NEED FOR SANITARY STANDARDS IN THE BAKING INDUSTRY

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It is pointed out that there are three divergent viewpoints in food industry sanitation today. First, that of the "Regulatory" official who simply points what is wrong and requires industry to develop the answer. Second, that of the educational or public health official who approaches the problems abstractly, hoping by education alone to inspire industry to do the things that the Regulatory official tries to force him into without education; and third, that of the complacent element in the food industry that regards sanitation as only being required when it is called to their attention.

It is further pointed out that there is a definite need for concerted effort on the part of professional sanitarians whether engaged in Regulatory work, public health work, or industrial counseling, to get together and bring these viewpoints to a common ground for the betterment of both food industry and cause of better sanitation in the interest of the consuming public.

If we were to ask the average city health department inspector if he felt bakeries are generally sanitary, the chances are that upon considerable prompting he would admit he wasn't sure. In fact he might say that he wasn't really certain as to just what does constitute a sanitary bakery. He might even go so far as to admit that he was confused as to what bakers do in their work because he never has had the time to really discover much about the baking process. Granted, there are many exceptions to this type of city inspector but, all too often, most inspectors are faced with this problem. Bakeries are technical establishments to them and they have grown to feel that they can be inspected adequately only by specialists. Basically, however, the most experienced health department inspector is apt to maintain that most bakeries are not too sanitary, for he has regularly found routine violations of sound food-handling principles in them.

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Finally, if one would ask an experienced federal or state food and drug official if he thought most bakeries were sanitary he would undoubtedly respond: "Yes, he considered that quite a few were, but that there were many which were not, since they had not yet recognized the problems of adulteration resulting from the use of contaminated ingredients and from the
failure to maintain bakeries free from infestation and possible bacterial infections growing within the plants, which actually adulterate products by physical contamination.

Thus we find we have three distinct channels of thought as to what constitutes bakery sanitation. One, a baker, who never had any regulatory activity directed against his plant, considers sanitation to be synonymous with operating cleanliness and appearance. Second, the city regulatory inspector, who has had extensive food-handler training programs for restaurants and the food-service industries thinks of sanitation in terms of the observance of food-handling practices. Third, the federal or state official enforcing food and drug laws thinks of sanitation in terms of compliance with adulteration requirements with respect to contamination from infestations growing within the plant.

Certainly there is a need for recognition of all of these aspects of the sanitation problem and for a standardization of the thinking of both industry, health department personnel and food and drug personnel: for how can we ever come to a universal program of training of baking industry personnel for better sanitation in an industry this large without an unanimity of viewpoint and a thorough understanding of the different aspects of the problem among all concerned?

The baking industry has recognized a need for such unification of concepts and a few years ago founded at the American Institute of Baking its present sanitation department. When the baking industry wants to develop any over-all scientific or educational endeavor for the benefit of all bakers it does so through initiating an activity at the American Institute of Baking. The American Institute of Baking is the baking industry's center for the development of any over-all scientific or educational endeavor it undertakes for the over-all benefit of all bakers.

At the Institute, in the past six years, we have definitely endeavored to seek a common meeting ground between food and drug officials, health department officials and the baker, with a view to developing a common understanding. This effort has been rewarded with some success but, at the present time, it is unfortunately true, we must admit that there is still much more ground to be gained. Presently many bakers are coming to think of sanitation as a problem of maintenance of their plant so that it remains free from insect and rodent infestation in order to conform with the requirements of the Federal Food and Drug Act.

One might well ask "Why is this the case?" The answer, of course, comes from the rather active enforcement campaign which the Food and Drug Administration of the Federal Security Agency has been carrying out for the past ten years. Certainly, it has been the experience of the speaker to find that the most cooperative companies, in the educational work of the Institute, have been those engaged in interstate business where they are subject to the requirements of this federal law. Incidentally, there have been some outstanding exceptions to this statement, but not enough of them to make it less true, in very recent years.

Five years ago I was invited, as an emergency replacement speaker, to address a small group of bakers in a mid-western state. I was amazed in speaking to find very little attention being given to a discussion of the fundamental concepts of bakery sanitation, that have proved very interesting to bakers in other areas. At the conclusion of the talk, because of this complete lack of interest, I had occasion to ask the chairman of the meeting why he thought this was the case. He smiled wryly and said: "Well, I suppose it isn't so obvious, but the fact is that these people came here to hear an address on bread racks. When it comes to sanitation they are just not interested, for none of them any longer do interstate business. One of them," and he pointed out one individual in the group, "used to do so for he ran two routes into the state west of here, but the Federal Government prosecuted him for poor sanitary conditions so he cut out those routes in self defense. Another," and he pointed to another chap at the end of the room, "had the same experience running bread routes into an adjacent state and he has given it up. You see, it just doesn't pay to do interstate business, for the federal people will catch you if you aren't sanitary and it is cheaper to cut out a few routes than to overhaul the plant completely." I asked him if he, as a baker, did not think sanitation was something that ought to be pursued for its own sake rather than for freedom from fear. He replied that of course he did but when it came down to the expenditure of good many thousands of dollars these small bakeries just simply couldn't stand it. He stated that it was much easier for them to engage in interstate commerce, I didn't bother to ask him about local and state enforcement for I knew what the conditions were in this particular state: there was and is absolutely no enforcement of any serious nature.

From this story we can only be impressed with the fact that there is a serious need for a standard of enforcement of a uniform concept of what sanitation is, after such a concept has been reached. Complete compliance with even a standardized enforcement program will never come from within the baking industry alone. I believe, sincerely, that conscientious bakers feel-sanitation laws should be enforced equally even though the baker himself may ultimately have to go to considerable expense in order to comply. I say conscientious because there are many such men in the baking industry.

There is a need for standardization of sanitation enforcement.
There is also a need for the development of standard concepts of "what sanitation is" among all enforcement officials. Only when these have been attained can educational groups undertake to teach them to bakery personnel with success.

I believe there are some signs of "light upon the horizon" for, in recent years, some local governments have made outstanding contributions to the enforcement of sanitation requirements in bakeries. I have in mind in particular one of our two largest cities which has developed the spark which "kindled the fire" under bakery equipment manufacturers and which I hope, will result ultimately in the manufacture of bakery equipment which, can be cleaned. There have also been a number of cities and one or two state groups which have carried, and are now carrying out, educational programs in conjunction with "considerate" enforcement, in such a way that, to the speaker's personal knowledge, many plants within their states and cities are sanitary of their own volition, without the use of too much police action.

In a way though these are exceptions for there is too much of a tendency on the part of some enforcement agencies to write off possible deficiencies in enforcement authority and ability on the score that "an ounce of education is worth more than a pound of penalty; whereas, actually when one looks into the matter seriously the writer at least is convinced that there is always a marginal five percent in any food-manufacturing industry which positively does require strict regulation if only to impress upon the remaining 95 percent that sanitation requirements must be met.

Is it possible, perhaps after we get our standards for sanitation requirements as to practice and equipment design, also to have a standard of expectation which bakers can realize from their health departments, including local, state and federal? Such enforcement standards will enable them to feel that if they comply reasonably to their standards they have no reason to fear regulation. In this way bakers will also know that unscrupulous competitors who will not comply reasonably to their standards they have no reason to fear regulation. In this way bakers will also know that unscrupulous competitors who will not comply with the standards will not be able to operate in unfair competition.

There is definite need of a standard of enforcement as well as a standard of attainment. This really leads into our second question:

**WHAT STANDARDS SHOULD BE ESTABLISHED?**

I should like to use an entirely different approach in answering this question. You people are all fairly conversant with the problems in sanitation compliance by a food-manufacturing industry. It is well recognized that one of the most difficult problems to be faced in endeavoring to operate a sanitary bakery is that of keeping machinery clean. Why is this the most difficult problem? The answer is very simple. It is primarily because most existing bakery equipment cannot be cleaned without practically reorganizing its structure. This statement was true for every type of bakery equipment on the market up to within very recent years, ranging from flour-handling equipment, which is designed to handle a dry powdered, or finely comminated material; horizontal mixing machines, designed to handle 1,600 pounds of bread dough mix at a time, and so on. Why should this be true? I have had many experienced sanitarians in other fields ask me this question.

The answer is perhaps historical. Fifty years ago practically all baking was undertaken in small hand-operated bake shops. As time went on many of these shops consolidated and formed bakeries by utilizing bulk-handling machinery. Use of the word "bulk" is perhaps a clue because, for example, when the time came to figuring out how to handle flour, to whom did bakers turn for the design of the proposed flour-handling equipment? Well! — Frankly, to the people who had been making equipment for handling cement, sand, gravel, coal, and coke. The first flour-handling equipment was simply an adaptation of cement-, sand- and gravel-handling equipment.

If this occasions a laugh, perhaps it should. I should like to point out that these adaptations have been occurring recently, for our most modern flour-handling equipment, namely: the air-conveying systems—now being considered for installation by nearly every big chain bakery—are currently being sold for the handling of coal dust and the like. The manufacturers of this equipment simply had no concept of sanitation requirements within the plants where the machines were to be used or, in fact, of any problem of cleaning the machines. Why? — Because they were never intended to be cleaned in the first place. The horizontal bakery mixer is simply a derivative of old paint mixing machines. The bucket elevators of the flour-handling equipment, the overhead proofers and traveling long bread cooling devices are merely adaptations of common carriers used in the heavy-industry manufacturing fields. As such they were adapted to the bakery field. The less a baker could see of the interior of a machine as it was operating the better he seemed to like it.

So, what did we have a few years prior to World War II? We had some very efficient machines especially designed to withstand the stresses and strains of the bakery operation which were completely enclosed in beautiful white enam el sheathing. The equipment was streamlined, as the ads in the bakery press screamed each month. For what? — It certainly wasn't going anywhere. Several designs of overhead proofers looked beautiful enough for installation in a sur-
gery. From a sanitation standpoint there was certainly much to be desired. Once the equipment was opened you found that it could not be cleaned. It was full of ledges covered with flour dust that had accumulated there from the dusting flour used in the moving trays. This dusting flour was heavily insect infested for it was impossible to get into the machinery to remove the flour. It was also found that inside of the beautiful enamel sheathing of the horizontal mixer one could not clean between the spider and the bowl walls, so that after a few months, or perhaps a year’s operation, the mixer took on an aroma comparable to that of a garbage disposal plant. This is not always the case, of course, but the writer has in several instances actually located the mixing room of a large bakery by the odor emanating from putting material back of some of these spiders or caught in the cracks of the sleeve of some of these mixers that otherwise were very fine machines.

I mentioned elsewhere that the health department of one of the two largest cities in this country has made a very serious effort to bring about a change in the fundamental design of bakery equipment so that it can be cleaned. I shall describe in somewhat more detail later how this effort is resulting in some successful activity in this field. However, it seems that there is also some need for recognition of a standard of enforcement in this regard as it is related to sanitation as a whole.

Not too long ago the writer was present at what might be termed the “industrial unveiling” a new mixer, specially designed for the correction of cleaning faults in the large horizontal bakery dough mixer. It appeared that this city had not been permitting the installation of new dough mixers except those approved in design by the health department. One manufacturer of equipment had sought and gained such approval by a rather unique design and had shipped three new mixers into the city. The entire baking industry was interested in seeing what they looked like because a horizontal mixer was one piece of equipment that it was never believed could be designed so that it would be readily accessible for the cleaning of all food-contact surfaces.

A large group of representatives of industry made an appointment with the health department and one of the plants in which this mixer was installed was visited. The mixer was all right. Apparently it could be cleaned and was considered a great success. However, when the plant engineer was asked to show how he cleaned it he was at a loss to do so for he had never cleaned it during the entire six months it had been in operation. No one had bothered to teach him to do so. The health department threw the responsibility upon the manufacturer stating that his salesman or representative should have shown the baker how to clean it. Frankly, in my opinion, the responsibility rests equally upon the health department, for certainly there is no sense in going to great lengths to develop a fine new piece of equipment without also enforcing the practice of normal sanitation practice in the plant. I personally remonstrated and the representative of the health department present stated: "Well, too much attention on our part at this time would be penalizing this fine baker who is cooperating so fully." I then called his attention to the debris encrusted heavily upon the baking pans being used by this firm, stating that I thought they were just as much of a sanitation hazard as the old mixer had been. I was told: "Well, one had to make allowances because in this day and age it is so difficult to get a pan washer." Glancing casually about the room I noticed some crated equipment in the back and upon going back there with the inspector we discovered that this was a pan washer that had been delivered six months previously at the same time as the mixer.

I mention this story not because I want to embarrass anyone but simply because I feel that the audience I have before me will be impressed with the fact that there is a need for enforcement of standards of practice as well as of design of equipment and building structure.

We do need in the baking industry, standards for the sanitary design of equipment so that manufacturers can be guided in designing equipment that can be cleaned.

We also need the development of a regulation or standard code for practice in cleaning which will guide bakers in a recognition of what they must do within their plant and also for guidance as to what cleaning equipment must actually be used.

On the part of industry there is need for the establishment of standard cleaning methods and standard sanitation programs which can actually be followed by plants. We, at the American Institute of Baking, have tried to develop some of these. One of the simplest examples of what is meant is found in the common procedures for eliminating the flour dust which has settled on equipment, both inside and out. We have endeavored to teach the baking industry that the most satisfactory method of removal of such dust is by vacuum. In the past, however, the industry has employed a great many slap-happy, power-struck janitors, or sanitors, who, when given an air hose with a nozzle simply go crazy: like children splashing water over each other at the beach. They love to arm themselves with an airhose and "wade" through the equipment blowing flour dust in all directions. The net result is a much more insanitary plant as a whole. A study of different types of industrial types of industrial vacuum cleaning generally has developed standards for such cleaning and many bakeries are now getting their plants maintained in a relatively dust-free condition.

Another such example can be found in the complete lack of un-
derstanding on the part of bakery personnel generally of the character of detergents. There is widespread need for sound education of bakers in detergent values and in the requirements for cleaning different types of soil requiring varying detergency as a correction. I am sure it will not surprise any of you to know that the writer has found bakery employees scrubbing the floor with chromated pan cleaner, simply because they wanted something strong and had no understanding of what might happen if this corrosive substance was used on a wooden floor.

We have resolved in answering this second question that there are basically two types of standards required in bakery sanitation. One, standards for design of bakery equipment, so that it can be cleaned according to proper standards of employee conduct and, second, standards of bakery cleaning practice to insure maintenance of sound sanitation once cleanable equipment has been installed.

This now brings us to the third question:

WHO SHALL ESTABLISH THESE STANDARDS?

In 1949 the American Institute of Baking called a mass meeting of representatives of the baking industry, baking equipment manufacturers, public health officials and other interested individuals to convene in Chicago to discuss these problems. Many of us interested in bakery sanitation felt that the program of the 3-A Committees, carried out by the dairy industry, with which you are all somewhat familiar, had worked admirably for this seemed to be a reasonable method of approach which could effect compromises where needed without sacrificing competency in the standards developed simply by virtue of the fact that all viewpoints can be represented with a minimum of expense and unnecessary effort. We do not necessarily believe that the procedure is perfect but at least it has worked and other procedures that we had seen in effect did not appear to us to have worked as well. It was our thought at that time to follow such a procedure if a mechanism for doing so could be worked out.

Simultaneous to this meeting a bakery group known as the American Society of Bakery Engineers appealed to the American Standards Association asking the latter to investigate the possibilities for setting up a procedure leading toward the establishment of sanitary standards for the baking industry by means of the American Standards procedures.

Frankly, this latter suggestion was not well received by the management circle of the baking industry for this group felt that the procedures of the American Standards Association, of necessity, bring in too many outside parties. It was their feeling that the baking industry is so well organized and is sufficiently competent technically so that it can work out its own standards with the aid of competent advice from the sanitation field, without bringing in what they feel are disinterested parties with whom they would have to spend considerable effort training in order to teach them the problems of baking.

In other words bakery operators felt that the problems of design of bakery manufacturing equipment are the baking industry's "baby" and not the interest of outside parties such as labor unions, safety organizations, insurance groups, the Army, the Navy, and a multitude of other organizations who might feel that they had some interest involved, but before whom the industry did not wish to lay the details of actual manufacture.

Therefore, at the first meeting called by the American Standards Association representatives of the American Bakers Association and the American Institute of Baking came before the temporary chair-

man and informed him that this organization did not wish as representative of the industry, to go along with this procedure but intended to set up their own program for the purpose of developing standards of design of sanitary bakery equipment.

Shortly thereafter a new organization was formed, now known as the Baking Industry Sanitation Standards Committee. This Committee formed in 1949, has been in operation since and consists of three individuals from each of six baking industry agencies: The American Bakers Association, which consists primarily of owners and operators of bakers; the American Society of Bakery Engineers, which consists of the production superintendents and engineers working as key employees of individual bakeries; the Associated Retail Bakers of America, which consists of the production superintendents and engineers working as key employees of individual bakeries; the Associated Retail Bakers of America, which consists of the production superintendents and engineers working as key employees of individual bakeries; the American Institute of Baking; which, although affiliated with the American Bakers Association is a separate organization consultants to the Committee. These were from the U. S. Public Health Service, the American Public Health Association, the International Association of Milk and Food Sanitarians and the Food and Drug Administration of the Federal Security Agency, which
have each designated one individual to serve as a consultant and these have met from time to time with the over-all Committee membership.

The first accomplishment of the Committee was to define its purpose, namely: the establishment and promulgation of standards for the design of equipment. It was immediately decided that no attempt would be made to standardize employee practices or bakery sanitation practices where it was felt by the Committee that such a function could be exercised only by regulatory agencies, with perhaps the advice of the industry, through the American Institute of Baking, but certainly not through this group.

The question of whether or not the 3-A procedure for joint issuance of standards by means of cooperating sanitation groups and the U. S. Public Health Service should be followed was discussed, but no final decision has as yet been reached. It has been decided that the primary purpose of the Committee should be confined to the actual drafting of tentative standards.

In order to accomplish the tentative drafting a series of twelve task groups has been established. Each of these, under the guidance of a chairmen with considerable experience with the type of equipment involved, has met and formed tentative standards for such groups of equipment as: (1) flour-handling equipment, (2) horizontal mixers, (3) vertical mixers, (4) overhead proofers, (5) conveyors, (6) baking pans, (7) pan cleaning machines, and a number of others. The task groups assigned these responsibilities consist of a chairman taken from the baking industry—in other words, he must be an employee of a baking concern, and a number of assistants selected according to a ratio of two equipment manufacturer representatives to two additional bakery representatives and one representative of sanitation opinion.

Frankly, one of the observations which the writer has been forced to make has been, unfortunately, that the field of sanitarians familiar with bakery equipment from which it has been possible to draw has been so small that it has not been possible to maintain this ratio without placing an undue burden upon a few men. To complete the story briefly, however, tentative proposals have been considered for a good many of the task groups and one of them, that for flour-handling equipment, is about to be issued.

The next point in question is: "Under whose authority shall such standards be recognized?" Frankly, the speaker is convinced that they can never be effective without joint recognition by public health groups. This probably means the following of the 3-A procedure, or something very similar to it. The following of such a procedure presupposes that there are sanitation organizations capable and willing to cooperate in such a procedure.

One reason that the 3-A procedure is now working effectively is that there are many individuals with practical knowledge of milk equipment working on the program. However, there are also many working as sanitarians who have breadth of vision enough to carry this thinking over into new fields. At least this must be true to the extent that basic standards of construction can be approved.

There is a need for down-to-earth cooperation among people actually working in the day-to-day enforcement and planning of food-plant sanitation among those in industry and enforcement procedures. This, in the opinion of the speaker, makes it definitely necessary, in the interests of better sanitation for organizations of working sanitarians to cooperate in this matter: just as has been the case in 3-A procedure. Otherwise, if it is left to some more theoretically-minded organization there is needless waste of time and effort and corresponding failure to achieve acceptance of the sanitarian's viewpoint on the part of industry.

I am sure all of you will recognize that it takes hard-boiled individuals to build a large industrial establishment such as the modern baking company. Such individuals are not likely to be impressed by lofty statements of aims and achievements. They are interested primarily by down-to-earth factual recognition of the needs of bakery sanitation by sanitarians who are working daily with the equipment involved. It is the writer's feeling and conviction that bakery sanitation standards of several kinds must be established by common-sense groups of practical sanitarians: for standards are practical matters. The things that we are talking about in establishing standards for equipment in the baking industry that is cleanable, are resolved by the practical experience of those who have gotten into it and cleaned. No amount of mere laboratory testing in the world is going to solve this particular problem. Granted, there are different levels of scientific endeavor in all fields, including those of sanitation, but the type of problem that we have here is basically at the working level.

**Calendar**

- September 18-20—International Association of Milk and Food Sanitarians, Minneapolis, Minn.
- October 20-24—American Public Health Association, Cleveland, Ohio.