FOUR CORNERS

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International Relations Committee

EUROPEAN CLUB OF CENTERS FOR LIPID RESEARCH, B. JACOBSBERG, M. LONCIN, R. KOHLMANN, M. NAUDET, B. HUDSON, E. VIOQUE, A. LETAN, K.S. KRISHNAN, Corresponding Secretaries

European Club of Centers for Lipid Research

The following information was received from ITERG—Institut des Corps Gras, Paris, France.

During a meeting held at the Institut des Corps Gras—ITERG, in Paris on January 25–26, 1972, the directors of lipid research centers, in Brussels, Milan, Münster, Paris, Seville and Zeist decided to create the above mentioned European Club.

This is an auspicious initiative crowning long months of contact and conversation in which the following took part: B. Jacobsberg, representing M. Loncin (CERIA, Institut de Fermentation, Meurice, Chimie), Brussels; G. Jacini, Director of the Stazione Sperimentale per le Industrie degli Olii e Grassi, Milan; A. Seher, Director of the Bundesanstalt für Fettforschung, Münster; J.P. Helme, Director General and Professor P. Desnuelle, Scientific Advisor, of the Institut des Corps Gras—ITERG, Paris; J.M. Martinez Moreno, Director of the Instituto de la Grasa y sus Derivados, Seville; H.J. Vos, Head of the Lipids Group in the Central Institute for Nutrition & Food Research, TNO, Zeist.

The leading personalities in the above organizations have for a long time maintained friendly relations. International events, congresses and symposiums were opportunities for them to meet and discuss developments in their field; articles in specialized magazines enabled each of them to be aware of the others' works and main achievements. But until this time, no organic liaison, no direct and official form of contact, had been instituted. Yet, although the organizations mentioned differ slightly in their structure, by-laws and methods of operation, their targets and their missions are similar: through scientific and technical progress, to promote knowledge and outlets for lipids and related products and to encourage the development of this industrial sector. Thus an invitation to participate in an initial group meeting was issued by the directors of ITERG to European lipid research centers and was unanimously accepted.

Professor Champetier, a member of the Academy of Sciences and President of ITERG, opened this meeting and in his welcoming address expressed his hopes that the effort would result in concrete proposals; these were obtained after 14 hours of exchange of information and discussion.

The various participants introduced their organization in turn, explaining structure, by-laws, budget, missions, means in men and equipment, and chief activities. In view of their structures and by-laws, it was evident that some are governmental organizations depending on a ministry (agriculture, industry or education), while others are intertrade. The budgets (for four of the centers) are comparable, while the staffs vary between 20 and 90. Some are integrated into larger units, others are independent. Over and above research, some exercise considerable activity in the information-documentation, technical and higher instruction, and technical assistance fields. All participate in standardization works. Three publish specialized magazines, which are official mouthpieces for their organizations (*Rivista Italiana delle Sostanze Grasse, Grasas y Aceites, Revue française des corps gras*); another is closely associated with a well known magazine, *Fette, Seifen Anstrichmittel.*

It can be noted that the six bodies mentioned represent an overall budget in the region of 14-15 million francs and a studies and research potential relying on ca. 300 people, nearly half of whom are university graduates.

It is possible to observe great similarity in the disciplines (chemistry, biochemistry, technology and microbiology) and products concerned (oils and fats of vegetable and animal origin, margarines, frying fats, cakes, soaps, detergents, fatty acids and byproducts). All devote a considerable portion of their activities to improving analytical methods and to experimenting with modern instrument techniques for lipids: UV visible, IR spectrophotometry, atomic absorption, fluorescence, mass, chromatography in all forms, low resolution RMN, ATD, etc. . . .

A certain number of subjects are to be found in the programs of most of the centers: oxidation and its consequences, souring and reversion (fixed and volatile products), aromagrams, hydrogenation, refinery, rheology, heated fats, titration of metal traces, minor components, etc. . . . On the other hand, certain subjects are dealt with more particularly by the centers which are to a certain extent specialists: preservation of olives and olive oil technology at Seville; diol esters and alcoxylipids, "low calory" lipids at Münster; quality and processing of palm oil at Brussels; technology and characterization of margarines at Zeist; demargarination and fractioning, artifacts during deodorization, biodegradability of detergents at Milan; detoxification of cakes containing Aflatoxine, animal fats for bottle feeding products at ITERG Paris; homogeneous phase hydrogenation at ITERG Marseilles.

The above mentioned centers are of course not the only ones to carry out lipid research in the European countries; hopefully, this initial core will be joined in the future by the many other research organizations.

Apart from the decision to create the European Club of Centers for Lipid Research, to be a working and concertation structure, flexible (no by-laws, no president) and open, the following goals and wishes have been expressed: (1) To intensify the endeavour to inform technicians and scientists in any one country of the works and results obtained by institutes in the five others. The four magazines already mentioned (*Fette, Seifen Anstrichmittel, Grasas y Aceites, Revue Française des corps gras, Rivista Italiana delle Sostanze Grasse*) will be the media for this information. During the coming months, these magazines will simultaneously publish a one to two page report on the activities of these centers. The May issues will concern the activities of the German Institute; July, the Belgian Institute; September, the Spanish Institute; November, the French Institute; January 1973, the Italian Institute; March 1973, the Dutch. Steps will also be taken to publish these reports in an American magazine in order to inform English-speaking readers. (2) Encourage cooperation and exchanges between specialists in the same scientific discipline in the six organizations. (3) To encourage all initiatives tending to facilitate tasks in the information-documentation field (exchange of acquisition lists, transla-

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ANNOUNCEMENT
1972–1973
SMALLEY CHECK SAMPLE PROGRAM

The Smalley Committee annually offers a number of Check Sample Series in various analytical categories. Interested analysts should write to Smalley Committee, AOCS, 508 S. Sixth St., Champaign, Illinois 61820, prior to July 15, 1972 for order forms and complete information, which will be distributed before each series begins.

The following Check Sample Series (the number of samples being shown in parenthesis) are offered:

Cottonseed (10)	Oilseed Meals (15)	Cottonseed Oil (4)
Soybeans (10)	Edible Fats (5)	Soybean Oil (4)
Peanuts (7)	Drying Oils (6)	Copra (4)
Safflower Seed (7)	Tallow & Grease (5)	N.I.O.P. Fats & Oils (5)

Gas Chromatography (fatty acid composition) (6)
Cellulose Yield (cotton linters) (10)

Additional series will be offered should sufficient interest be indicated. Please advise the Smalley Committee of series you feel would be of value.

R.T. Doughtie, Jr., Chairman
Smalley Committee

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tions, sharing of tasks in the drafting of documentary products, etc. . .). (4) As far as possible, to consult each other in order to exchange points of view in connection with all meetings concerning the standardization of analysis methods and the harmonization of the legislation. (5) At Professor Martinez Moreno's invitation, the next meeting of the Club will be held at Seville in April 1973, and its object will be to report on the progress achieved towards the above mentioned targets during the past 16 months.

Belgium . . . B. Jacobsberg, M. Loncin

Efforts to increase industrial productivity underway

Rationalization efforts to increase productivity are taking place on a large scale in the Belgian fat industry. Thus, Petrofina and Ashland Oil, Inc. (Ashland, Ky., U.S.) have decided to merge Oleochim Ltd. and Palmafina Ltd. Petrofina and Ashland are the principal shareholders of Oleochim, while Palmafina shares belong entirely to Petrofina. Ashland and Petrofina will be the principal shareholders at equal parts of the new entity, named Oleofina. This will employ over 700 people with a turnover of about 45 million dollars. Oleochim has facilities for fatty acids and derivatives production at Ertvelde and Oelegem, near Antwerp, and Palmafina at Ertvelde is a vegetable and animal fat refiner and producer of margarine, shortenings and industrial soaps. Lilachim, also at Oelegem, belongs 50% to Oleofina; its specialty is fatty amines. The group has made important investments for research and development.

Research oriented toward environmental protection

Environmental protection preoccupies European governments, and Belgium has taken drastic measures to enforce pollution control for fatty waste products. In relation to this, a study on the selective assimilation of fats and fatty acids by yeast and bacteria strains was made. It initiates a government sponsored research program on the biochemical degradation of detergents and other fat derivates in wastes. Research pertaining to the metabolism of fat in human beings is carried out at Gent and Louvain Universities. Also at Louvain, a standardized method for the Fat Section of the International Union of Pure and Applied Chemistry is being elaborated for the detection of halogenated pesticides in fats.

Private industry is concerned with the elaboration of pathways to produce "tailor-made" crystallization behaviour of fats: (1) highly selective catalysts for hydrogenation; (2) study of the kinetics of transesterification with metal amalgamate catalyzers; (3) optimization of formulation of margarines by linear programing. Quality exigencies of the consumer ask for reliable forecasts of the quality of the refined fat as much, and stability against oxidation in the manufactured product from criteria of the crude oil and fat. This problem is studied intensively especially for palm oil, in which consumer interest is rising steadily. This will lead eventually to a better outline of definition and possibly specifications of crude oil quality.

Brazil . . . . . Roberto F. Kohlmann

Protein enrichment of foods guards against malnutrition

Some time ago governmental and private entities studied several ways of enrichment of traditional foods with protein, in order to improve the nutritional state of people with low purchasing power.

Brazil is one of the major producers and consumers of cassava flour. In the main areas of the country, the cassava is the cheapest food available. The increase of its protein content, which is normally ca. 1–2%, would be a great contribution to the fight against malnutrition in Brazil. For this reason several official entities, private industries and the USAID/Brazil, have been exploring the

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possibility of the cassava enrichment.

The Mandioca Fortification Project has revealed the following possible fortificants available in Brazil: (1) soy protein isolate (trade name "Proteimax"), being manufactured by the SAMRIG industries in the south of Brazil; (2) fish protein concentrate, still in laboratory phase but going into pilot production at the Marine Research Institute, Rio; (3) calcium or sodium caseinate, or a residue of soy milk, all available from the Mococa Dairy Company in the state of Sao Paulo; (4) amino acids such as methionine (low in beans, with which the mandioca flour is usually eaten); available through Ajinomoto company in Sao Paulo, though originating in Japan; (5) torula yeast, possibly available in the future from the northeast of Brazil where the Institute of Sugar and Alcohol has two factories; (6) other possibilities, such as flour made from mandioca leaves, being developed by the Food Technology Institute at Campinas, Sao Paulo, and whey, being made by Vigor Dairy Co.

Laboratory experiments currently in progress are: (1) on small animals, at the School of Medicine of Ribeirao Preto, Sao Paulo, and at the Institute of Nutrition, University of Pernambuco; (2) on children at the British-American Hospital in Lima, Peru (under AID/Washington sponsorship); on children at the School of Medicine, Ribeirao Preto.

Economic studies: (1) preliminary cost-benefit study made by Food Technology Institute, Rio; (2) brief marketing study in northeast of Brazil, by University of Georgia team (USAID); (3) study of economic feasibility of fortification of mandioca flour by economists of CACEX (Export Division, Bank of Brazil).

Genetic improvement: (1) field work being undertaken in various research centers under Ministry of Agriculture—State of Rio and NE.

Acceptability tests: (1) taste tests carried out by International Flavors and Fragrances Company, Rio; (2) acceptability tests to be started in school restaurant near Rural University, Rio.

Commercial marketing: (1) Largest reprocessor in Rio area will test-market the fortified product under its brand name when technological problems are solved. (2) Two largest supermarket chains will also test-market the fortified product as soon as available.

Technological problems: (1) Dry mixing of fortificants is not efficient as fortificant does not aggregate. Method of adding without extra wetting-drying process must be discovered. Use of premix is being investigated by Food Technology Institute, Rio, and at reprocessing plants outside Rio. (2) Probable solution is to add fortificant during manufacturing process. (3) Fermentation process is not being investigated, as fermented product based on mandioca has relatively small market in Brazil.

Exchange of information: (1) Two national meetings on mandioca fortification have already been held in Rio for exchange of information among all involved parties. (2) The meeting which took place in March 1972 in Rio de Janeiro, to which approximately a dozen key people from Africa and Asia and other countries have come for discussions with Brazilians, provided an opportunity for basic exchange of information among technicians of various cassava-consuming nations that will be mutually beneficial and perhaps open the way towards implementation of the fortification principle in the countries involved.

Soybean production in Brazil

Fast development in the production of soybeans is continuing. The crops for the last 5 years are as follows:

Year	Production, metric tons
1967	711,000
1968	677,000
1969	1,100,000
1970	1,500,000
1971	2,450,000

Estimated production for 1972 is 3,400,000 tons.

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Zilch to head entire Emery Fatty Acid Division Technical Group

K.T. Zilch, Technical Director of the Fatty Acid Division of Emery Industries, Inc. has assumed responsibility for direction and coordination of research and product development for all segments of the Fatty Acid Division. In addition to the Cincinnati location, this now includes Emery's Western Operations, and Malmstrom Chemical Co., a wholly owned subsidiary located in Linden, N.J., plus technical coordination of the Monsanto-Emery joint venture. Zilch formerly had responsibility only for the Cincinnati research and development group.

Zilch has been employed at Emery since 1955. He has been a senior chemist, head of a Production Research Group, and Manager of a Process Research Section.

Zilch holds B.S. and Ph.D. degrees in Chemistry from the University of Missouri. He is a member of the American Chemical Society and has been an AOCS member since 1955.

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France . . . . . M. Naudet

Journees d'Information in Paris

These days, organized each year by the Institut des Corps Gras, took place April 17–19 and drew more than 200 participants. The following lectures were presented: Outline of 6 years of national and community activity on the industry of animal fats; Evolution of the structure of reserve fats as effected by new techniques of raising; Establishment of foundries—progress in the nature of collecting, stocking and melting—Environmental protection; Evolution of the refinement of animal fats; Interesterification and hydrogenation; The influence of transformation operation on analytics; Normalization (CEE-ISO-Codex Alimentarius); Utilization in human nutrition; Infant nourishment; Utilization in biscuit and bread making; Lipid Chemistry—Surface agents.

Study Day in Marseille

The Study Day organized by the National Laboratory of Fat Materials is planned for May 25. The theme will be: Margarines and Edible Oils—Real Problems. Four talks are expected: Determination of the moisture in solid form and utilization for obtaining consistency; New additives in margarine: the effects of present and future legislation; Modern technology on table margerines; Diet margarines and edible fats—nutritional problems.

The text of the talks, for both the Journees d'Information in Paris and the Study Day in Marseille, will be published in *Revue Francaise des Corps Gras* and will also be printed in special publications.

Fifth International Conference on the Sunflower

The Fifth International Conference on the Sunflower, organized jointly by the Institut des Corps Gras, the Technical Center on Metropolitan Fats and the Institute for Agricultural Research, will be held July 25–29 in Clermont-Ferrand. It will concern research and innovations both in agricultural production and in industrial techniques and utilization.

Great Britain . . . . . Bertram Hudson

Scientific activities in oils and fats

The 1971–72 Program of the Oils and Fats Group of the Society of Chemical Industry began in October under the Chairmanship of K.G. Berger who succeeded F.D. Gunstone at the conclusion of the previous Session.

The first paper, on the subject of "Trace Contaminants in Fat and Oil Foods," was presented by J. Thomson of the Laboratory of the Government Chemist. He was succeeded by H. J. Dutton of the USDA Northern Regional Laboratory (Peoria, Ill.) who was visitor for the Hilditch Memorial Lecture. Dutton's lecture was on "Some New Approaches in Lipid Research."

The final meeting in 1971 was devoted, as has now become customary, to a series of original contributions from younger members. The four papers on this occasion were presented by J.S. Chadha ("N-Acylated Phosphoglycerides"), P.B. Mansfield ("Determination of Fat in Confectionary Products by NMR"), P.J. Barnes ("A Method of Evaluating Ingredients and Techniques Used in Cake-Making by Linear Measurement") and E. Komorowski ("Applications of X-ray Long Spacing Measurements to Fats"). Indicative of the trend to hold some meetings away from Headquarters, this last meeting was held at the Lyons Central Laboratories, Hammersmith.

The New Year opened with A.R.H. Tawn's lecture on "Polymerization and Co-polymerization of Fatty Acids and Esters," a recognition that scientific advance is no longer confined only to the edible oils and fats area. However the topic was once again food when N.W.R. Daniels, Honorary Recorder, spoke on "Enzymes and Lipids in Baking."

The program continued with a full day symposium, jointly with the Food Group of the Society, when a series of well known speakers presented papers on Food Emulsions. These were: S. Friberg, Sweden ("Influence of Association and Crystallization Phenomena on Emulsion Properties"); N. Krog, Denmark ("Formation of Liquid-Crystalline Phases in Emulsifier-Water Systems and Their Influence on Emulsion Stability"); A. Courts ("Gelatin Emulsions in the Formation of Microcapsules"); S.M.A. Lecchini and I. Shepherd ("Cake Emulsions"); and W.L. Sulzbacher, U.S. ("Meat Emulsions"). The program for the year was brought to a close with the traditional chairman's lecture, by K.G. Berger on "Confessions of a Fat Technologist." The new session will begin in September with a 2 day residential Symposium (September 14–15, 1972) at Norwich, again jointly with the Food Group of the Society, on "Deep Fat Frying." The Symposium will cover chemical, nutritional and technological aspects of this increasingly important but difficult topic, and speakers are expected to be drawn from Europe and the U.S. as well as Britain. Offers of further contributions are welcomed and should be made to the Symposium Secretary, P.A.T. Swoboda, ARC Food Research Institute, Colney Lane, Norwich NOR 7OF, England.

Spain . . . . . E. Vioque

Third International Meeting of Technologists and Industries of Canning convenes in Murcia

During October 25–28, 1971, the Third International Meeting of Technologists and Industries of Canning was held in Murcia. The gathering, attended by 210 members from 20 countries, was organized by the Permanent International Committee of Canning (CIPC) with the collaboration of the Institute of Orientations and Technical Assistance of the Southeast (IOATS) and the Association of Research in the Industry of Canned Vegetables (AICV).

In the opening session, speeches were presented by O. Carrera, President of the Organization Commission; H.P. Pereira, International President of the CIPC; and A.I. Perona, General Director of the Alimentary and Tectil Industries.

Economic, Technical, Scientific and Legislative Sessions were held during the 4 day meeting.

3rd Meeting of the Spanish Committee on Surface Active Agents

This meeting, held in Barcelona, February 23–25, 1972, was organized by the *Comité Español de la Detergencia, Tensioactivos y Afines,* member of the *Comité International des Dérivés Tensioactifs,* CID, with the collaboration of the *Patronato Juán de la Cierva* for Scientific and Technical Research.

The opening lecture was presented by F. Estape, Assistant Commissary of the Development Plan, on the subject "Industrial Expansion and the Environment in the Third Development Plan." The plenary lecture was given N.B. Pinnington of Shell International, on "World Development of Intermediate Products for Synthetic Detergents in the Next Decade."

The following specific topics were presented: A. "Chemical Bleaches and Optical Brighteners in Detergents":

"Some Observations on the Measuring Techniques Used for Optical Brighteners in Detergents," A. Berger (Bayer Hispania Comercial, S.A.); "F.W.A., Chemistry, Properties, Applications and Problems," R. Von Rutte and G. Di Giovanoel (Ciba-Geigy A.G.); "The Role of F.W.A.'s in Modern Detergents," D. Barton (Hickson & Welch Limited, Rovira, Bachs y Maciá); "Sodium Perborate in Detergent Formulations," E. Trabal (Foret, S.A.); "Sodium Perborate and Other Modern Products Used in Washing," M. Delatre and A. Descamps (Solvay & Cie); "The Chloroisocyanurates Boom," E. Eaton (Food Machinery Chemicals Co.); "The Chlorocyanuryc Acid Derivates: Their Applications in the Detergents Field," P. Lhoste (APCSA); "Current Products and Methods for Chemical Bleaching," R. Borezee (Ugine Kuhlman). B. "Testing Methods:" "Studies of Standardization of Viscosity Measurements of Surface Active Agents and Solutions Containing Them," G. Gomez Herrera (Instituto de la Grasa y sus Derivados); "Some Considerations Concerning Standard Fabrics for the Control of Washing and Dry Cleaning and its Practical Use," S.V. Vaeck (Ministére des afaires economiques, Laboratoire Central, Belgique); "Research into Defects, Stains and Damage of Textiles Using Thin Layer Chromatography," H. Loeffel (Sandoz A.G.); "Methods for Testing the Performance of Washing Machines," H. Bruschweiler (EMPA, St. Galen); "The Present State of The Washing Technique in Dish Washers," Th. Altenschopfer (Henkel G.m.b.H.); "Safety Testing of Detergents," J.B. Ferrandis and G.K. Ashforth (Procter & Gamble S.A.) C. "Perfumes in Detergents": "Analytical Control of Perfumes in Detergents," M. Codern (Lueta S.A.); "The Perfuming of Detergents," H.E. Klotz (Haarman & Reimer S.A.E.); "Some Technical Considerations Concerning the Perfuming of Soaps and Detergents," J.M. Marques (Givaudan Ibérica, S.A.); "Perfuming of Detergents Products," A.G. Edwards (Propietary Perfumes Ltd.).

Israel . . . . . A. Letan

New method available for continuous fractionation of edible Oils

The problem of efficient continuous fractionation of oils (such as palm oil) has not yet been solved in a satisfactory way. Liquid-crystal separations meet many difficulties.

The two methods used in industry are solvent-fractionations (with hexane or acetone, at low temperatures) or separations with surface active agents. In the first method filtration is considered a difficult operation; in the second, centrifugation is required and the product is left with certain amounts of incompletely eliminated detergent.

H.L.S. Ltd., Petah-Tikva, Israel (an industrial engineering company, a subsidiary of Etz-Hazaith Ltd., specializing in design and construction of equipment and of whole plants for edible oil industries) now offers a continuous-fractionation industrial plant in which neither filters nor centrifuges are used, but a specially designed decanter. Isopropanol is used as solvent (with addition of a natural crystallization agent), and the fractionation is carried out in two stages, at 12–15 C and at 25–30 C.

The plant can be used for fractionations of palm oil (degummed or refined) and of hydrogenated soybean oil, for winterizations of cottonseed or sunflower oils and also for dewaxing of rice bran oil.

For example, palm oil was fractionated into two solid fractions and one liquid oil fraction: the first solid fraction (12%) had a melting point of 46 C; the second solid fraction (14%) had a melting of 34 C; and the liquid fraction (74%) had a cloud point of 5–7 C and cold test stability (according to AOCS) of 15 C. (The cloud point of liquid oil after first crystallization stage was 26 C; the melting point of combined solids was 42 C.)

No drying equipment is necessary in the described plant; the oil-solvent ratio is 1:1, and crystallization time is 1.5 hr per stage. The plant in operation, handling 12 tons oil per 24 hr, was built at the Company site at Petah-Tikva, Israel, and is now open to professional visitors; potential customers may also see it in operation with batches of oils provided by themselves.

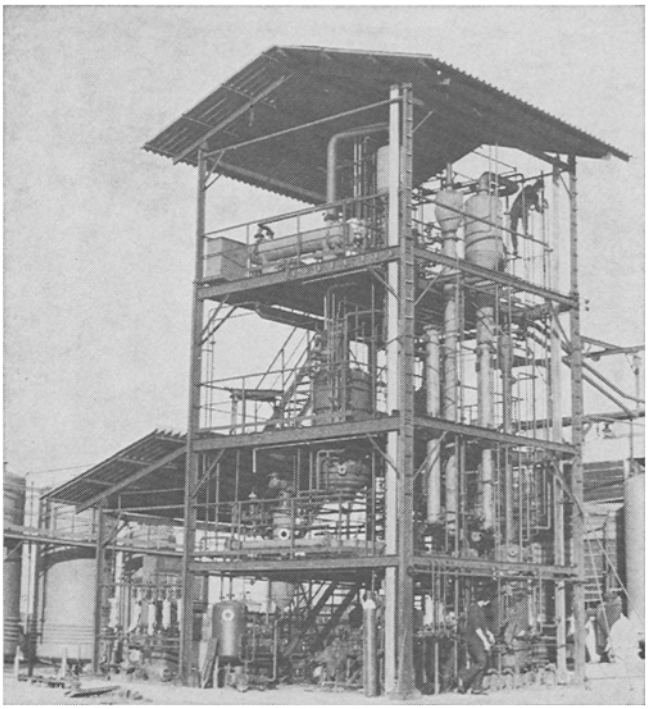

FIG. 1. A continuous-fractionation industrial plant.

India . . . . . K. S. Krishnan

Government organizes planning groups for fats and oils technology

The Government of India has established planning groups consisting of reknowned scientists and technologists.

Group VI of Panel V of the National Council of Scientists and Technologists is concerned with Oils, Fats, Soaps, Surfactants, Paints, Resins and Varnishes and consists of: M.M. Chakrabarty (Chairman), D. Rebello (Convenor) with the following members: K.T. Achaya, G.S. Apte, N.R. Bhow, N. Bhowmic, B.P. Godrej, J.G. Kane, A.R. Kidwai, R.K. Marphatia, S.H. Mhatre, M.R. Raman, K.N.R. Sharma and S. Varadarajan.

The items for reference of planning groups include the following: (1) To develop integrated total systems whereever necessary for the solution of industrial research problems and transplanting of such solutions to industry. Such systems should also attempt at involving research capability in the Indian Institutes of Technology, Universities and other academic bodies; (2) To assess the indigenous availability and to consider utilization of raw materials, processes, technology, project engineering skills, fabrication-capability and their relative merits in relation to technoeconomic advantages of import of know-how, goods and engineering skills. (3) To study the factors responsible for under utilization of capacity in the individual sectors or units of the chemical industry and how far the situation could be improved by government action and/or by formulating suitable research and de-

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