impact on the development of the coconut industry.

On the basis of the prima-facie study, the Economic Development Foundation has recommended a fuller pre-investment feasibility for the project—EDF recommended that such a study should be undertaken with particular emphasis on:

- (a) Technical aspects considered novel in their application in the coconut technology (i.e., fluidized bed drying vis-a-vis other types of drying; direct solvent extraction of oil from dried fresh coconut meat; etc.)
- (b) Marketing aspect of coconut flour. Investigate further the uses of coco flour as food for human consumption.

## *Spain* . . . . . *Eduardo Vioque*

### **A New System for the Extraction of Olive Oil**

The investigations carried out by a group of chemists working on rheology and physical chemistry of the ground olive mass has led to the development of a new system for the extraction of olive oil based on surface effects, which does not use pressing at all provided that the mass has been satisfactorily prepared. Based upon the new system, a prototype of an industrial extractor to work 700 kg of mass has been constructed.

The results obtained with such a machine in an experimental mill are similar to those obtained by the classic method of pressing with regard to oil yields. The machine does not separate water from olives as expected from a theoretical point of view.

### **Lard Oil**

The Instituto de Lipoquímica y Productos Lácteos of the Patronato "Juan de la Cierva" in Madrid has developed a continuous process method of obtaining lard oil. The process involves directed interesterification and fractional crystallization as the main chemical and physical operations. The yield in oil is larger than that obtained by conventional procedures, and the characteristics of the crystals to be filtered off, allow a better performance during the filtration operation. The fatty acid composition of the oil, about 66% oleic and 11% linoleic acids, is similar to that of oils of vegetable origin, and can be used for edible purposes. The process is being checked out in pilot plant scale.

### **Fifth International Congress of Detergence**

The preparations for the Fifth International Congress of Detergence are in progress. This Congress will be held Sept. 9-13, 1968, in Barcelona, Spain, and the honorary presidency has been accepted by Head of the Spanish State.

The technical program has been completed and the Scientific Committee, representing the countries which organized the Congress, has accepted 234 papers, distributed as follows: Section A (Chemistry) 44 papers; Section B (Physics) 139 papers; Section C (Applications) 51 papers.

The papers were prepared by authors of 26 different countries, representing chiefly England, Russia and Germany.

The inaugural lecture will be given by Professor Rehbender (Russia) and two plenary lectures by Dr. Hagge (Germany) and to Professor Llopis (Spain).

There are more than 800 members registered from 31 countries.

Any further information may be obtained from the General Secretary, Patronato Juan de la Cierva, Jorge Girona s/n or Post Office Box 9180, Barcelona, Spain.

### **Fourth Assembly of Industrial Members of the "Instituto de la Grasa y sus Derivados" de Sevilla**

In order to improve relations with industries, to better advise in regard to industrial problems, and to obtain the best possible results from national and foreign investigations in the field of fats and oils, the Instituto de la Grasa y sus Derivados will celebrate its Fourth Assembly of industrial members from May 16-18, 1968.

The topics to be covered are: 1) olive tree agronomy; 2) mechanical and chemical methods for the collection of olives; 3) evaluation of the industrial yield of olive oil; 4) solvent extraction of industrial oils.

The discussions of the subjects according to the purposes of that Institute will be exclusively technical in character. Because of needs presented by the current state of Spanish economy, the topics selected for study in this Assembly are of particular interest.

Among many activities planned for the meeting is the granting of the first "Medalla Marques de Acapulco," which was created to honor a fundamental research contribution, from Spain or other countries, in the field of fats and derivatives.



"Medalla Marques de Acapulco"

### **Biographical Note on the Marques de Acapulco**

D. Miguel Antonio del Prado y Lisboa was born in Madrid in 1867 and devoted his life to developing his family estate, an olive grove in Jaen province.

He became a dedicated investigator as well as administrator and made many observations and assays, which led him to the discovery of a new and revolutionary method for the extraction of olive oil. He patented the system with the name "Acapulco System" and it is described in a book entitled "New Procedure for the Elaboration of the Olive Oil," Madrid, 1910.

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