

## Report from France: Institut des Corps Gras (ITERG), Paris<sup>1</sup>

### Background, aims and means

Early in 1943, a group of technicians created ITERG, to develop scientific research and to effect the study and popularization of the best techniques and manufacturing processes in the field of fats in France.

In 1948, ITERG was transformed into a technical research center with the main objective of promoting technical progress. Its goals are: to document and inform technicians in the lipids industries concerning the studies performed and progress made, both in France and abroad; to perform studies and research of interest to the development of scientific knowledge or industrial techniques, the improvement of qualities, the lowering of cost prices, the increase in outlets; to give technical assistance to companies; to assist in the technical training of executives or foremen in the lipids industry; and to assure the scientific and technical representation of trade both in France and abroad.

ITERG is administered by a board of directors, at the present time presided over by Prof. Champetier, a member of the Institut de France. Its head office is in Paris where, apart from the management and administration, function the documentation department and the Paris laboratories, chiefly based on instrumental analysis methods, applied research and technical assistance. The building also houses the laboratory room and the Ecole Supérieure d'Application des Corps Gras. At Marseille is the Laboratoire National des Matières Grasses, ITERG, which—due to its situation on a university campus and to its staff—is more particularly oriented toward fundamental research. Total personnel in Paris and Marseille amounts to 45.

Since January 1, 1970, ITERG has been directed by J.P. Helme, who is assisted by a scientific advisor, Prof. Desnuelle, Director of the Biological-Chemical Institute of Provence University.

### Collective research

Collective research is the fundamental activity of the laboratories in Paris, managed by A. Prevot, and those in Marseille, managed by M. Naudet, of Provence University.

The research program is established by a scientific committee composed of representatives of the trades concerned (oil works, margarine production, soap works, animal fats and lipochemistry), and of qualified scientists, together with the managers of ITERG. The chief research work during recent years has concerned scientific, technical and industrial questions of the moment, entailing long, medium and short term problems.

The present research program comprises ca. 10 main subjects, basically related to the improvement of the knowledge of products by the development of new analytical techniques, on the one hand, and technological subjects aiming at better utilization of these products, on the other.

1) *Impairment and preservation of lipids*: These studies



are aimed at greater knowledge of the products responsible for the flavor of fats by analytical techniques (gas liquid chromatography or aromagram) and by sensorial analysis. Moreover a new, reliable and reproducible method of quantitative determination of oxidized acids has been developed and is now employed systematically, in view of the study of the formation of these oxidized acids during various industrial operations. More recently, the study of the influence of trace metals on impairment is being performed intensively, thanks to atomic absorption spectrophotometry with the aid of a graphite oven.

2) *Selective hydrogenation by homogeneous catalysts*: This study, of a fundamental nature, aims at developing a technique to master selective hydrogenation of highly unsaturated oils (soya and colza) by means of carbonyl metal type catalysts, (e.g., iron or cobalt octacarbonyl). The team working on this subject has acquired great experience and mastery, and the results already obtained indicate that there is hope for effective solutions in the future.

3) *Frying fats*: This is a study aimed, on the one hand, at learning the transformations undergone by oils during their cooking and heating and, on the other, determining practical recommendations to be made to users. The results already obtained make clear that the conditions of use (notably, temperature, time, renewal of baths) are more important than the nature of the oils subjected to frying.

4) *Oil extraction and refining*: Several subjects come within this research area. We would indicate in particular the dehulling of rapeseeds, and deodorization exhausts. These studies are performed in close collaboration with the

<sup>1</sup>This information is published as a result of the creation of the European Club of Centers for Lipid Research, January 1972, in Paris. For details regarding this new club, see *JAOCS* 49:236A(1972). Reports from three other countries have been published to date: Belgium, *JAOCS* 49:330A(1972); Germany, *JAOCS* 49:372A(1972); and Spain, *JAOCS* 49:374A(1972).

industries.

5) *Oilcake and Meal*: A considerable fraction of ITERG's research is devoted to the improvement of the quality of oilcake. The work in connection with the improvement of the quality of rapeseed meal (reduction or elimination of the thioglucosides and their conversion products) and those of peanuts (elimination of aflatoxin) should be indicated especially. On the latter subject, ITERG has been entrusted with the coordination of studies at international scale. Highly advanced tests on the processing of meal by ammonia give an indication of a satisfactory solution.

6) *Study of the rheological properties of plastic lipids, margarine type*: In this field the Laboratoire National des Matières Grasses of Marseilles has accumulated great experience from years of work. Many techniques and evaluation instruments have been developed, and it is thought that these properties are now under control.

7) *Animal fats*: ITERG's work concerning animal fats has contributed to a more correct utilization of these products in various industries, notably the animal feed industries. This work has been more especially concerned with the characteristics of the fats, their stability and their preservation. At the present time the quantity determination and elimination of traces of polyethylene in tallow is being given more attention.

8) *Soaps*: Having contributed several years ago to the better knowledge of soap works technology, ITERG is now studying systematically the relation between the composition of soaps and their structures and practical properties. Another part of the laboratory's activity is devoted to the improvement of current analytical techniques. The improvements made are controlled by circular analysis, in which all the laboratories in the trade take a part, and are then proposed for either French (AFNOR) or international (IUPAC, ISO) standardization. Lastly the laboratories are integrated into united action at a national level, concerning leading subjects of the moment, such as the study of the

nutritional properties of rapeseed oil, for which ITERG has been appointed supplier of reliable reference products.

#### Documentation and information

This department, directed by A. Uzzan, is responsible for collecting and placing at the disposal of customers all the scientific, technical and industrial information that they require. It disposes of a basic set of documents which is enriched each year by several thousand French and foreign reviews, works, brochures, theses, patents, catalogs, year-books, legal texts, etc., and from which, after selection and analysis, thousands of documentary products are obtained in the forms of information, translation, notes, reports, etc. These documentary products are, on the one hand, circulated by means of ITERG's various information media, and, on the other, by integration into different card indexes from which bibliographies and documentary research can be compiled, so as to reply to requests for information.

ITERG's periodical information media are: (1) *The Revue Francaise des Corps Gras*, the institute's official organ with a broad world circulation. Each volume comprises eleven issues and a considerable IRIS index, prepared by computer. This index is one of the most complete and finest available in these industries and disciplines. (2) *The Documentary Notebooks*, a monthly publication repeating the documentary and information section of the above publication. Printed on the front and glued on the back, the sheets in these notebooks can be cut out into cards, for arrangement of personal documentation. (3) *DISIP (Selective Circulation of Profile Information)*, which supplies subscribers each month in priority with personalized and very complete documentation regarding the themes concerning them in particular.

ITERG also organizes, since 1954, annual "Days of Information" devoted to a particular subject concerning industries and techniques in the field. In addition, the Laboratoire National des Matières Grasses in Marseilles organizes a yearly "Study Day" which is also the subject of a special issue or brochure. The themes dealt with until now have been: oil milling, soap making, fatty acids and byproducts, fatty food stuffs, new applications of lipids, animal fats, margarine, toilet soaps, etc. Each year they are the subject of a special issue.

ITERG publications also include: annual activity reports, theses, practical manuals, papers, indexed analytical bibliographies (peanuts, colza, soap, etc.) and a technological dictionary in five languages.

#### Technical assistance

In addition to the two main fields of activity indicated above, ITERG devotes a considerable portion of its means to technical assistance to companies. This is a matter of aiding concerns that have special problems, solving them either by consultations on the spot or by rapid laboratory perfections. The subjects arising are highly diverse and stretch, for example, from the implementation of practical means to reduce pollution (air or water) to the adjustment of defective equipment. The supply of practical information, assistance and miscellaneous advice are also part of this system.

#### Training and instruction

This mission is fulfilled basically by the Ecole Supérieure d'Application des Corps Gras. This school, run by J.P. Wolff, trains specialist graduate engineers with 1 year of full time instruction (diploma acknowledged by the state), and moreover many trainees, both French and foreign, are taken in at the school to acquire general or specialized training. Thus in 1971, ca. 30 trainees from France and a dozen other countries profited by this instruction.

*ITERG will supply readers with additional information concerning the points developed in this article. Please write to: ITERG General Management, 5, Blvd. Latour Maubourg, Paris 75007.*

## Harry Theobald chosen NRA president

Harry Theobald, President of the Theobald Industries, Kearney, N.J., was elected president of the National Renderers Association at the Association's Hawaiian convention concluded in Maui, November 4. He will serve as chief elected officer until November 1973.

The National Renderers Association is an organization of some 500 members engaged in the rendering and recycling of waste animal fat, bone and the inedible parts of slaughtered animals. Renderers in the U.S. daily recycle more than 81 million pounds of otherwise waste materials into useable and commercially marketable products. International headquarters for the Association is in Des Plaines, Ill., with other fully staffed offices in Brussels, Tokyo and Singapore.

Theobald, a third generation renderer, began his rendering career in the Kearney, N.J., plant in 1934. He assumed the presidency of the company in 1955 upon the death of his father. A fourth generation of Theobalds is now engaged in the business.

The Theobald Industries, a corporate member of AOCS, is engaged in the production of shortening, lard, edible tallow, detergents, bleaches and various chemical compounds, in addition to rendering.

