

## Better Meals for Tomorrow \*

Lewis W. Waters

*Vice-President in Charge of Research,  
General Foods Corporation, New York, N. Y.*

Today there is a wider popular interest than ever before in all kinds of research. It makes the front pages of our newspapers. It is an important part of our national defense program. The National Association of Manufacturers is encouraging research among its company members, furnishing them with information on the formation and conduct of a research department. No longer is industry operated by rule-of-thumb, hunch, inspiration, chance. Mysterious and secret knowledge is disappearing. There is an increasing tendency to depend upon scientifically determined facts. Research is on the march as never before.

The layman, reading in magazines and newspapers of the constant flood of new developments pouring forth from our laboratories, may receive the impression that little remains for research to accomplish. There have been amazing advances in every field of scientific knowledge, yet the surface has hardly been scratched. Research men know that every contribution to knowledge opens the way for new explorations, for still greater accomplishments.

The Research Advisory Service recently asked America's industrial leaders the question: "What new product, process, or material might industrial research develop that would be valuable to *your* business?"

Compilation of the answers gives some idea of the job research has ahead of it. There is a list of 598 specific problems to which a fully satisfactory solution has

not yet been devised, and for which industry would like the answers today. Forty-four of these items have been selected by the National Inventors' Council as vital from the standpoint of national defense. Here is a real challenge to research! We have the brains and facilities to meet it?

There were 32 specific problems listed on foods, some of which, as well as many more, are already receiving the attention of our food laboratories. We cannot learn too much about food since it is the most important single commodity in the world. Fortunately, the whole food industry has been most hospitable to the scientific worker and, as a result, probably at least one-third of the items now present on our grocery shelves were unknown to our grandfathers.

Feeding human beings has become one of the greatest sciences. Two generations ago, the scientist thought the problem was simple. It seemed only necessary to discover the needs for proteins, carbohydrates, fats, and a few minerals; analyze the foods for these constituents, and then so blend the foods as to furnish an adequate supply of each. Eating was simply stoking a furnace. Food was merely fuel, and was evaluated in terms of calories, exactly like coal and wood.

The old science is still fundamental, but the new science of nutrition is continually adding to it new knowledge of a whole array of substances needed by the body.

Several factors have broadened food research, the old "cracker barrel" grocery gave way to new packaged foods—the milk bottle and carton replaced the dip-tank. By the use of individual contain-

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ers, the manufacturer or producer identified his goods and protected their quality. The discovery, isolation, and synthesis of vitamins changed our entire concept of nutrition. Food companies merged into larger groups and conducted centralized research, thereby preventing duplication of effort and insuring maximum utilization of results. Our present investigators are better trained, better financed, and have better facilities than in the past.

The average per capita consumption of food, which remained fairly constant for over two decades at nearly a ton a year, in the last survey appeared to have declined. "Stream-lining" was being applied to the human body as well as to automobiles. Yet in spite of slenderizing campaigns, shorter working hours, and more recreational activities, the number of employees in about 50,000 food processing plants in this country is larger today than 10 years ago. The prices average about 25 percent lower. The quality of foods has been very definitely improved, and there is every indication that we shall have even better meals for tomorrow. Each food manufacturer has the problem of making his products so attractive they will be included in your diet. It is a highly competitive business, intensified by the daily shopping of some 20 million housewives.

In nations under war conditions the average person eats more than in times of peace. War-time rations jump to 4500 calories daily per man, and there are changes in demand among all classes of food. This is due to changes in occupation of the population, and general disruption of industry, transportation, and labor which follows the tremendous increase in the manufacture of war supplies.

In the present international crisis, the food supply of the world is a factor that may determine the outcome of the struggle now going on and the type of life which will follow after.

In the First World War, emphasis was placed on food conservation. In our present defense program, stress is laid on increasing the consumption of food and improving nutritional values because

of the vital relationship between health and proper food. Modern wars are waged by all the people, and the health and morale of civilians is as important as that of the armies.

In spite of the increase in the knowledge of nutrition since the last war, there does not appear to be as much improvement in the proportion of army applicants who are physically unfit, many for conditions having nutritive basis, as was expected. It requires years of adequate feeding to strengthen a nation.

England at war is emphasizing the importance of the proper feeding of civilians and increasing the consumption of important foodstuffs. In addition to providing a ration which is adequate, if not liberal, in such items as milk and milk products, potatoes, cereals, and meat, the Ministry of Food is providing at comparatively cheap prices whole-grain cereals to increase the consumption of the essential vitamin B<sub>1</sub>. Also all white flour is fortified with this vitamin which is one of the largest scale nutritional programs ever attempted.

In this country there is an increasing trend toward the restoration to foods of the vitamins and nutritive qualities lost in processing so that the finished product will equal in nutritious value the raw material from which it was made. This is already being applied to breakfast cereals and flour. Future food standards may stipulate minimum vitamin content; as, for example, winter milk products with vitamin A and D potency equal to summer milk.

Food research is being influenced by other familiar current trends—decreasing population growth, due to lower birth rate and restricted immigration, smaller families, smaller houses, less space per family, smaller stocks carried at home, more hand-to-mouth buying, greater tendency to move, decline in home owning, increase in apartment living, decline in farm population, but increase in suburban life around cities due to ease in commuting, and much less time devoted to the preparation of meals. The median age of our population has risen to nearly

30 years, life expectancy is increasing, and we are becoming a nation of older people.

To meet this situation, more and more of our foods are being packaged to assure freshness, full weight, convenience in handling, proper labeling, and brand and manufacturer identification. Almost every commodity can now be obtained in package form, in fact it is rumored that mothers' milk may be available soon in a tin can.

Containers are being improved: fabricated easier to open and reclose, offering better protection of contents, and in many cases made attractive enough to be placed on the table. There is an abundance of new carton and wrapping materials, such as transparent plastics from rubber, even glass in fabric form. Products which have required special containers or have short shelf-life because of tendency toward rancidity are being rendered stable by anti-oxidants, and are now suitable for automatic vending.

Ready-to-serve products are on the increase: coffee beverage ready to drink, packaged bread already sliced, ready made pie-crust and biscuits. Many products now require only the addition of milk before cooking. You can buy complete spaghetti dinners in a package, and even Crepe-Suzettes or hearts of palm in a tin can. Perhaps the better meals for tomorrow won't take more than 10 minutes to prepare.

During recent years, there has been a growing tendency to drink our foods, and you have seen the rise in fruit juices and more recently the vegetable juices—tomato, carrot, beet, and even spinach. Yet milk still remains the great national beverage.

Foods out of season are now available twelve months of the year, either rushed to your table by fast transportation, or quick-frozen quality foods with their vitamins intact, cleanly prepared immediately after they are harvested, and instantly ready for preparation for the table. More and more foods are being freed of waste before they ever reach the home kitchen.

Only 10 percent of the known foods are used to any extent today, and many

delightful new products are being made available to us—Boysen berries, new melons, and different varieties of vegetables. The luxuries of yesterday are becoming the common necessities of today.

Drudgery in the kitchen and dining room is on the way out. Probably 60 million women-working-hours daily were saved last year due to the use of more convenient foods and better cooking devices. Probably more money and brains are going into the efficiency of the modern kitchen than into all the other rooms of the house put together. The kitchen has become a laboratory. Preparing meals has become a science, reducing the need for skill and insuring results. More schools are offering courses in home economics, and registration is increasing. Home cooking of better meals, made easy, appears to be growing in popularity.

Research is designing foods more intelligently to fit the needs of the individual, old or young. New advances are being made in infant feeding and the nourishment of 20 million school children. With less than two million babies born a year, the infant-food manufacturer is stretching his market with a line of "junior-foods" for the older child. The next step may be foods designed for the aged or middle-aged.

Attention is being given to special foods for the ailing, or the allergic. Food sensitization is a vast, almost unexplored field. It is known that some human beings are sensitive to some food, and the whole subject of allergies is receiving the serious attention of the food scientist.

And so we find research making our foods more colorful, more aromatic, more appetizing, more nutritious, of finer texture, better packaged, and of finer and finer quality.

Bright-colored foods are increasing, for we eat with our eyes. Along with fruit-flavored gelatin desserts, we now have colored coconut, tapioca, and even colored bread.

Our knowledge of flavor is still an art rather than a science, but methods of measuring and evaluating flavors are be-

ing developed so that they can be controlled and duplicated. Old flavors, such as butterscotch, have acquired new popularity. We know of sectional flavor preference in this country. The South does not like licorice flavor, Maine is strong for wintergreen, New Orleans is partial to chicory, Brooklyn wants a sharp mayonnaise, while Oakland prefers it bland. Our ice cream manufacturer uses 28 different flavors to satisfy the public. New flavors, once unknown, are being developed.

Research is contributing toward making our nation well-fed, yet probably half our people do not get enough of the proper food to enjoy full health and vigor. Too many families have poor diets, some have fair diets, too few have really good diets. A great need is for more milk and milk products, eggs, meat, and certain fruits and vegetables. It is estimated that nearly half the population of an eastern state has incipient scurvy every spring, known as spring fever, but usually treated with sulphur and molasses instead of vitamin C.

This condition exists in our nation not only because some people cannot afford proper food, but also because others have insufficient knowledge of dietetics. Research is continually reducing the cost of foods to the consumer, and the food industry is broadcasting accurate dietetic information in a multitude of ways.

We are only at the beginning of our knowledge of nutrition, but enough is

known to give better health, greater vigor, more useful lives to more people, if the present knowledge could be generally applied.

Here is offered a suggested program for the food industry which will assure better meals for tomorrow:—

1. *Use the best materials* and work with suppliers to effect progress in quality of materials.

2. *Manufacture efficiently* conforming to all standards of purity, uniformity, and full weight, by a properly compensated personnel, working under modern sanitary conditions. Operations must be highly efficient to keep costs moderate.

3. *Process carefully* to preserve the maximum nourishing and nutritious qualities.

4. *Package properly* delivering the products to the consumer in perfect condition, in convenient and attractive form.

5. *Distribute widely* that they may be available everywhere.

6. *Advertise honestly* to inform the consumer of their true merits.

7. *Price wisely* giving consumers maximum value, but also a fair return to employees, stockholders, and dealers.

8. *Supply directions* that suggest economical, attractive, and appetizing ways to serve.

9. *Strive for convenience*, saving time and labor for the consumer.

10. *Maintain constant research* to find new and better methods, new and better products.