Research and the Mayonnaise Industry*

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THE remarkable growth in the commercial production of mayonnaise is one of the romances of our present food industry. This rapid development has already prompted you to organize as a trade association for the consideration of the many problems which effect you both as individual producers and as an industry. In this way you are avoiding duplication of effort, economizing in funds, securing maximum results in a minimum of time, and are well informed about the status of all new developments. In organizing your associational activities, you have provided very wisely for a Standards and Research Committee. This action clearly evidences the fact that you, as business men, recognize the fact that your industry is one in which both art and science are involved. The real foundation of the successful production of mayonnaise goes back to the field of pure science. I see a further appreciation on your part that the solution of technical problems with which you are and will be concerned must be in the hands of men well trained and equipped to solve these questions.

In this short talk I hope to bring out certain ideas on research in relation to your industry; in other words, to sell you, as business men, the idea that research, properly conducted, is an indispensable part of our modern industrial scheme, and to offer certain suggestions regarding the organization of a research program in the mayonnaise field with the necessary coordination of the various activities in this special field of research. I realize, as Dr. Miner has recently said, that the present attitude of business toward research is decidedly friendly. In fact, research is as popular with industry as vitamins are with the general public, and just about as well understood. Both are being given an enthusiastic trial. If the public finds that by increasing the proportion of the mysterious A, B, C, D, E's in the diet the public health is actually improved they will probably come to believe in vitamins. * * * They are, however, rather anxious to be convinced. The industrialists feel much the same way about research. The war greatly advertised its value, and at once research became fashionable in business circles. Many feel that the research is the sure salvation of our economic souls. Many organizations have sampled this new style business accessory and a few have made it a permanent part of their equipment. * * * With industry in general, however, research is on trial, and the results of the near future will determine in a large measure the speed with which industry generally will adopt research. The success of such research will be measured by the magnitude of the accruing profits."

Industrial research took to discover something that the public or industry wants, and the benefits derived therefrom are measured by the profits obtained. Some two years ago Dr. Little made the significant statement that "industrial progress can, however, only be assured by the constant acquirement of new knowledge, which points the way to better control of operations, to new and better processes, new raw materials, new products and to those new uses which extend the market." As Willis R. Whitney said, "We must first find facts, then find out how to use them." Quoting further, Dr. Little said that "In a very real sense research is the mother of industry and may even dispute with necessity the parentage of invention." He pointed out that "Industrial research differs from pure research only in its motive and its immediate objective. It employs the same methods, demands the same skill and the same high intelligence in training. It is, however, and not wholly to its disadvantage, always under a pressure of the time factor, from which the worker in pure science is measurably free, and it must, if it is to be regarded as successful, pay its own way and yield a profit."

Basically, research is divided into two classes: the first, pure scientific or fundamental research; the second industrial research. The distinction between these two

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types is primarily in the purpose for which the research is undertaken. The relation of research to a business organization is splendidly developed in an address given by Dr. Holland of the National Research Council before the Glass Container Association in May, 1926. In this address he pointed out that "Pure science research is fundamental; applied research is consequential. The one reveals the sources of nature; the other controls them. The one is the foundation; the other is the superstructure." Continuing, he said, "I like to think of modern industry in terms of research as a towering skyscraper, the foundation securely anchored in the bedrock of pure science, the frame of steel girders, strong, flexible sinews of applied science or industrial research, and the stone and mortar the practical knowledge or experience of the technology of industry. In less learned terms then, research, when stripped of technical phraseology, is in fact accelerated experience." Continuing, he said, "To the average American business man research is a mysterious business, into which he must pour an endless stream of appropriations, and from which in this day of mass production he expects to turn a crank and grind out a constant stream of dollars in dividends."

There is no question about the applicability of research to all industries. However, its progress in an individual industry depends on a number of factors which are inherent in the industry itself. It is quite obvious that an industry which has been founded largely on tradition and where the technology has been handed down from generation to generation is slower to undertake a scientific study of these processes than is a new industry, especially if the new industry is recognized as an outgrowth of distinctly scientific work. It is only necessary to compare for a moment the status of several of the older industries in our American business field with certain of our younger industries which have primarily received their impetus as a result of a scientific discovery or invention. The automobile industry had its beginning only a little over thirty years ago with the granting of the first patent in this field to Selden. The marvelous growth of this industry fostered and boosted by new scientific discoveries and invenions, has resulted in bringing this industry to the firs place in point of value of all our American industries. Other industries which have achieved similar and lasting success such as the radio illumination, and the telephone, all owe their origin and subsequent rise to scientific research.

Babson, in one of his barometer letters a few years ago, said, "The time has passed when advertising alone will get sales. The two best salesmen today are a 'better product' and a 'cheaper way of making it.' Research opens the way to both. Furthermore, since the most competition is not between concerns but between industries, we urge clients to combine their energies with others in the same line of business." Babson states further, "If I read the trend of modern business correctly, I would say co-operation, not competition, is the life of business." A striking illustration of the value of co-operative effort in research is furnished by the scheme for industrial research which is now in active operation in England. There they have a governmental department of scientific and industrial research, and a very considerable number of co-operative trade research associations are in existence which operate under a subsidy from the Government, the basis of this subsidy being equal contributions from the Government and the industry involved for the conduct of the particular research program for a specified period of time. These research associations have not only been successful in solving some of the needed problems confronting these industries, but they have promoted more harmonious relationship between the individual members of these associations. They have clarified or explained so-called trade secrets and furnished a common meeting ground on which individual manufacturers can freely discuss current problems and thus secure the benefit of a widened experience. In our own country we have striking illustrations of the importance and value of both the trade association research organizations' and the individual corporate organizations' programs. In the latter it is only necessary to mention such outstanding organizations as the Research Corporation of the General Motors Corporation, the research staff of the Eastman Kodak Company, the General Electric Company's organization, and the tremendous personnel of the American Telephone and Telegraph Company's staff. In the trade association group, the value of the Research Laboratory of the National Canners Association is now unquestioned by any of the members of that organization. Its pioneer work in the fundamental and basic principles of canning has established once and for all time the principles and practices which must be

followed in the successful conduct of the art of canning. The research laboratory of the Glass Containers Association is another illustration of the successful conduct of a research laboratory by a trade association. All of these organizations, whether organized and directed by a single corporation or by an association, are expensive and are not the only method by which research in industry may be developed. With recent years the establishment of the Mellon Institute for Industrial Research at Pittsburgh has opened up another excellent method for the conduct of industrial research. This work is conducted on a fellowship basis which is financed either by individual corporations or by trade associations, and the problem on which work is to be done is indicated by the donor of the fellowship. Many valuable contributions to our industrial life have resulted from this system. In fact, this principle has been extended so that research fellowships of an industrial character have been established at a number of our colleges and universities. Furthermore, the organization of the National Research Council is available for the formulation of research programs and advice and guidance in their development. The National Research Council not only is actively engaged in this direction, but is also taking a leading part in coordinating and encouraging research in the field of pure science. As Mr. Hoover said in his opening of the campaign for an endowment fund of $20,000,000 for the National Research Council, "Applied science itself will dry up unless we maintain the sources of pure science. We must add to our knowledge for the intellectual and spiritual satisfaction that comes from widening the range of human understanding and for the direct, practical utilization of these fundamental discoveries."

In all that I have said thus far I hope that I have impressed upon you the absolute necessity for and dependence of business upon research, and that any business which is to be successful must depend for its progress on research. As Dr. Little so aptly said, "The price of progress is research, which alone assures the security of dividends." In considering the application or development of a research program for the mayonnaise industry, it is not my purpose to advocate the establishment of a research laboratory or organization for your association, nor is it my purpose to recommend the expenditure of large sums for the prosecution of individual pieces of research. As business men, I believe it is a part of your business at least once a year if not oftener to take stock, in other words to make a summary of your raw materials, finished goods, equipment, and other items incidental to the operation of your business.

In the manufacture of mayonnaise certain basic ingredients are used. These basic ingredients are edible oil, egg, vinegar, and spices. Each of these components of your product has its own peculiar problems, which fact is well recognized by those who are primarily concerned with their production. Each of these basic ingredients, however, has many uses in the food field other than its application to your industry. It is, then, pertinent to look into those special qualities of each of these ingredients which will best adapt themselves to your own purpose. This can only be done by bringing together the experts in mayonnaise to confer with the experts who are specifically concerned with these various ingredients. I would, therefore, suggest that through your Research Committee, subcommittees be created which, of course, must include representatives of the industries concerned in their production. These subcommittees can then very carefully study the present status of our scientific knowledge regarding these special commodities and can then agree on a number of problems, the solution of which will be of direct benefit to your industry. Such a stock-taking of knowledge and our needs is only an application of business principles to scientific work, and will enable you to direct your energies and funds in the direction in which they are most immediately needed. Furthermore, such a plan will provide needed coordination in research activities in this field. It will enable you to present fundamental problems to the university man who will welcome such an outlet for his activities.

Former President Norris of the American Chemical Society has said, "Wherever great progress has been made the importance of the relationship between academic research and industry has been recognized. * * * The man who is devoting his life to the study of a particular field of chemistry, who is adding to the world's knowledge by research, and who knows the details of what has been done, cannot help but be of the greatest value to the industry based on his specialty. * * * I feel confident that our industries will advance more rapidly when

(*Turn to Page* 43)

Research and Mayonnaise

(*From Page* 13)

they seek more freely such scientific contacts. The industries should seek more fully the co-operation of academic investigators and should point out to the chemical world the fundamental unsolved problems underlying their procedures."

Just at this point, may I inject a word of warning to those of you who are using some form of chemical control in your factory operations. In my long contact with the food industries, I have found that the principal use to which the chemist or scientist is dedicated is the control of the manufacturing operations, together with a surveillance over the raw materials used. Only too often have I seen and met such chemists who are staggering under an added load of attempting to solve a real research problem in connection with the technology of his product. This dual demand on a single individual cannot be successfully met by him. Either one or the other activity is bound to suffer, and of course, from the standpoint of existence, the control work cannot be slighted. Research work, whether in the university laboratory or in institutions or in a commercial organization for its most successful development must be unhampered by other activities. The research man must eat, drink, live and sleep his problem. He must give his undivided time and attention to it if success is to crown his efforts.

In conclusion let me express the hope that what I have said may lead you to regard research as something absolutely essential to the well-being and progress of your industry, that you must look forward through research to newer and better methods of manufacture, newer and other uses for your product, and that such goals are only attained through perseverance.

Selecting a Trade Mark

(*From Page* 32)

and trade marks has caught, particularly, the full line marketers. Not so much, perhaps, the sellers of diverse families of products as the multiple marketer who puts out several grades of the same product. Latter-day competitive conditions such as the temptation to put out one grade of goods for the cut-rate chain stores and another for the high-grade grocery stores, have added to the urge to differentiate and emphasize commodity distinctions while retaining all the prestige of the line name. For all that the appeal is stronger to those in group selling, trade mark experts declare that this strategy of plotting every trade mark as a potential grade mark is not to be scorned by the marketer of a lone specialty. The argument is that, however single-minded a marketer may be today, there is no telling what he may desire to do tomorrow or the day after tomorrow. If the time comes when he deems it wise to expand his line he may thank his lucky stars that he has entrenched himself with a double-purpose name that will simplify for the consuming public its selective purchases.

New Laboratory Hydraulic Press

A new type of small hydraulic press suitable for use in the laboratory of the oil and fat plant or for other experimental work, is now being manufactured by Fred S. Carver, 95 West Street, New York. The press is hand operated and stands about three feet high. It will give pressures up to 25,000 pounds through operating the hand lever for four or five seconds, and is equipped with suitable pressure gauge. For pressing oil meals, etc., for laboratory samples, the press is equipped with a special cage having separator plates and filter pads. The cage equipment can be lifted out and the press used for various other purposes in the plant laboratory. The equipment has been standardized by the Carver organization and presses are carried in stock for immediate shipment. Formerly, laboratory hydraulic presses were built to order at high cost, but the standardization of the new press makes it available at a sharply lower cost. The maker states that many of the largest producers of vegetable oils, stearic acid, candles, soaps, disinfectants, etc. have already purchased this new press. The firm will furnish literature upon request.

The annual convention of the Interstate Cotton Seed Crushers' Association will be held at the Hotel Roosevelt, New Orleans, La., May 15, 16 and 17