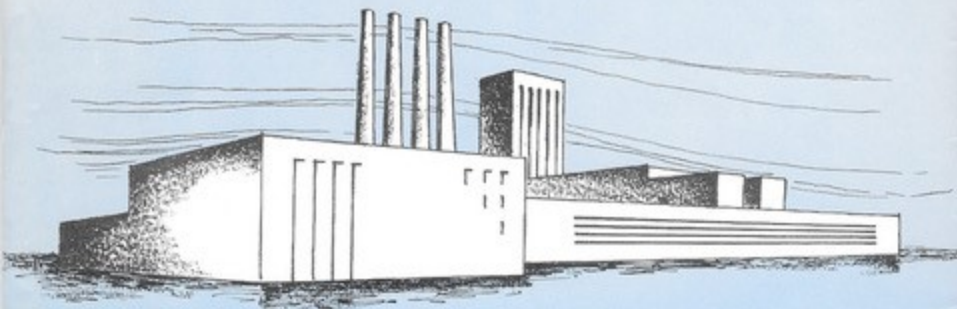


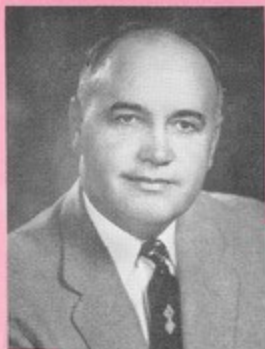
FOOD TECHNOLOGY

Its Challenges
and Rewards
as a Professional
Career ...



a S YOU READ THROUGH THIS BOOKLET,
it is suggested that you keep in mind these
distinctions—the sciences give you the “know-
why,” the technologies give you the “know-how”
for your professional career. For early success
you need both.





CHOOSING A CAREER...

YOU . . . as a serious-minded young man or woman will not choose a career lightly. It is reasonable and proper that you compare the varied opportunities and rewards carefully. It is *your* life. Your future welfare and happiness depend upon your finding a profession that engages your full interest and talents—and properly rewards them.

We invite you to consider the opportunities for a career in the food industry.

You can anticipate, when you have completed your training, opportunities in abundance. The demand for well-trained food technologists exceeds the supply.

The food business is a massive and stable business. Here are some facts of interest:

- In terms of retail sales, it is a 67 billion-dollars-a-year business.
- The food market grows with the population, and the population is growing, *fast*.
- Research and technology are strongly supported by the industry; they will receive increased emphasis in the years ahead.
- New foods, better foods, better and cheaper ways to manufacture foods are not only sought by the industry; they are also desired, even demanded, by the American consumer.

This stable and progressive industry¹ can offer you a secure and stimulating professional career.

L. E. Cliffton

President, Institute of Food Technologists

In Food Technology, Research, and Engineering, All Over America, You Can Find Opportunities



Courtesy of American Meat Institute



Courtesy of Borden Food Company



Courtesy of Pillsbury Mills, Inc.



Courtesy of Continental Can Co., Inc.

In Industry

In the great meat packing branch of the industry, with centers of research in Chicago and at many other points over the nation . . .

In the dairy and dairy products branch of the industry with centers of research in New York, Wisconsin, Ohio, Pennsylvania, Oregon, and at many points in the Southern states . . .

In the fruit and vegetable branch of the industry with centers of research in Florida (citrus products), the Far West, Maryland, New Jersey, the Midwest, and the Mountain States (sugar beets) . . .

In the cereal and baked products branch of the industry, with research centers in Minneapolis, St. Paul, and the Midwestern grain belt generally . . .

In the beverage industry, with active centers of research in Georgia and the South, in New England, in the Midwest (St. Louis and Milwaukee), in the Mountain States, the Southwest, and the Pacific Coast States . . .

In Government

In the U. S. Department of Agriculture Laboratories . . .

In the State Experiment Stations . . .

In the Department of Defense Laboratories . . .

In Private

Institutions and Foundations and Industry Supported Associations . . .

Possible fields of specialization in food research and development are varied. These are the broad areas . . .

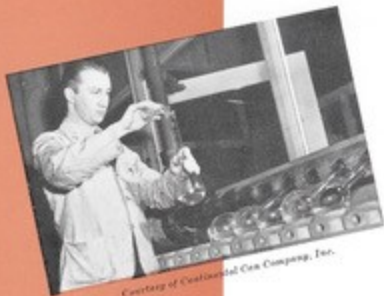
- **FOOD TECHNOLOGY**—For every new idea in research someone has to carry the idea into the plant, where the production line is rolling, to see that it will work out. Developing and adjusting new products to successful manufacture, maintaining standards of quality, reducing manufacturing costs by simpler, better methods—these are some of the responsibilities of the food technologist.

- **RESEARCH**—Problems relating to the constituents of foods—the proteins, fats, carbohydrates, vitamins, minerals—are endlessly mysterious and challenging. Chemistry, bacteriology, histology, mathematics, and even psychology are brought to bear upon them. Changes in these constituents under heat processing, freezing, drying, fermenting, etc., are typical objectives of research “scienting.”

- **ENGINEERING**—The machinery and equipment used to prepare foods for human consumption are already highly developed but they are constantly being improved. Conveying raw foods into the plant, cooking them, or drying, freezing, concentrating, or fermenting them is a mechanical operation in the modern food industry. But the distance mechanization has come compared to where it will go is short.

- **RELATED FIELDS**—Many kinds of talent are utilized by the food industry. Later on in this booklet you will find them listed and briefly explained.

You can locate your career interest in one of the foregoing main divisions of technical activity



Courtesy of Continental Can Company, Inc.



Courtesy of American Meat Institute



Courtesy of American Meat Institute

In choosing a career you will wish to know things not about "jobs in general" but about specific jobs. Technical jobs in the food industry are never "just jobs." They are "particular jobs" requiring all you have of training, mental ingenuity, observational powers. Consider, for example, the great meat packing branch of the food industry.

With a sound background in chemistry, you can help track down the changes in the proteins and fats of animal products that cause rancidity, discoloration, or loss of texture during storage.

As an engineer, you may be able to devise new ways of canning meat that will extend storage life, increase the convenience of such products, or improve the packaging. There is already some "exploring around" in regard to a flexible package for "canned" meat—a transparent film that will withstand heat processing.

As a trained bacteriologist, you can assist in the problems that beset frozen meats, for example, precooked frozen poultry products.

As a histologist (a specialist in cellular structure) you may learn the secret of how to assure tenderness in meat products.

Finally, in an industry famous for using "everything but the squeal" the search for by-products still goes on—the search for pharmaceuticals, uses for leather, for fats, bone, hair, and horns and hooves.

You can begin preparing for a particular job now . . .

Wide open to young careerists is the great dairy products branch of the food industry. Last year some 121 billion pounds of milk were produced in the U. S. A. Without the variety of products achieved through technical means, much of this highly nutritious product would go to waste.

Opportunities for careers in dairy research and technology are numerous and rewarding.

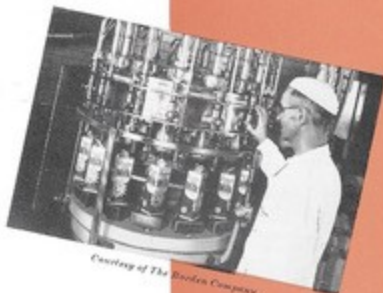
Chemists, biochemists, bacteriologists, nutritionists, home economists, engineers and packaging technologists are wanted.

Half the milk produced in the U.S.A. is marketed fresh. In this phase of the business, sanitation engineers, public health inspectors trained in bacteriology, and dairy engineering specialists are utilized.

Milk is also manufactured in the form of evaporated, condensed, or dehydrated milk. These operations require the specialized services of dairy technologists and engineers. By the way, "instant milk" is the product of their recent endeavors.

Americans are forever looking for new ice creams, new milk drinks, new cheeses—all, of course, milk products. Technical creativeness in this area may be richly rewarded.

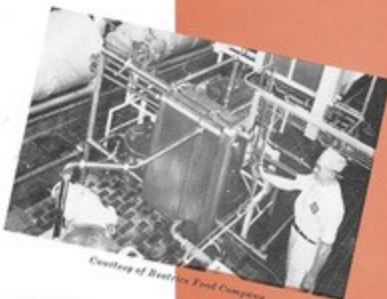
For the great surge of technical progress ahead you will need training in the basic sciences . . .



Courtesy of The Borden Company



Courtesy of Borden and Company



Courtesy of Borden Food Company

FOOD SCIENTISTS AND TECHNOLOGISTS

spearheaded the development of these
new or improved products and preservation tech

Frozen orange juice, reconstituted for serving. Frozen citrus concentrates gave new life to the citrus industry.



Add water and stir! Brown and serve! Milk, tomato juice, corn rolls can be made in a jiffy today.



Dehydrated pie filling is but one of many of the products of modern dehydration techniques.



Today...

Frozen foods. The deep-freeze units in the American home today reflect the great achievements of the food industry in preserving foods for long storage by freezing. Citrus juices, peas, beans, steaks, chops, and a host of other foods are frozen in quantity as a result of research, technology and engineering. "Strawberries in December," a dream yesterday, is a reality today.

Instant foods. Your grandmother used to spend long hours peeling potatoes and getting other foods ready for that holiday dinner. Today food manufacturers have taken most of the drudgery out of food preparation. The last word in this modern development is food that only requires heating before serving.

Dehydrated foods. People used to hate "dried apple pie." Dehydrated apple slices today make delicious pies. Dehydrated whole green beans taste almost like the fresh. Dry milk can be reliquefied to taste like milk fresh from the dairy.

YOU
new manufactu

niques

Tomorrow...

Preservation of foods by radiation. In its initial stages, and waiting for the bright ideas of food scientists, technologists and engineers of tomorrow, is a brand new concept of food preservation—the use of cathode rays, or as an alternate source, rays generated from atomic fission by-products. When perfected, radiation sterilization or pasteurization of foods will rival, as an industrial invention, the discovery of canning by the 19th Century Frenchman, Nicolas Appert.

Complete mechanization of food manufacture. Trends in the always progressive food industry are toward automation—the completely instrumented and mechanized food production line. Mechanization has progressed far but the task of taking the tedium and human error completely out of food manufacture is the challenging technical venture for men and women of tomorrow's world of industrial research.

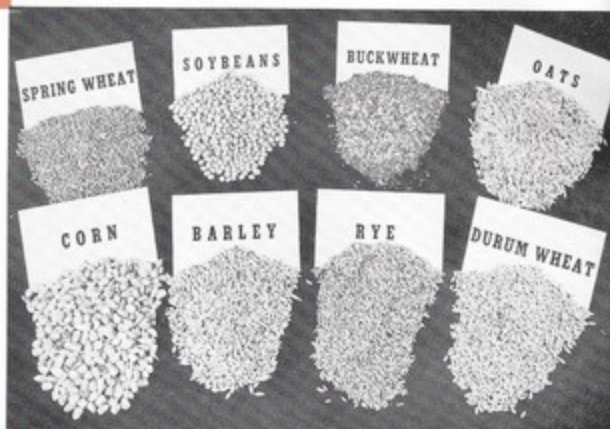


Courtesy of B. and C. Company

CAN CONTRIBUTE to the exciting new foods and
irring techniques promised for the world of tomorrow

Even within any one branch of the Food Industry, your range of choice is wide . . .

Take the cereal and baked products branch of the food industry—a highly diversified enterprise. Here are a few of the jobs requiring specialists:



Courtesy of Pillsbury Mills, Inc.

Yeast improvement: Finding the strains with right characteristics for leavening plus storage stability under all conditions of use is a fascinating pursuit.

Flour research: Differences in the properties of grains and in the constituents of cereals creates a never-ending search for ways of enhancing quality, improving stability, multiplying uses, and adjusting flours to new modes of manufacture and new products—for example, prepared mixes.

Research on ingredients: Numerous opportunities exist for improving the ingredients of flour. Now the object of much study are chemical leaveners, shortenings, eggs and milk and other ingredients—not to mention spices and flavorings.

By-products research: Separating the components of a cereal—corn, for example—into industrially useful by-products is a continuing project. Used in soap, leather dressings, paper products, brewing, tobacco, beverages, miracle drug manufacture, and explosives, there are still uses to be discovered.

JOBS

*associated with Food Technology
are numerous . . .*

Technical editing and writing: On the basis of a combined interest in science and English you can attain a high position in the food field by a knack for telling the story of food research to laymen or by polishing the technical reports and articles that your colleagues prepare.

Personnel work: With a background in science plus training in psychology, sociology, and administration, you can find numerous opportunities to apply your talents in the food business.

Legal counseling: The Food and Drug law has become tremendously complex in recent years and with each new development in the food industry it becomes more so. To furnish able counsel in this field the industry requires legal talent with some background in food science and technology.

Psychometrics: This expensive-sounding word means, in its application to food, the measurement of food quality as judged by the senses. Food acceptance testing has become a systematized procedure and is invaluable in guiding product development and in determining consumer preferences. Gone are the days when the president of the company tasted the soup and salted it to his liking.

Statistical analysis: With a bent for "math," you can apply your talents to many phases of food research and development—to consumer preference testing, to quality control, to the design of experiments on new products, etc.

*Almost any type of job you are interested
in can be found in the Food Industry*

Beverages, confections, spices, condiments, flavorings, fruits, vegetables, nuts and the meat, dairy, and cereal products already mentioned pass through many stages of study before they appear on the table as foods.

It may be of interest to you to figure out where you would fit into the scheme of things in the food industry. The diagram below is a generalized flow chart of food industry uses for research and development talent:




As a Food Technologist you would be concerned with improving the quality of foods — their color, flavor, texture, nutritional value — and in creating new foods or better foods by scientific methods.

An engineer in the Food Industry will be concerned with new and improved methods for moving, cleaning, preparing, processing and packaging foods


A highly simplified way of looking at the role of the engineer in the food industry is to consider the flow of raw products through manufacture to the finished product. The food engineer is involved in the design, improvement, and basic maintenance of the machines and equipment used in the following operations:




RECEIVING THE PRODUCT




HOLDING PRODUCT PRIOR TO
PREPARATION FOR MANUFACTURE



INITIAL PREPARATION (CLEANING,
GRINDING, SLICING, OR OTHER
CONDITIONING)



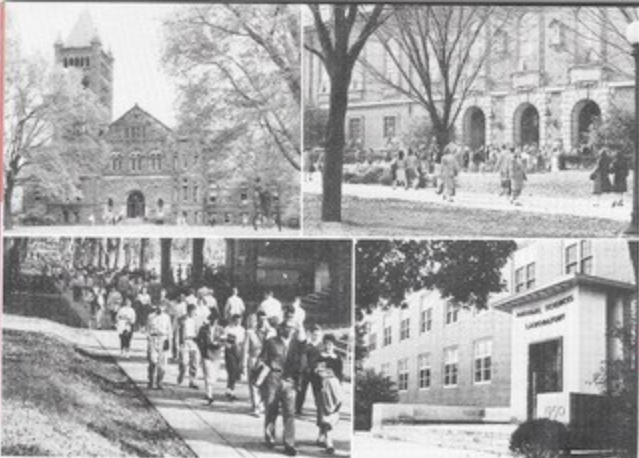
PRESERVING BY APPLICATION
OF HEAT, OR BY FREEZING,
DRYING, FERMENTING, ETC.



HOLDING PRIOR TO PACKAGING



PACKAGING AND DISTRIBUTION



You can follow
either of two
avenues to a
successful career
in Food
Technology . . .

The KNOW-WHY Way

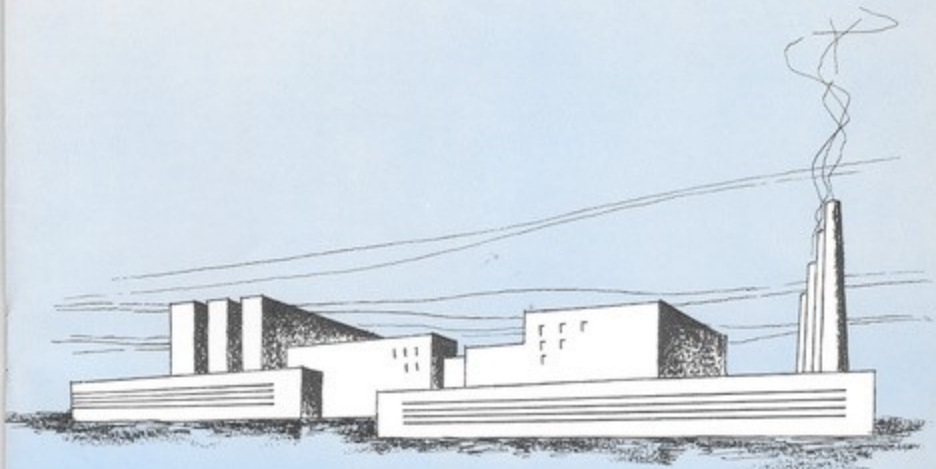
After majoring in college in one of the sciences common to the food field—biochemistry, bacteriology, chemical engineering, etc.—you can pursue your course into graduate college and obtain a higher degree . . . or . . . proceed directly into a food company where, at an excellent beginning salary, you will receive on-the-job training that prepares you for solving advanced food or food processing problems. Equipped with a knowledge of new scientific techniques, the latest theoretical discoveries or the newest engineering approaches, you have an opportunity to gain scientific recognition rapidly. In association with highly trained research men, leaders in their respective specialized fields, you will be contributing to the advancement of our national welfare.

The KNOW-HOW Way

In colleges that have courses in food technology you can begin to major in this field in your junior or senior year. After training in the basic sciences, such a course will give you a practical insight into the applications of food research and engineering, a broad grasp of the major food problems—in short, a sound perspective on the roles of the food sciences and technologies that contribute to the production of new and better foods. The food industries have a diversity of openings for the food technologist. Available to you are up-to-date research facilities, pilot plant equipment, association with men of keen mind and creative ability. Nowhere in the professional world is there a greater challenge to the person with an alert, inventive mind—or greater opportunities.

For information on schools offering courses in Food Technology or Food Engineering, and information of job opportunities in specific industries, write to the Executive Secretary, Institute of Food Technologists, 176 West Adams Street, Chicago 3, Illinois.

THE FOOD INDUSTRY IS AT THE BEGINNING of an era of tremendous technical progress. As a trained food technologist you can anticipate a wide variety of rich opportunities. Begin now to plan a career in this field of ever-new horizons.



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