**CORPORATE**

# profile...

## FRL devotes major part of its energy to helping food and chemical manufacturers define safety tolerances

PROBABLY THE BIGGEST step forward in the modern history of nutrition was the birth of the vitamin theory in 1912. Since then, a whole new industry has arisen, directed toward improving the nutritional value of foods through changes in production technology.

It was in 1912, also, that a young teacher, Philip B. Hawk, was named head of the department of physiological chemistry at Jefferson Medical College in Philadelphia. Widely known for his researches on digestion and metabolism, as well as for technical and popular articles on nutrition, Hawk continued his investigations at the college hospital, expanding the work through grants from food and pharmaceutical companies. Considerable interest was developing in the new techniques of animal experimentation in nutrition, but industry at that time had no place to go for such studies except to hospitals and some university laboratories. Aware of a growing need, Hawk in 1922 put aside his academic robes and set up Food Research Laboratories, the first independent organization in the United States to specialize in biochemical and nutritional investigations.

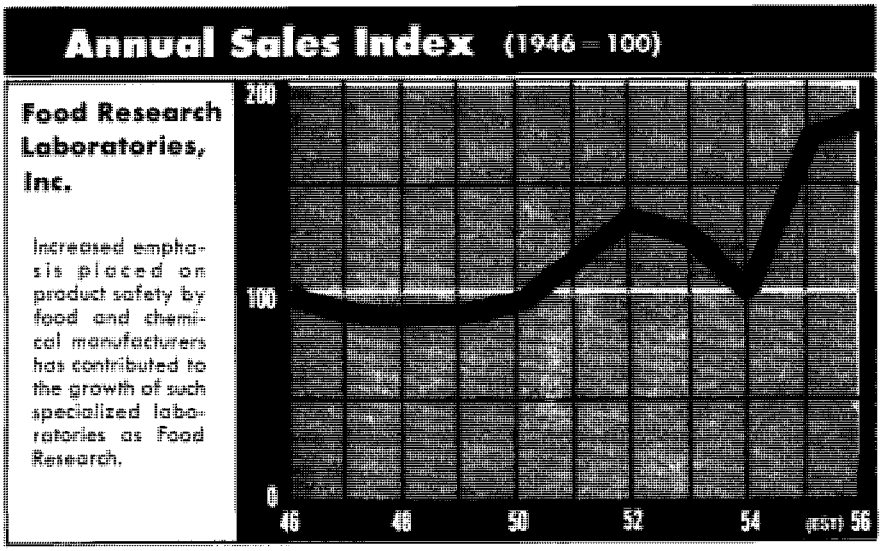
During its first decade, Food Research Labs continued Hawk's animal experiments, moving his entire colony of rats from Philadelphia to the laboratories' temporary home in Massachusetts, and soon thereafter to New York. The laboratories' greatest efforts were devoted to developing and evaluating vitamin sources, especially yeasts and fish-liver oil, rich in vitamins A and D. As commercial production of high-potency vitamin oils and concentrates, yeast, and bran extracts expanded, hundreds of new pharmaceutical products appeared on the market. And FRL's activities extended further into the drug field.

Early in World War II, most biological assay methods for vitamins began to give way to quicker, more precise, and less costly chemical and microbiological procedures. These methods play a major part today in FRL's operations, although animal research, always important to the laboratories' work, is still required for amino acid and protein evaluations, and for mineral metabolism, energy utilization, and other physiological studies.

The laboratories' growing animal population includes mice, hamsters, guinea pigs, rabbits, chicks, dogs, and —inevitably—rats. The rat colony, started in 1926 from Wistar-strain breeders, represents some 150 consecutive generations for which continuous dietary records have been maintained. It supplies 300 to 500 weanlings weekly. Because the complete nutritional history of its animals is known, FRL can often estimate physiological responses to deficiency diets before actual experiments are begun. Good estimates of this type minimize the need for variations within experimental groups of animals and permit more accurate interpretation of results.

A whole new field of interest for FRL opened with the passage of the 1938 Food, Drug, and Cosmetic Act. According to the so-called *per se* doctrine contained in the law, addition of poisonous chemicals to foods was flatly prohibited, *except* when "unavoidable" (as in the case of certain pesticidal residues) or when "required" in the production of food according to good manufacturing practice (for example, emulsifiers, antioxidants, or desiccants). These exceptions demanded establishment of safe tolerance limits, and FRL has devoted a major part of its energies over the last decade to helping food, drug, and cosmetic manufacturers define safety tolerances. Besides performing nutritional research and toxicological studies on food additives, the laboratories' staff investigates effects on animals of pesticides, preservatives, plant-growth regulators, hormones, antibiotics, and other agents present in animal feeds. It determines safe levels and investigates functional value of proposed new food additives. In this connection, it employs modern organoleptic and taste-panel procedures to evaluate effects upon food flavors and acceptance.

Of major importance since the war are programs FRL has carried out for pharmaceutical companies and for the packing industry. Besides preservatives, antioxidants, colorants, and other additives that go into foods themselves, a great number of chemicals—plasticizers, stabilizers, and pigments, for example—may be employed in cellulosic or plastic-film wrappers or bags, molded containers, enamel-lined cans, and other types of packaging. The possibility that such components may migrate from the packaging material into the food demands comprehensive safety evaluation. Current or recent toxicological projects in the laboratories include screening tests for synthetic flavors, studies of the effects of antioxidants on reproduction, deter-



mination of the toxicity of a new antihistiminic, and investigation of the potential carcinogenicity of an important pesticide. In the applied field of product development, FRL's efforts are largely directed toward formula-

The Director. . . .

**Bernard L. Oser**

An authority in his field

tion of pediatric, geriatric, and other specialty dietetic foods; frostings, cake and roll mixes, and spreads; and pharmaceutical vitamin preparations.

To ensure safety, quality, and purity of their products, and to satisfy corollary legal requirements, even the largest food, drug, and chemical manufacturers must often call upon such specialists as Food Research Laboratories. Their broad experience in these fields has drawn Bernard L. Oser, director of the laboratories, and his associates into numerous judicial or administrative proceedings to testify as qualified experts or technical advisors on such issues as food spoilage or poisoning, potency loss in vitamin preparations, or imitation of "imported" perfumes. They frequently present testimony at government hearings on standards for bread, margarine, canned foods, and ice cream, and on such questions as tolerance levels for pesticide residues.

In his 30 years with Food Research Labs, Oser has earned an authoritative position in his field. He is world famous as a physiological chemist and coauthor of the standard text "Practical Physiological Chemistry" (Hawk, Oser, and Summerson). Oser joined the laboratories in 1926 after working for several years previously as Hawk's assistant at Jefferson. Oser has been largely responsible for FRL's continuing expansion into new fields of food technology.