

# THE FOUR CORNERS...



By EUGENE MARSHACK, Chairman,  
International Relations Committee;

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## Argentina . . . . . Nolly Sirkis

### Oilseed Marketing

As anticipated in our previous report published in the JAOCs June issue, The National Grain Board has completed the study of new regulations for the marketing of sunflower seed and peanuts. These new rules were published in October and will govern transactions from the 1968-69 crop onwards. The main features are:

#### Sunflower Seed

1. Oil content of the seed, basis 31%.
2. FFA of the fatty material of the seed, basis 1%, max. 2%.
3. Foreign matter, max. 3%.
4. Moisture, basis 11%, max. 14%.

#### Scale of Allowances

1. Oil content,  $2 \times 1$  reciprocal but  $2.5 \times 1$  above 35%.
2. FFA,  $2.5 \times 1$  between 1% up to 2%.
3. Foreign matter,  $0.5 \times 1$  up to 3% and  $1 \times 1$  from 3% to 5%.
4. Moisture, between 11% and 14%. The Grain Board will establish for each crop the amount to be deducted from the price in compensation for drying expenses.

#### Peanuts

1. Oil content of the seed, basis 40%.
2. FFA of the fatty material of the seed, basis 1%, max. 2%.
3. Sand, basis 1%, max. 2.5%.
4. Foreign matter other than sand, max. 3%.
5. Moisture, basis 9%, max. 12%.

#### Scale of Allowances

1. Oil content:  $1.5 \times 1$  reciprocal.
2. FFA:  $2.5 \times 1$  between 1% up to 2%.
3. Sand,  $2 \times 1$  reciprocal.
4. Foreign matter,  $0.5 \times 1$  up to 3% and  $1 \times 1$  from 3% to 6%.
5. Moisture, between 9% and 12%. The Grain Board will establish for each crop the amount to be deducted from the price in compensation for drying expenses.

A quick method has been developed for the determination of oil content in seeds. The extraction time of the material with solvent is 2 hr for sunflower seed and 4 hr for peanuts.

Those interested in obtaining more details about this new regulation of oilseeds marketing, may write to Ing. L. Bassa, Junta Nacional de Granos, Gerencia Técnica, Paseo Colón 359, Buenos Aires.

### Miscellaneous Items

—Molinos Rio de la Plata opened a new feed plant in the town of Chacabuco last August, with a production capacity of 40 metric tons per hour.

—A. E. Staley is building a factory, also in Chacabuco, for the industrialization of corn.

—Febo, a local metallurgical factory, has obtained license from Blaw-Knox Company to produce the Rotocell extractor in Argentina.

—A theoretical-practical course for fats and oils analysts took place in October and November, 1968, organized by the Argentine Institute for Fats and Oils.

## Australia . . . . . Brian Fitzpatrick

### Fractionation of Tallow

Margarine manufactured in Australia whether industrial or the table variety must contain by law a minimum of 75-90% of beef or mutton fats. According to this law animal fats in their normal form cannot be used; therefore, these are usually split into oleo and stearine. A new method known as Detergent Fractionation has superseded the old method of panning and hydraulic pressing in almost every Australian oil factory. By this method seeded tallow is intimately mixed with a surface active agent and an electrolyte. The use of centrifuges allows continuous discharge of separate streams of oleo oil and oleo stearine while the carrying liquid (detergent) is continuously recycled.

For further details contact the De Laval Separator Company, Poughkeepsie, New York 12603.

## Czechoslovakia . . . . . Jan Pokorny

### Fats and Fat Chemists in Czechoslovakia

The Czechoslovakian fat industry is concentrated in a small number of large factories. The most important oilseed produced in the country is rapeseed. Cottonseed, peanut, soybean and sunflower seed are mostly imported. The use of vegetable oils for alimentary purposes has increased in the last few years, although lard and butter are still leading among edible fats.

Research on fats and oils in Czechoslovakia is mainly carried out in the Research Institute of Fat Industry in Prague, which has branches in Usti n. L. and in Rakovnik. Several divisions of the Institute are devoted to the research of edible fats, fatty acids, detergents, cosmetics, and to chemical engineering in fat industry and economics. Research on fat chemistry is also performed in universities: The Institute of Chemical Technology of the University of Prague has been carrying research on the autoxidation of fats and fatty foods, the structure of vegetable and milk lipids, lipoprotein complexes, sugar esters, hydrogenation, emulsifiers, and the production of fats from hydrocarbons by microorganisms; the Technical University of Bratislava has been studying the structure of tissue lipids and the composition of milk lipids; the Chemical College in Pardubice is engaged in research on detergents. A division of the Central Food Research Institute has been working on the autoxidation

of dairy and meat products, and the chemistry and analysis of fat-soluble vitamins. The Lipid Laboratory of the Czechoslovak Academy of Sciences is devoted mostly to the investigation of natural waxes. A part of the research program of the Institute of Heart Diseases in Prague concerns the study of lipid metabolism. Problems of lipid biochemistry, especially lipoperoxidation, utilization of fatty foods and lipid metabolism, as well as the study of the role of fats in human nutrition are being investigated in the Institute of Nutrition in Prague.

Czechoslovakian fat chemists have formed the Fat and Oil Section of the Czechoslovakian Chemical Society. The Society holds several meetings every year on fat technology, detergents, cosmetic chemistry, fat analysis, and the biochemistry of lipids. In the last meeting, papers were presented on Lipoperoxidation, Sphingolipids and Glycolipids.

Fat chemists are educated in technical universities and receive a M. Eng. degree after five years of study. The first three years comprise basic courses in chemistry, physics, engineering and biochemistry, and the subsequent two years concentrate on the study of milk and fat technology. Technicians for the industry are trained in special high schools. They are members of the Fat and Oil Section of the Czechoslovakian Scientific Technical Society.

## Great Britain . . . . . Harold Jaspersen

### OCCA Celebrates Golden Jubilee

1968 has been notable as the Golden Jubilee of the Oil & Colour Chemists' Association. In its 50 years the Oil & Colour Chemists' Association has grown in number and status. It is highly regarded by the industries that it serves and also by other scientific and technical organizations.

Included in the two-day anniversary celebrations there was a Commemorative Foundation Lecture given by Lord Todd, Professor of Organic Chemistry at the University of Cambridge and Master of Christ's College; the subject of the lecture was "Science and Society."

### Technical Exhibition at Alexandra Palace

The Oil & Colour Chemists' Association is holding the 21st Technical Exhibition at Alexandra Palace, London N. 22, from March 24-28, 1969. There will be 106 stands including exhibitors from 10 overseas countries—Belgium, Denmark, Finland, France, Germany, Holland, Italy, Sweden, Switzerland and the United States. Copies of the Official Guide, which will be available early in 1969, may be obtained from the Director & Secretary of the Oil & Colour Chemists' Association, Wax Chandlers' Hall, Gresham Street, London EC2.

### 1968/69 Session Program of the Society of Chemical Industry

The Oils & Fats Group of the Society of Chemical Industry began the 1968/69 Session Program on October 17 with the Second Hilditch Memorial Lecture entitled "Polyisoprenoid Constituents of Lipids" by R. A. Morton, F.R.S., who was closely associated with the late T. P. Hilditch at the University of Liverpool. Other lectures during the Session include: Glycerol—Production and Use, by J. D. Thwaites on November 19; Long Chain Synthetic Fatty Acids by K. Jones on January 29; Corrosion Problems in Oils and Fats Processing, by J. N. Stokoe on March 19; and at the Annual General Meeting of the Group on April 30, the present Chairman, B. J. F. Hudson, will give his address entitled "The Changing Scene in Lipid Research." Further information relating to the Oils and Fats Group can be obtained from H. Lavery, Unilever Research Laboratory, The Frythe, Welwyn, Herts.

### Oil Technologists' Association of India—Silver Jubilee

The Silver Jubilee of the Oil Technologists' Association of India (OTAI) will be celebrated together with a Convention and a Symposium, on March 7, 8 and 9, 1969, in Kanpur.

The Symposium will deal with Twenty-five Years of Research and Development in the Field of Oils, Fats and Allied Industry. On behalf of the President and the Honorary Secretary of the OTAI (Ganesh Flour Mills Co., Ltd., Kalpi Road, Kanpur), an invitation is extended to fellow-technologists to participate in this Convention.

### Journal of the OTAI

Publication of a centralized Journal of the Oil Technologists' Association of India will be in effect from January 1969. Details of the Journal have been worked out by S. Varadarajan, (Research Director of Hindusthan Lever Ltd., who has been Convener of the Journal Preparatory Committee.

N. V. Brighi will be the Editor and K. S. Holla the Associate Editor of the new Journal. R. M. Desai will be Chairman of the Publication Committee, and R. V. Raghavan the Printer and Publisher of the Journal.

### Refresher Course in Oils and Fats

The Western Zone of the Oil Technologists' Association of India organized their first Refresher Course in Oils and Fats from January 7 to 19, 1968, in Bombay, in collaboration with the Soybean Council of America and Hindusthan Lever Ltd.

The course was much appreciated by the participants. It consisted of 32 lectures, besides the practicalities of modern methods of analysis of oils and fats. Films concerned with production, extraction and processing of oils and fats and preparation of oil-based products were exhibited during the course.

Among the lecturers was H. A. Dutton of the Northern Regional Research Laboratory, Peoria, Illinois, USA, who came to India especially to deliver lectures at the course.

### Seminar on Marine Oils

A seminar on Marine Oils was organized by the Oil Technologists' Association of India, Western Zone, at the V. J. T. Institute, Bombay, on June 9, 1968, with M. A. Wadud of the Tata Oil Mills Co., Ltd. as main guest.

The proceedings of the Seminar, published in the July 1968 issue of the journal, *Paint India*, are available from Color Publications Private Ltd., 126-A Dhuruwadi, Bombay-25 DD., India.

### The 23rd Symposium and Convention of the OTAI

The Proceedings of the 23rd Symposium and Convention of the OTAI, held in Hyderabad from February 9 to 11, 1968, have been published in the July 1968 issue of *Chemical Processing & Engineering*, by Colour Publications Private Ltd., 126-A Dhuruwadi, Bombay-25 DD., India.

The sessions dealt with Sources of Oil, Steps to Stimulate the Economy of Oils in India, Hydrogenation of Oils, Detergents, Current Researches and Detection of Adulteration.

### Dr. Sadgopal Retires From ISI

Dr. Sadgopal, Deputy Director General of the Indian Standards Institution, has retired from the service of the Institution since August 25, 1968.

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Dr. Sadgopal is the Founder Vice-President of the OTAI Northern Zone and Vice-President of its Central Executive Council. He is a Fellow of the Royal Institute of Chemistry, the Royal Horticultural Society, the Chemical Society of London, and several other scientific societies. He is also the author of 127 papers and 4 books on Essential Oils, Perfumes, Oils, Soaps and Cosmetics, and a pioneer in investigations on Essential Oil Bearing Flora of India.

### Synthetic Laundry Bar

The Tata Oil Mills Co., Ltd. have marketed, for the first time in India, a Synthetic Laundry Bar under the name "Bonus."

The launching of SLB is of particular significance to Indian economy, considering the growing shortage of oils and the growing demand for washing-products in the country. Moreover, the mass of Indian population does not possess washing machines and, therefore, a cleaning-agent in the form of cake is required. Since SLB is very compact, with concentrated washing power, and with the advantage of lower cost of packing and transport, it is expected to reach the mass-market in villages after due sales-promotion. Any effort to augment the water-supply in Indian villages, particularly in the summer time, when water is scarce, will help to promote increased consumption of cleaning agents.

## Japan . . . . . T. Asahara

### Season of Scientific Meetings

The International Congress on Rheology was held October 7 to 11 at Kyoto International Conference Hall. Foreign attendants were 210 of a total of 586 registrants; 280 papers were presented.

A meeting on Rheology was held in Tokyo on October 14. R. S. Porter, of the University of Massachusetts spoke on Rheological Properties of Polymer Melts and Concentrated Solutions; J. J. Bikerman, on The Mechanism of Adhesion; and L. E. Nielsen, of the Monsanto Co., on The Mechanical Properties of Filled Polymers.

On October 22, P. Sharman, of the Unilever Research Laboratory, presented a paper on The Chemistry and Rheology of Emulsion and Its Application, at a meeting in Nagoya.

R. S. Stain, of the University of Massachusetts and A. J. Kovacs, of the Centre de Recherches sur les Macromolecules, presented papers at another meeting in Nagoya, on October 15. Dr. Kovacs also spoke on October 17 at the Kyushu University, on The Transitions and Morphology of Block Copolymers of Styrene and Ethylene-Oxide. At this meeting, T. L. Smith, of the Stanford Research Institute, spoke on The Deformation and Strength of an SBR Rubber Vulcanizate in Simple and Biaxial Tension.

The Annual Meeting of the Japan Oil Chemists' Society was held on October 9 to 10 in Tokyo. Many papers were presented at this meeting on Catalytic Reaction of Aliphatic Unsaturated Compound, Surfactant and Fatty Oil Chemistry.

### Testing Methods Revised

The Division of Testing Methods for Fats and Oils, and Derivatives, of the Japan Oil Chemists' Society (JOCS) completed revision of two test methods, APHA Color Measurement and Moisture at 130 C. These revisions have been published in a recent issue of the JOCS Journal.

### Lipid Pattern in Cruciferae

On May 15, Lars-Åke Appelqvist defended a thesis for the degree of Fil. dr. in Biochemistry at Lund University. (The Swedish universities offer two doctor degrees: a lower, called Fil. lic. which is roughly equivalent to a Ph.D. and a higher called Fil. dr. which requires some years of research after the Fil. lic. degree and a public defense of a printed thesis.) The thesis consisted of a summary paper, "Lipid Patterns in Cruciferae" (Acta Universitatis Lundensis, Sectio II 1968, No. 7) and eight reprints or preprints of articles in various journals.

Of the eight underlying papers, three dealt with GLC- and TLC-methodology and five with compositional studies on Cruciferae lipids. The entire project was undertaken to provide basic knowledge for plant breeding work aimed at genotypes of common Cruciferae (rape, turnip rape and white mustard) having little or no erucic and linolenic acid and increased amounts of oleic and linoleic acids in the seed lipids.

Since plant breeding work requires access to rapid evaluation methods, a major point in the methodological studies was speed and simplicity coupled to reasonable precision and accuracy. An "Autosampler" that permits overnight operation in the analysis of numerous samples of rapeseed fatty acid methyl esters (Lipids, 2, 351-352, 1967) was constructed and successfully used in the routine analysis of plant breeding samples. (This Autosampler was presented by Dr. Appelqvist also at the 1967 AOCS Short Course in Quantitative Gas-Liquid Chromatography). The other two methodological papers dealt with minor modifications of commercial instruments and with optimum conditions for a reliable and fast extraction and fatty acid methyl ester preparation, with special remarks on how to prevent the accumulation of contaminants in lipid micro-work (J. Chromatog. 29, 227-228, 1967, and Arkiv för Kemi 28, 551-569, 1968).

In three other papers (Acta Agric. Scand. 18, 3-21, 1968; Physiol. Plant. 21, 455-465, 1968; Ibid., 21, 615-625, 1968) data are presented that demonstrate only minor effects of environmental conditions on the fatty acid composition of the seeds harvested. Also polyploidization of turnip rape and white mustard had little effect on the seed fatty acid pattern. Only limited variation in fatty acid patterns was found to exist between current Swedish varieties of winter rape and winter turnip rape, the most important Scandinavian oil seed crops.

The variability in fatty acid composition between single seeds of different seed populations and between various morphological parts of summer rape are covered in another paper (Hereditas, 61, 9-44, 1969). The same paper also demonstrates the presence of large amounts of  $\omega$ -7 fatty acids—palmitoleic, vaccenic, 13-eicosaenoic and 15-docoenoic acids in the seed coats. Genotypes lacking erucic acid were shown to have increased levels of palmitoleic and vaccenic acids. The last paper (Arkiv för Kemi, 28, 539-549, 1968) reports data that confirm and widen earlier findings on the strict positioning of eicosaenoic and erucic acids at the inner position of the glycerol, indicating a theoretical upper limit for erucic acid in Cruciferae at ca. 67 mole per cent.

### International Symposium on Sensory Evaluation of Food: Principles and Methods

A symposium was held September 9-13, 1968, at Kungälv, Sweden, organized by the Swedish Institute for Food Preservation Research. The scientific program included the following sections:

#### Mathematical Sciences

Fallacies in the Application of Statistical Design and Analysis—N. T. Gridgeman, Canada.

Computer Programs for Use in Sensory Evaluation—R. W. M. John, USA.

Theories of Sensory Thresholds—J. A. Swets, USA.

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## FAT SPLITTING—BATCH

W & S processes offered range from straight chemical treatment as in complete saponification of soapstock followed by washing and release of 100% fatty acids with mineral acid, or direct acidulation followed by pressure splitting up to 600 psig., using our own developments in batch or semi-continuous autoclave operation. The specific method best suited will be recommended by W & S based upon fatty materials to be used, facilities available, and end use intended for the fatty acids.

## FAT SPLITTING . . . SEMI-CONTINUOUS

Semi-continuous fat splitting offers the advantages plus features not practical in continuous splitting. It operates on a cyclic basis at 400-600 psig. usually without catalyst and delivers splits of 98-100% resulting in greater glycerine yield and decreased distillation losses. A different fat may be used in each cycle without affecting daily output. Major controls are automatic thus reducing labor attention.

## CONTINUOUS FATTY ACID DISTILLATION

The heart of the unique W & S process is the hollow, Dowtherm heated bubble cap tray, coupled with effective deaeration, drying, minimum operating temperatures and accurately controlled fractional condensation of the distillate. As a consequence, yields of 99% or more on many materials, plus outstanding product qualities, are now obtained in a single, continuous distillation. Where desired, continuous color stabilization or bleaching can be coupled directly with the distillation system. The economies effected with the W & S process now make fatty acid distillation a profitable operation for outputs as low as 1000 pounds per hour.

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## • Four Corners . . . .

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### Physiology

- The Physiology of Touch—U. Lindblom, Sweden.
- Aspects on the Peripheral Mechanisms of Taste—G. Hellekant, Sweden.
- A Hypothesis as to the Mechanisms of the Sense of Smell—A. J. P. Martin, United Kingdom.
- Sensory Relatedness Between Odors—H. B. Dowling, Norway.
- Cross Adaptation of Odors—E. P. Koster, The Netherlands.
- Abnormalities of Taste Associated With Altered Metabolic States—R. I. Henkin, USA.

### Psychology

- Psychophysical Laws—F. N. Jones, USA.
- Temporal Aspects of Perception—G. Ekman, Sweden.
- Multidimensional Space in Psychology—R. A. M. Gregson, New Zealand.
- Characterization and Classification of Sensory Qualities—R. Harper, United Kingdom.

### General Methods

- Palatability and Sensory Evaluation—J. Le Magnen, France.
- Selection and Training of Subjects—Nina B. Pikielna, Poland.
- The Sensory Evaluation Laboratory—D. A. Brandt, USA.
- The Dilution Method as an Analytical Tool—D. J. Tilgner, Poland.
- Factors Influencing Responses to Chemical and Physical Stimuli—Rose Marie Pangborn, USA.

### Sense-Specific Methods

- Evaluation of Olfactory Thresholds According to the Decision Theory, G. Teatini, Italy.
- Determination of Qualities of Odor—A. Turk, USA.
- Appearance in Food Testing—Angela Little, USA.
- Sensory Methods of Estimating Texture—J. J. Connell, United Kingdom.

### Objective Correlates

- The Relevance of Correlating Objective and Subjective Data—A. Kramer, USA.
- GLC Data and Their Relationship to Aroma—Emily L. Wick, USA.
- Correlations Between Aroma Determination by Humans, Frogs and GLC—E. von Sydow, Sweden.
- Hygroscopic Equilibrium and Texture in Relation to Thermodynamics and Mechanics in Freeze-Dried Foods—J. G. Kapsalis, USA.
- Food Texture Controlled by Recording of Mastication Movements—Annick, Pierson, France.
- Food Crushing Sounds—B. Drake, Sweden.

### R & D Trends

- A Systematic Literature Classification in Sensory Analysis—Gisela Jellinek, BRD.
- The Utilization of Sensory Evaluation in Product Development—H. G. Schutz, USA.
- On the last day there was a general discussion and closing remarks by Rose Marie Pangborn who was summing up the scientific program of the symposium. The social program included a visit to a biscuit factory at Kungälv and a wonderful barbecue dinner at the old castle of Marstrand overlooking the sea outside Kungälv.

### Fifth Scandinavian Fat Science Symposium

A Fifth Scandinavian Fat Science Symposium will be held at Tyringe June 10-13, 1969. The program will consist of three sections: Composition and Properties of Fats; Changes in Fatty Materials (including oxydation); and Equipment and Process Engineering.