

*Journal of*

# MILK and FOOD TECHNOLOGY

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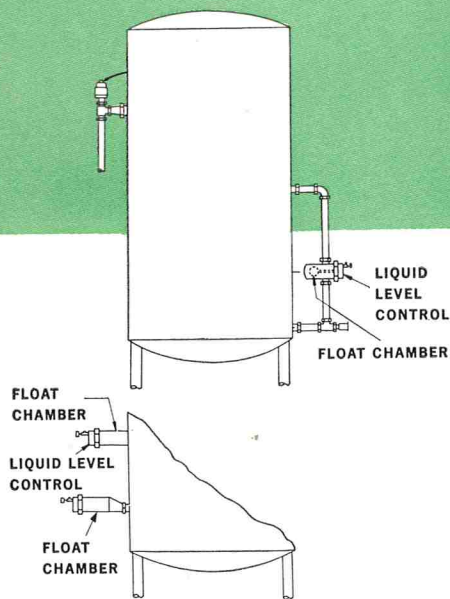
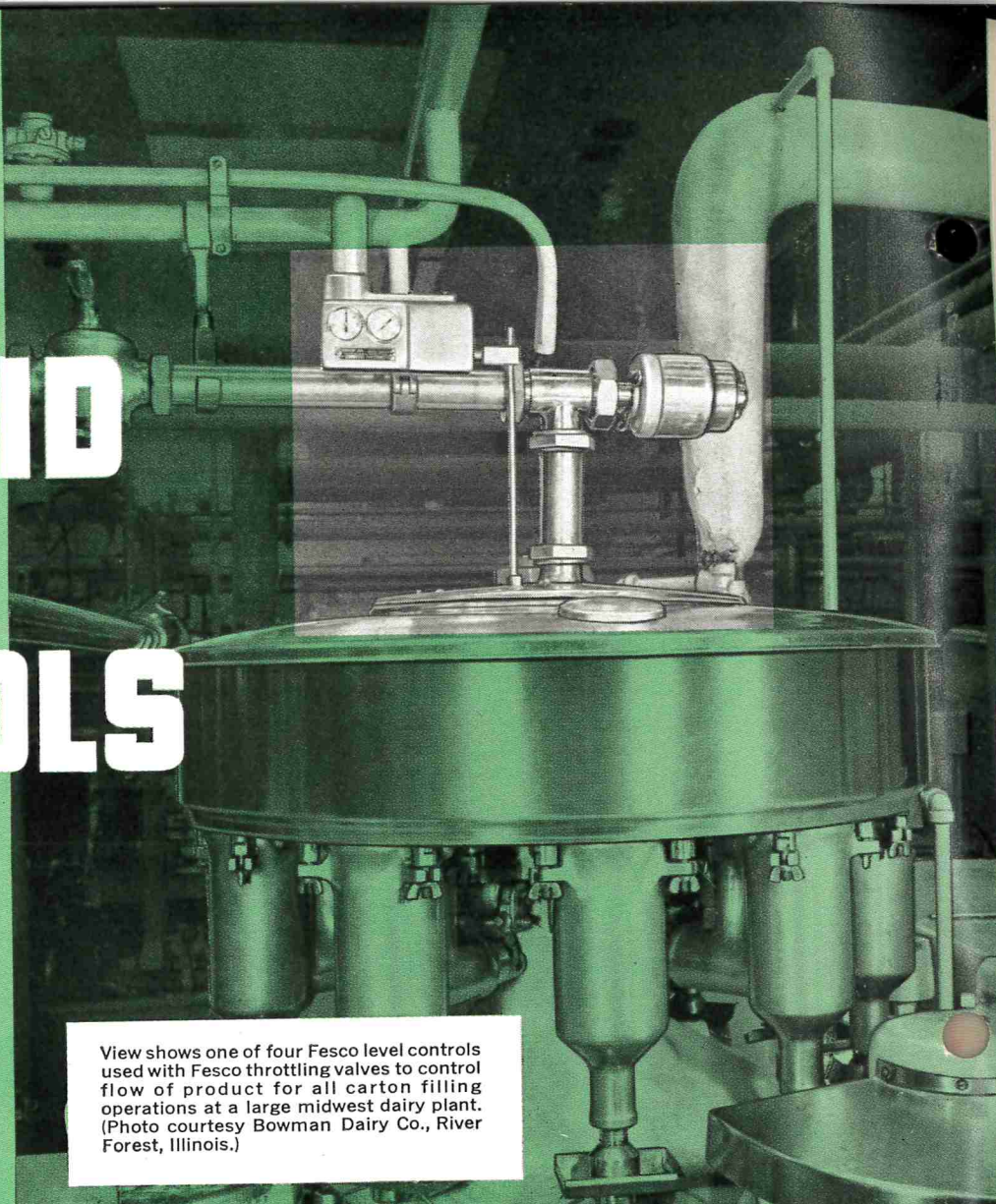


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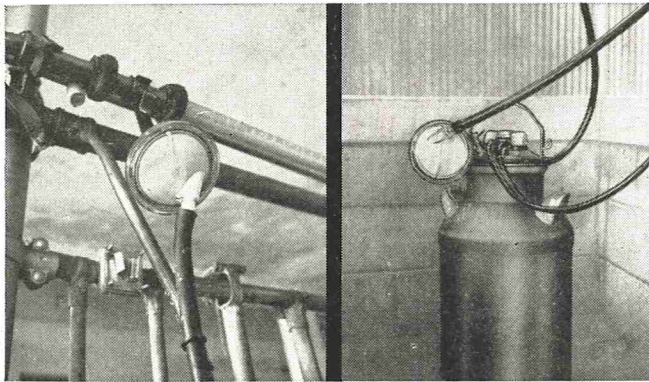
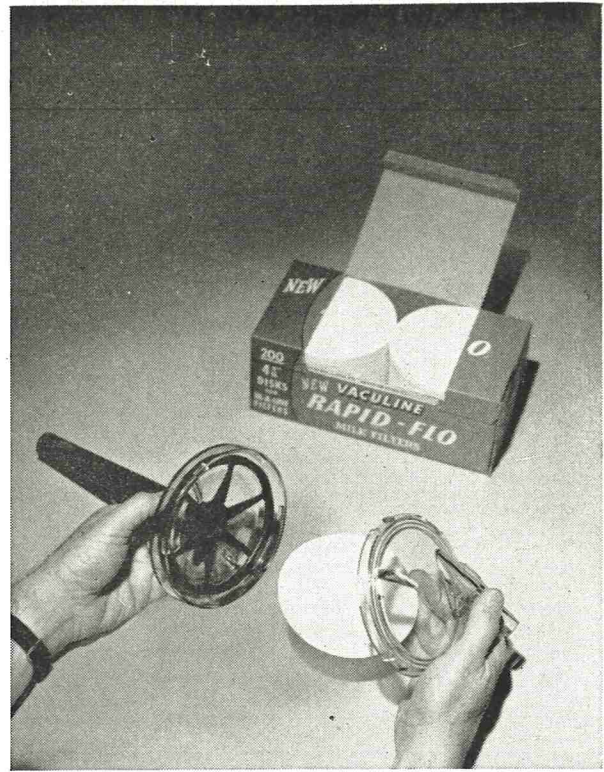
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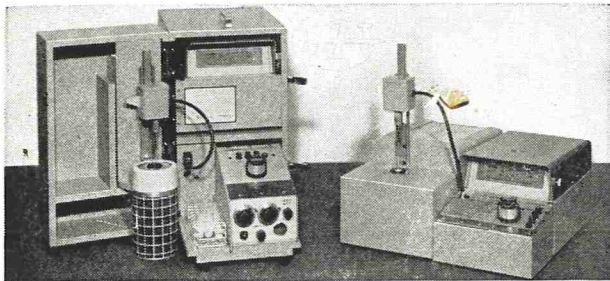




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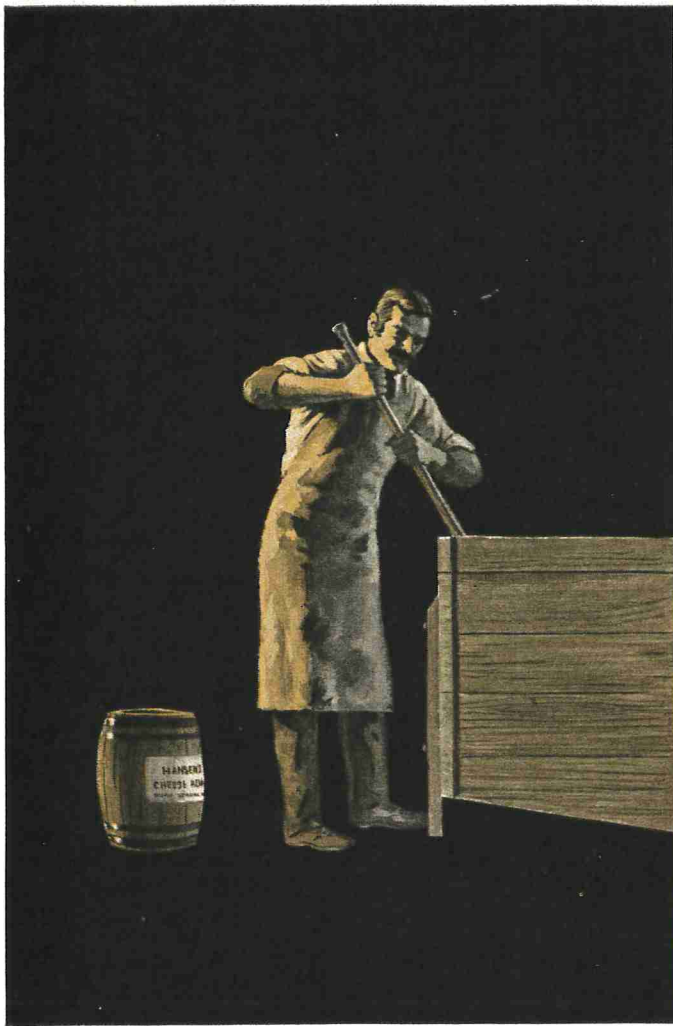
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# EDITORIAL

## The Danger Of The "Status Quo"

In the Foreword of the recently published FOOD SERVICE SANITATION MANUAL, Wesley E. Gilbertson states that "despite the progress which has been achieved (in the past twenty years), foodborne illness continues to be a major public health problem."

The Gross Committee Report, portions of which have recently appeared in the JOURNAL, points out that "the notable successes of the past fifty years in controlling botulism, typhoid fever, and other severe foodborne diseases have tended to create an impression that technical knowledge in this area is adequate to prevent all infections and intoxications of microbial origin. However, the facts are that gastro-enteric episodes continue to occur at a rate second only to respiratory infections among the short-term illnesses suffered by middle class American families. Current food sanitation practices have failed to reduce the high incidence of foodborne diseases during the past eight years."

In the light of statements such as these, every person with a responsibility in the field of food sanitation is behooved to ask himself, "What allows a situation such as this to exist?" Perhaps more objectively the question should be asked, "Have we reached a point in our food protection work where no further accomplishment can be expected?" Obviously, if we have reached a point of no return on our investment in food sanitation activities, it is time that we recognize the fact. However, we must realize the fact that today more people are seeking food service outside the home than ever before. And almost daily, new foods of the "heat and eat" or the "ready to eat" variety are available for use in the home. Unless the techniques and methods of controlling foodborne infection keep pace with these trends, it seems certain that the high incidence of disease will not only continue, but will increase. In any respect, a searching look at the status of our present activities as they apply to current situations is certainly indicated.

It is rather obvious from the above quotations that whatever the present status of our food protection effort and accomplishment may be, we have apparently worked hard at maintaining its existence for some time. Have we become enamoured with the status of food protection as it existed a decade or two ago? If so, danger surely lies ahead.

Perhaps too few of us recognize the relativity of the "status quo." We forget that it is impossible to stand still, and must be reminded that either we move forward (progress), or we move backward (regress). We look to Mr. Webster to remind us that the definition of the phrase, "status quo" is, "The state of affairs at any one time." That, in essence, the "status quo," is the situation as it exists today.

Today's sanitarian is faced with perhaps the greatest revolution of scientific and technological advancement that man has ever experienced. Not only are new scientific methods and techniques being developed more rapidly than they can be put into use, but the field of environmental health is broadening to encompass new and exciting horizons. Compounding the problem is the fact that the sanitarian is faced with serving a much more rapidly growing, mobile population than he has ever known. (An average of 78 million meals are served daily in the nation's varied types of food and beverage establishments.) Faced with this situation, has the modern sanitarian taken refuge in the "status quo" of the past?

Apparently, it is human nature which directs the individual to seek security in tradition. As Dr. George James recently told the National Advisory Committee on Local Health Departments, "There is something greatly disturbing to our cherished traditions, charters, and manuals of procedure which occurs when we leave our sheltered nooks in the organizational chart and try to solve the health problems posed by a single person in need." And the writer might add, ". . . or the health problems posed by the day-to-day advancements in technology and modern living."

It is imperative that the modern sanitarian realize the danger of the "status quo" and know that once a certain point of accomplishment has been reached there is still the need for and possibility of continued progress. That while we are actively searching for ways in which to safely "put a man on the moon," we must also continue to be concerned with keeping that same man safely and healthfully on earth.

The status of our efforts to maintain a healthful environment as it exists today will change practically overnight. The question is, "Will we recognize this fact and use it for the purpose of progress, or will we be inclined to withdraw to "our cherished traditions, charters, and manuals of procedure" in hopes of maintaining the "status quo"?"

HOWARD E. HOUGH, SECRETARY  
Public Health Committee of the  
Paper Cup and Container Institute  
New York 17, New York



## TIME-TEMPERATURE RELATIONSHIPS OF BEEF PATTIES MADE WITH WHOLE EGG SOLIDS<sup>1</sup>

LENORA MORAGNE, KARLA LONGRÉE, NANCY LAWRENCE FULLER<sup>2</sup> AND JAMES C. WHITE

*Departments of Institution Management and Dairy and Food Science,  
Cornell University, Ithaca, New York*

(Received for publication May 13, 1962)

Whole egg solids are now manufactured in quantities so large that this item has been on the list of surplus foods. The use of these eggs in food production is somewhat limited because it is recommended (4, 10) that whole egg solids be used only in "thoroughly-cooked" menu items because of salmonellae which might possibly be present in the egg (2, 11). Dack (5) has indicated that no methods have yet been developed that would guarantee frozen or dried egg products completely free of salmonellae.

It must be expected that the heat treatment necessary to kill salmonellae is affected by, among other factors, the nature of the substrate in which the bacteria are suspended while being subjected to heating. Several researchers have studied the thermal death times on staphylococci and salmonellae when submitted to varying heat treatments in foods that are somewhat similar in type to beef patties. Wiedeman *et al.* (12) injected staphylococci and salmonella organisms into meat loaves. When the loaves were cooked to an internal temperature of 160°F, the number of bacteria was reduced from about 10 million to less than 100 per g of the raw meat loaf medium. Castellani *et al.* (3) studied the temperature required to kill salmonellae and other bacteria in the interior portion of stuffed turkeys and several factors affecting the attainment of this temperature. From their observation the authors concluded that the roasting process should not be interrupted until a temperature of 165°F is reached in the center of the stuffing. Hussemann and Buyske (6) investigated the time-temperature relationships of *Salmonella typhimurium* in chicken muscle and concluded that the organism appeared to survive a higher temperature in chicken muscle than when broth was used as the menstruum. The salmonellae were reported to survive a 5-min exposure to 194°F, and were destroyed after a 10-min exposure to that temperature.

Angelotti *et al.* (1) determined the thermal death times for salmonellae and staphylococci in certain proteinaceous foods as custard, ham salad, and chicken a la king. The foods were subjected to tem-

peratures of 130°F through 150°F. The authors concluded that heating foods of this nature to 150°F and holding the food "at this temperature for at least 12 min reduced 10 million or fewer salmonellae or staphylococci per g to levels which were not detectable. The same degree of destruction was achieved in similarly contaminated foods held at 140°F for 78 to 83 min."

To make survival studies on salmonellae meaningful, information is needed on the extent of heating received by menu items containing dried eggs when cooked, under varying conditions, to a stage of doneness acceptable for service. Such time-temperature studies have been carried out in this laboratory using souffles and scrambled eggs as well as beef loaf, salmon loaf, and turkey loaf made with whole egg solids as a binder (7-9).

The present investigation is concerned with the time-temperature relationships determined in baked meat patties made using whole egg solids as a binder. The patties were heated to varying internal temperatures and then judged for doneness.

### EXPERIMENTAL PROCEDURE

The variables were the fat content<sup>3</sup> of the ground beef (23%, 29%, and 36%), and the endpoint of baking (145°, 160°, and 175°F). From each kind of beef patties were made and baked to the different endpoints. Two replications were carried out. An analysis of variance was carried out on the total times the loaves remained at and above 141°F and on the total weight loss.

The meat patties were prepared in a 12-qt mixing bowl from 2700 g of ground beef, 66 g of finely ground dry bread crumbs, 138 g of an egg preparation made from one part whole egg solids and three parts of water by weight, 12 g of granulated onion (Gentry) and 38 g of salt. After blending for two min at No. 1 speed (Hobart, Model A-200), 113.2-g portions were weighed, shaped into patties 4 in. in diameter and 1.5 cm in depth, and placed in an ungreased aluminum baking pan (25 x 16½ x 1 in.). All ingredients were at 50°F. The patties were baked

<sup>1</sup>This is part of a larger project titled "Quality of Selected Menu Items Prepared in Quantity with Whole Egg Solids."

<sup>2</sup>Mrs. Fuller was a senior in the College of Home Economics.

<sup>3</sup>The samples were analysed for fat content according to the official method of analysis of the Association of Official Agricultural Chemists (1960), section 23.005a.



TABLE 1. TIMES DURING WHICH 4-OZ MEAT PATTIES, MADE WITH WHOLE EGG SOLIDS, AND BAKED TO THREE INTERNAL TEMPERATURES, REMAINED WITHIN CERTAIN TEMPERATURE RANGES; TOTAL BAKING TIMES, TOTAL WEIGHT LOSSES, AND JUDGMENTS.

Fat content of meat (%)	Av. oven temp. (°F)	End-point of baking (°F)	Time patties remained at <sup>a</sup>			Total <sup>a</sup> baking time (min)	Total <sup>a</sup> weight loss (g)	Acceptable for <sup>b</sup> quantity service			Doneness ratings <sup>b</sup>				
			140°F & below	141°F - 151°F	151°F - 161°F			161°F - 171°F	endpt.	endpt.	endpt.	endpt.	Size (No)	Moistness (No)	Doneness (No)
23	326	145	9.6	1.3	3.1	10.9	196.3	24	24	24	13	42	45	44	
	325	160	11.8	4.7	5.7	16.4	277.2	24	24	24		2	55	87	
	325	175	11.0	7.5	4.1	18.5	408.0	24	24	24		9	53	82	
29	328	145	9.8	1.0	2.1	10.8	481.2	24	23	20	10	42	17	35	40
	326	160	9.8	3.5	4.8	13.3	651.6	24	20	21	2	21	23	98	
	325	175	11.2	6.4	3.4	17.6	724.8	24	21	22		1	18	125	
36	321	145	10.5	1.1	2.7	11.6	677.1	24	24	24	1	75	26	42	
	328	160	9.2	3.1	5.5	12.3	721.8	24	23	24		21	84	39	
	314	175	11.5	7.3	3.5	18.7	967.0	24	24	24		7	137		

<sup>a</sup>Mean values of 2 replications.

<sup>b</sup>Acceptability: a total of 24 judgments (2 representative patties were evaluated for acceptability by 6 judges). Doneness Ratings: a total of 144 judgments (all 24 patties were rated for doneness by 3 judges).

in the middle deck of a Hotpoint<sup>4</sup> electric oven. The average oven temperature was 325°F, the temperature varied within a 35°F range.

Throughout the investigation temperature determinations were made on the patties and in the oven by means of copper-constantan, ceramic-insulated thermocouples and an electronic potentiometer<sup>5</sup>. In the oven, two thermocouples were located approximately 3 in from the side walls, and midway the front and rear of the oven. In the patties, the thermocouples were located in the horizontal and vertical center of the pattie. Baking was ended when the specified final temperatures were reached in two representative patties located in the coolest area on the baking sheet. Preliminary tests were carried out to determine which of the 24 patties would be located in the coolest areas. To do this, slices of white bread were placed on the pan and baked at 350°F for 25 min. From color observations made on the slices, the coolest areas on the pan were determined.

After baking, the patties were placed on a wire rack and allowed to cool for 5 min. Weight losses were determined for the two representative patties and also for the 22 remaining patties. The total volume of drippings were obtained from the patties made from the ground beef containing 29% and 36% fat. The drippings were collected in a 500-ml graduate cylinder, 5 min after the patties were removed from the oven.

Subjective observations were made on the two representative patties within 8 min of weighing the patties after baking. Six judges, all members of the Institution Management staff, were asked to judge the two representative patties for acceptance for quantity food service, regarding size, moistness, and doneness. In addition, the degree of doneness for all 24 patties was determined by three judges who were asked to slice the 24 patties and to place them in one of five categories: rare, medium rare, medium, medium well, and well done.

RESULTS

The data representing the times during which the 4-oz meat patties remained within certain temperature ranges, total baking times, total weight losses, and judgments are given in Table 1.

The final internal temperature to which the patties were baked was a significant variable influencing the length of time during which the patties remained at and above 141°F. The effect was linear in that as the final internal temperature increased the time increased proportionately. The variable was signifi-

<sup>4</sup>Model HK 50.

<sup>5</sup>Minneapolis Honeywell, Model 153 x 64P 12-x-41.



TABLE 2. VOLUME OF FAT AND NON-FAT DRIPPINGS COLLECTED FROM THE PATTIES BAKED FROM GROUND BEEF<sup>a</sup> CONTAINING 29 AND 36% FAT.

Fat content of meat (%)	Endpoint of baking (°F)	Volume of drippings		
		Fat (ml)	Non-fat (ml)	Total (ml)
29	145	160	124	284
	160	162	217.5	379.5
	175	250.5	200.5	451
36	145	285	190	475
	160	347.5	205	552.5
	175	397.5	255	652.5

<sup>a</sup>Mean values are presented.

cant at the 1% level. The percent of fat in the meat did not significantly influence the time the patties remained at and above 141°F.

Variables that significantly influenced the total weight loss of the patties were the percent of fat in the meat and the final internal temperature of baking. The influence of the fat content was significant at the 1% level. The influence of the internal baking temperature was also significant at the 1% level; as the final internal temperature increased the loss in weight increased linearly.

The total volume of drippings collected from the patties made from beef samples containing 29 and 36% fat are presented in Table 2. As the fat content of the meat was increased from 29 to 36%, the total volume of drippings increased by 50.6%. In general, the total volume of drippings also increased as the final internal temperature increased. The average increase was 85 ml as the final internal temperature was increased from 145° to 175°F.

#### DISCUSSION

It is difficult to evaluate the bacteriological safety of the beef patties at this time because no results of survival studies are available in the literature that would make definite conclusions possible. However, a word of warning is in order. Even the patties heated to an internal temperature of 145°F were considered acceptable in doneness by the judges; this indicates that in these patties doneness was not a reliable criterion for bacteriological safety.

The patties heated to an internal temperature of 175°F were considered acceptable for service regarding size and moistness, in spite of the relatively high cooking losses.

Attention is called to the fact that in the present study a medium-low oven temperature was used and that cooking times might be somewhat shorter if higher temperatures were used.

The data presented here cannot be completely evaluated until more time-temperature data have been derived with salmonellae as test organisms suspended in menstruums similar to those used here and under rather short holding times at temperatures above 150°F.

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# THE USPHS METHOD OF RATING MILK SUPPLIES AND ITS USE IN THE INTERSTATE MILK SHIPPER PROGRAM<sup>1</sup>

JOHN D. FAULKNER<sup>2</sup>, DAROLD W. TAYLOR, AND IRVING H. SCHLAFMAN

*Milk and Food Program,  
Division of Environmental Engineering and Food Protection,  
Department of Health, Education, and Welfare,  
Washington, D. C.*

The Public Health Service method of making sanitation ratings of milksheds was developed, for use by States, as an administrative tool for measuring objectively the extent to which communities adopting the Milk Ordinance and Code recommended by the Public Health Service were enforcing its provisions. However, it has proven to have wider application, and is now utilized by the majority of the States to appraise the sanitation compliance status of milk supplies being sold, or offered for sale, in both intra-state and interstate commerce. In view of the current trend toward increased movement of market milk, this rating method should have even greater utility in the years ahead.

Before discussing this rating technique, it is desired to review briefly those milk sanitation activities of the Public Health Service which led to the development of the method.

The milk sanitation program of the Public Health Service is one of its oldest environmental health activities. During the period 1896-1908, comprehensive studies of the role of milk in the spread of communicable disease were undertaken. This work was followed by research studies to identify and evaluate the sanitary measures necessary for control of milk-borne diseases, including studies on proper methods of pasteurization.

In 1923, more than 38 years ago, the Service established an Office of Milk Investigations to assist States in the control of milkborne disease, through the development and maintenance of effective milk sanitation programs at both State and municipal levels. In 1924, a model regulation, known as the "Standard Milk Ordinance," was developed for voluntary adoption by State and local milk sanitation authorities. To provide for uniform interpretation of this Ordinance, an accompanying Code was published in 1927. This model milk regulation, now titled the *Milk*

*Ordinance and Code—1953 Recommendations of the Public Health Service (1)*, has been revised 12 times, since 1924, with aid of a National Advisory Committee. Work on the next revision has already been initiated. The current edition serves as the basis for the market milk regulations of 37 States and over 1900 counties and municipalities.

By 1931, the "Standard Milk Ordinance" had been adopted by more than 450 municipalities in 26 States. Many of these communities requested the Service to assist them in evaluating the status of their milk control programs, both before and after adoption of the Ordinance. Such information was desired to determine whether or not the community milk control program was effective, for it was realized that no matter how detailed the milk sanitation regulations might be, such regulations afforded protection to the consuming public only to the extent to which their provisions were complied with on a day-to-day basis.

It was obvious to the Service that if community milk control programs were to be evaluated objectively, and in a way that the results obtained in one city could be compared with the results obtained in another, it would be necessary to develop a procedure, based on a common yardstick, which would measure the degree of compliance with all essential milk sanitation requirements. In 1927, the Service developed a proposed method for making sanitation ratings of milksheds. This method utilized—as the common yardstick for measurement—the degree of compliance with the sanitary provisions for producer dairies and pasteurization plants specified in the PHS Milk Ordinance and Code. The degree of compliance with bacterial counts and other tests was also included as part of the evaluation of the milk supply. In addition, a procedure for measuring the degree of enforcement applied by the supervisory agency was provided. This method, which is titled *Methods of Making Sanitation Ratings of Milksheds* (PHS Publication No. 658, (2)) was given extensive field trials by both Public Health Service and State personnel before being finalized. It was revised in 1938, and again in 1958 to provide additional procedures applicable to the rating of interstate supplies of fluid milk and milk products.

<sup>1</sup>Presented by Mr. Faulkner at the Fifteenth Annual Meeting, Dairy Products Improvement Institute, Inc., Hotel Governor Clinton, New York, New York, February 15, 1962.

<sup>2</sup>Formerly Chief, Milk and Food Program, Division of Environmental Engineering and Food Protection, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.; now Associate Regional Health Director for Environmental Health Services, PHS Region III, Charlottesville, Virginia.



## DESCRIPTION OF USPHS RATING METHOD

The USPHS rating method for evaluating the sanitary quality of fluid milk expresses in terms of percentage compliance, weighted on a volume basis, the degree to which producer dairies, receiving stations, and pasteurization plants of a given milkshed, comply with the Grade A requirements of the PHS Milk Ordinance and Code. It provides for separate ratings of producer dairies and pasteurization plants, including their receiving stations, and sets forth a procedure for arithmetically averaging these ratings, in order to arrive at an overall compliance rating for the pasteurized milk supply. Techniques for measuring the degree to which the enforcement provisions of the PHS Milk Ordinance and Code are being applied by the supervisory agency are also provided in the method, together with procedures for computation of enforcement ratings in terms of percentage compliance.

As a basis for computation of ratings, weights have been assigned to each of the major sanitary requirements specified in the Milk Ordinance and Code for "Grade A Raw Milk for Pasteurization" and "Grade A Pasteurized Milk." These weights have been selected on the basis of the relative public health significance of each requirement in relation to the total requirements. In assigning these weights, emphasis has been placed on such items as "health of cows", "cleanliness", "bactericidal treatment", "cooling", "water supply", and "bacterial count", rather than on construction items. For example, in the rating of the raw milk supplies of producer dairies, the item on "health of cows" is assigned a weight of 15 percentage points in the total of 100 points; the items on "cleaning" and "bactericidal treatment" of equipment and utensils are assigned a weight of 5 points each, or a total of 10 percentage points; the item on "bacterial count" is weighted 20 percentage points; while the item on "floor construction" in dairy barns is assigned a weight of only 1 percentage point.

In the making of ratings, all items found to be in violation are debited by the weight assigned to the item, and the total debits multiplied by the gallons of milk involved in the violations. The final ratings are arrived at by dividing this figure—total debits x volume violated—by the total volume of milk sold daily by the producer dairies or plants, as the case may be, which have been included in the rating survey. The resulting figure is then subtracted from 100.

As an illustration of this procedure, if all pasteurization plants, and their receiving stations and producer dairies, which supply a given community or area with pasteurized milk, comply with all of the Grade A requirements prescribed in the Milk Ordinance and Code, the sanitation compliance ratings

of the producer dairies and pasteurization plants, and of the pasteurized milk supply, would be 100 percent. However, if some of the producer dairies, and some of the plants, fail to satisfy one or more of the requirements, the ratings would be reduced in proportion to the weights of the items violated and the volume of milk and milk products involved in the violations.

Data from which ratings are determined are obtained from an evaluation of sanitary practices at producer dairies, pasteurization plants, and receiving stations, and from a review of the records on file by the supervisory agency. It is not necessary, except on very small milksheds, to inspect all plants and producer dairies, since a sufficiently accurate determination of the percentage compliance of the shed with sanitation requirements can be obtained by surveying a statistically representative number of producer dairies and pasteurization plants, including their receiving stations. The minimum number of producer dairies and pasteurization plants to be included in the rating survey depends upon the number of each in the milkshed. A table of the number to be inspected for various sized milksheds is provided in *Methods of Making Sanitation Ratings of Milksheds* (2). If the numbers indicated in this table for a given sized shed are inspected, the probable error in the individual percentages of compliance with the various items of sanitation will be less than 5 percent, provided the producer dairies or plants inspected have been selected at random.

In order to achieve this degree of accuracy, the individual producer dairies or plants selected for a rating survey must be representative of conditions throughout the milkshed. Therefore, it is important that the selection method exclude elements of pre-selection and provide a truly random sample. Several methods for random selection of both producer dairies and pasteurization plants are described in the PHS rating method.

As indicated, the records kept by the supervisory agency are used in determining compliance with total bacteria, coliform bacteria, phosphatase, and temperature requirements. With but certain exceptions, no credit is given for compliance when less than the required number of samples have been examined during the preceding 6-month period. Acceptance of laboratory data is contingent upon the utilization of standard procedures by the laboratories concerned.

The PHS rating method also provides procedures for inclusion of data on the sanitary quality of milk received from "outside" sources. These procedures are based on Section 11 of the PHS Milk Ordinance and Code which is designed to facilitate the acceptance of milk of high sanitary quality from points beyond the limits of routine inspection. Section 11 pro-



vides that the supervisory agency should approve, without duplicating existing inspection services at the source, supplies of milk from any area not under its own routine inspection when such supplies are (a) under the routine supervision of another official agency applying substantially equivalent standards; and (b) have a current rating, awarded by the milk sanitation authority of the State of origin, equal to that of the local supply or, if lower than that of the local supply, equal to 90 percent or more.

If milk is received in accordance with these provisions, such supplies are not included in the computation of local sanitation compliance ratings, provided, the current rating of the imported supply is not more than two years old. However, the name, rating, and date of rating for each current source of milk being received at the time of the survey, are entered on the survey form, together with a notation as to the volume received.

When the milk sanitation rating of the milk being received is lower than the last rating awarded the local supply, and does not equal 90 percent or more, it is necessary to consider the status of such supplies, on a pro rata basis, in the computation of the local milkshed ratings.

In either case, the supervisory agency must have on file records which indicate that the milk has been examined, at required frequencies, and that the total bacterial counts, coliform counts, and temperature requirements have been complied with. Otherwise the ratings are reduced proportionately.

The PHS rating method for evaluating the sanitary quality of milk measures the degree to which a milk supply complies with the requirements of the PHS Milk Ordinance and Code. A rating of 90 percent or more, determined by the methods described, means that the milk and milk products surveyed are as safe and sanitary as reasonably strict enforcement of milk sanitation regulations will make them. In this regard, the Public Health Service has, for many years, encouraged communities to not only attain and maintain their own milk supplies at a 90 percent or higher level, but, when necessary to supplement their supplies from areas beyond their normal jurisdiction, to secure only supplies which have been awarded a 90 percent or higher rating.

#### USE OF METHOD IN VOLUNTARY INTERSTATE MILK SHIPPER PROGRAM

Because of its demonstrated value, and use by a large number of States, the PHS rating method was adopted by the National Conference on Interstate Milk Shipments as a means of determining the sanitation compliance ratings of interstate milk shippers. The rating method is an essential component of the voluntary State-PHS program for certification of in-

terstate milk shippers and, therefore, it is desired to discuss briefly the manner in which the method is applied in the certification procedure.

The voluntary State-Public Health Service program for certification of interstate milk shippers developed as a result of a situation which occurred during World War II. During the war, large volumes of milk were shipped interstate. Much of this milk was of unknown or questionable quality and pointed up the need for a system which would provide health departments and other milk control agencies with reliable data on supplementary sources of high quality milk.

In 1950, at the request of the Association of State and Territorial Health Officers, the Surgeon General called a National Conference on Interstate Milk Shipments to discuss this matter. The Conference developed a plan, utilizing a cooperative State-Federal approach, for the evaluation of the sanitation compliance status of the supplies of interstate milk shippers and for the dissemination of such information.

Because the PHS Ordinance and Code, or one equivalent thereto, had been adopted as the basis of the regulations of 37 States and over 1900 municipalities and counties, the Conference adopted the PHS Milk Ordinance and Code as the basic milk sanitation standard. The Conference also adopted the PHS rating method as the procedure for determining the degree of compliance with this basic standard. The Conference also agreed that only those milk supplies which were under full-time supervision should be eligible for certification under the proposed plan.

The plan was accepted by the States attending the First National Conference on Interstate Milk Shipments, and the program for certification of interstate milk shippers was initiated in 1951. While the system is voluntary, and embodies the principle of "faith and confidence" in the work of other milk control agencies, it contains a system of "checks and balances" in which the PHS rating method is an essential part.

The agreements governing the voluntary interstate milk shipper program (3), include the following procedures. The milk supplies of eligible shippers are rated by milk sanitation rating officers of the State in which the source of the supply is located. The States report to the Service those shippers whose products and plants have been rated by them in accordance with the applicable sanitary requirements, and the Service publishes quarterly a list (4) of the sanitation compliance ratings of such certified shippers for the information of areas desiring to import milk. No shipper's rating is published without his permission. Ratings, unless revoked or superseded, are valid for a maximum period of 24 months.



As part of this program, receiving States and jurisdictions sample the milk received from sources outside their jurisdiction to determine compliance with bacterial counts, cooling temperatures, and composition standards. Results of such examinations are part of the system of "checks and balances" which have been built into the voluntary program to insure that only shippers of high quality milk are certified.

Another element of this system of "checks and balances" is a requirement for standardization and certification of State milk sanitation rating officers.

Sanitation compliance and enforcement ratings are not accepted for listing unless made by qualified State personnel whose rating procedures have been standardized and certified by the Public Health Service. Further, State milk sanitation rating officers are not eligible to rate those supplies over which they have direct supervisory responsibility for inspection and enforcement. As of July 1, 1961, the Service had standardized the work of a total of 116 milk sanitation rating officers in 42 States.

In order to validate the sanitation compliance ratings submitted by the States, the Service periodically makes check-ratings and evaluates the work of each participating State, including its laboratory program. Such evaluations are designed to insure uniform application of procedures by all participating States and shippers, and to protect against lax enforcement and unfavorable changes in the sanitary status of the shipper's supply. This is another element, and a most important one, in the "checks and balances" system. Still another element is the conduct of ratings by the Public Health Service, when required to settle differences of opinions or disputes between States.

The agreements governing the operation of the voluntary program also contain a number of other provisions designed to insure valid ratings, including procedures to remove shippers from the list for cause.

It is desired to emphasize that the interstate milk shipper program utilizes the existing structure of State and local control to the fullest possible degree. Routine supervision is performed by the local or State agency, as the case may be, having jurisdiction over the supply to be rated. The rating of an interstate milk shipper's supply is a function of the State milk sanitation rating agency, and not of the municipality or Public Health Service. The primary role of the Public Health Service in this program is to bring about the highest degree of uniformity in attitude and performance on the part of State personnel so that any certification of an interstate milk shipper's supply can be accepted with confidence by authorities in other jurisdictions. The Public Health Service does not make ratings of milk sup-

plies for certification, except for those under the jurisdiction of the District of Columbia.

The interstate milk shipper program has grown considerably during the past 10 years. The January 1, 1962, list includes the names and ratings of 794 interstate shippers located in 39 States and the District of Columbia. Of those listed, 215 shipped, or offered for shipment, "raw milk for pasteurization," 376 "pasteurized milk" and 186 both "raw milk for pasteurization" and "pasteurized milk." The average sanitation compliance rating of all shippers of "raw milk for pasteurization" currently listed is 92.99 percent, and the average rating of all shippers of "pasteurized milk" is 93.98 percent.

While these ratings indicate that the sanitary status of the listed shippers is quite high, it is desired to point out that this level of compliance could not have been attained without diligence and without the cooperative efforts of shippers, producers, and control agencies. In the early years of the certification program, it was not uncommon for the States to report to the Service milk sanitation compliance ratings in the 70's and low 80's. In some instances, these low ratings came as a surprise and a shock to both the dairy industry and the official agency concerned, and led to the initiation of programs to improve the sanitary status of such sheds and to improve the enforcement and laboratory control programs. Often, considerable work was required to bring the shed to a level where management desired to have its ratings listed. Frequently, the rating technique has been used to provide a base-line for program improvements by both official agencies and industry.

During the past several years, we have been asked a number of questions concerning the application of the rating method in States which have not adopted the PHS Milk Ordinance and Code, but which wish to participate in the voluntary State-PHS program for certification of interstate milk shippers. A discussion of several of these questions may be of interest.

We have been asked if it is necessary for a State or municipality to adopt, as its official regulation, the PHS Milk Ordinance and Code in order to participate in the program. The answer is "No." However, in order for the ratings to be comparable between States, it is required that the supply of each interstate milk shipper participating in the program conform substantially to requirements specified in the PHS Milk Ordinance and Code. Without this degree of uniformity, there would be no basis for a nationwide program.

We have also been asked if industry inspection and laboratory control are acceptable under the interstate milk shipper program. Industry inspection and laboratory control are acceptable under certain



conditions, and the ratings are not lowered if these conditions are met. To be eligible for listing, a milk supply must be under the full-time supervision of either local health department personnel, State health department personnel, or State agriculture department personnel. The program does provide, however, for acceptance of industry inspection of producer dairies, if industry inspection is a supplement to, and not a substitute for official inspection. At least one inspection of each producer dairy per year must be made by the official agency, with other inspections to be carried out by State "approved" industry inspectors. The interstate milk shipper program also provides for acceptance of the results of industry or private laboratory examination of "raw milk for pasteurization," provided such laboratories are "officially designated" laboratories and have been approved by the State laboratory agency. Approval of such laboratories is based upon surveys made at least biennially, and through implementation of an acceptable split-sample program. These provisions relating to the acceptance of industry inspection and laboratory work do not apply to inspection of pasteurization plants, or to the laboratory examination of pasteurized milk, which must be performed by the official agency.

Still another question which has been asked is whether shippers of milk intended for use in manufactured dairy products and frozen desserts are eligible for certification in the interstate milk shipper program. The interstate milk shipper program was originally designed to cover only shippers of Grade A fluid milk and Grade A fluid milk products. Recently, the program has been expanded to include interstate shippers of Grade A bulk dry milk powder intended for use in Grade A fluid milk products. At present, the program does not provide for certification and listing of the ratings of shippers of milk intended for use in manufactured dairy products or frozen desserts.

#### CONCLUSION

In conclusion, it is our opinion that the PHS rating method has proven to be a useful tool in milk sani-

tation administrative practice. The results of evaluations made by this method have stimulated and encouraged milk sanitation agencies toward greater effort, and have enabled the dairy industry to carry on more effective quality control programs. The results of rating surveys have also been useful to the dairy industry as a means of promoting increased consumption by focusing attention on the desirability of high quality milk and milk products. Ratings of community milk supplies have also provided citizens and local officials with a basis for judging whether they have been receiving a proper return for their milk sanitation appropriations, and whether such appropriations are adequate to support an effective program.

The use of this rating method in the voluntary State-PHS program for certification of interstate milk shippers has enabled State and local milk sanitation agencies to obtain authoritative information on the sanitary quality of milk imported from other jurisdictions, and, thus, it has been a key factor in facilitating the movement of high quality fluid milk and milk products in both intrastate and interstate commerce. This is indicated by the fact that an increasing number of communities are willing to accept milk produced in areas outside their jurisdiction, without making inspections at the source, when such milk has been awarded a milk sanitation rating of 90 percent or higher.

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## OBSERVATIONS ON AN IN-SERVICE TRAINING COURSE IN FOOD TECHNOLOGY FOR SANITARIANS

M. A. SHIFFMAN AND F. B. JACOBSON

*Department of Public Health, Philadelphia, Pa.*

*and*

*Consultant in Foods and Sanitation, Philadelphia, Pa.*

A report on sanitation practices in local health departments made in 1951, showed that 9.4% of the total program time was spent on restaurant inspection and an additional 7.4% of the time was spent in retail food store inspection. Food processing plants were allotted only 2.1% of the total program time. Yet, the social, economic, and technological changes which have occurred in our society in the last twenty years have probably affected the food processing industries more than they have affected any other segment of the food industry. For instance, there has been an increase in demand for the so-called convenience foods. Women want to spend less time in the kitchen. The number of women in the nation's work force has nearly doubled in the last twenty years. Social change combined with a period of economic prosperity in which it becomes easier for families to bring their food consumption in line with their preference, means that there will be an ever increasing demand for time saving convenience foods and other new foods. The trend has been from preparation of food in the home to preparation of food in the food processing plant. These social, economic, and technological changes are occurring at an ever increasing pace and the public health agencies must be prepared to effectively respond to the new challenges.

The local health department has a definite role in the regulatory control of food processing plants. This is especially true in the major cities where there are concentrations of the food processing plants. For instance, in Philadelphia, one can find almost any type of food processing activity and there are approximately 600 such plants in the city. Local health departments have traditionally been concerned with milk plant sanitation, eating and drinking place sanitation and with food stores. The weakest local program has usually been that in food processing plant sanitation.

Though there had been inspections of food plants in Philadelphia over many years, there were no effective regulations and little specific training in food plant sanitation. The first step was to develop a modern food processing plant regulation. The same methods for preparing other regulations were followed in the preparation of the food processing plant regulations. This consisted of a careful review of the basic draft which was prepared by the Health Department, by a group consisting of food plant

operators, food technologists, university scientists concerned with food technology, and interested citizens. There was much discussion and there were changes in the basic draft. The final result was a modern food processing plant regulation, which has wide applicability for all the types of food plants. The scope of the regulation can be shown by the definition of a food processing or food manufacturing establishment. This is any establishment with "permanent location where food is handled, manufactured or processed and offered for sale or distribution to other establishments. Food manufacturing and processing establishments include but are not limited to bakeries, confectioneries, bottling plants, canning plants, pickling plants, seafood or shucking plants, frozen food plants, and similar plants."

However, a shiny, new regulation is not enough. In order for a regulation to be effective, it requires implementation by sanitarians who know the industry which they are to inspect and to which they are to apply the regulations. At this point we did not feel secure. For the most part, our sanitarians are college graduates and all have basic training in environmental health. They had had experience in milk plant sanitation, in eating and drinking place sanitation, and in retail food store sanitation. Though there are principles which permeate the whole field of food sanitation, there are special factors which apply to each segment of the food industry and to each type of food plant or food operation. This was the problem that we were faced with. Given a group which does have a good basic education and a background in food sanitation, how does one train them to take on new duties and responsibilities in the food processing industry? Though they had the advantages of the past training in milk sanitation and other food sanitation activities, would it be possible that this training had also given them some preconceptions which could not be carried over to the food processing industry?

### PLANNING THE COURSE

After considering the problems in giving a course in basic food technology for sanitarians, it was decided that it was necessary to recruit experts outside of the Department. The persons in the community who did have experience and knowledge of the food processing industries were the university



scientists engaged in food research and teaching, and the food technologists and food plant operators. The most effective way to reach these people was through their professional organization which is the Institute of Food Technologists. Fortunately, there is an active local chapter of the Institute of Food Technologists in Philadelphia. The Health Department personnel had participated in the meetings of the local group over a period of years and the contact was not difficult to make. The officers of the local group were most enthusiastic when they were approached and joined with Health Department personnel in the planning of the conference. The joint planning group selected those speakers in the Department and in the community who would best handle the various subjects to be presented during the five day meeting. An invitation letter was then prepared and the letter specifically stated that the training course had been planned jointly with representatives of the Philadelphia Chapter of the Institute of Food Technologists and the Department of Public Health. It was also noted that the training was designed to supplement the Health Department activities under the Regulations Governing Food Processing and Food Manufacturing Establishments, and the course was intended to provide basic information to sanitarians on food processing practices and methods current in the Philadelphia food industries. Several problems arose at this point. There had been some hope of preparing a manual based on the presentations in the course. This would have required a written formal presentation by the invited participants. At the outset we could see that the participants were most reluctant to prepare formal papers. There also was the apparent reluctance of some industry personnel to participate. This reluctance seemed to be based on a certain lack of confidence of the technical industry people in their own abilities as speakers. There were many telephone conversations and many reassurances to individual participants before final acceptances were received. There is the ever present factor of competition for the individual's time. Participation in the training course was a demand on an already busy schedule. The participants did give their time generously and the talks were of uniform high quality and showed the effect of careful preparation.

The recruitment of persons to participate in the program was a most crucial part in preparing for the course.

#### COURSE CONTENT

All segments of the food industry had to be considered in planning the course content. It seemed advisable to work from a point of view which could yield the most universal information. One way of

accomplishing this is through the "unit operations" approach. Dr. L. V. Burton in 1940 stressed the similarity of various operational steps in food processing by delineating some 15 classifications, including such areas as cleaning, drying, evaporating, etc. The further separation of these classifications into "unit chemical processes" and "unit physical operations" provided a most enlightening introduction into the entire field of food technology and a specific departure point for each of the various specific fields of food processing which were to be considered. In this way the broad principles on which each food process is based are brought to the attention of the beginning student. Although it is important to have the student understand the similarities among the different food processes, the specific differences must also be pointed out. It is important to point out that requirements in one type of processing may be superfluous or even undesirable in another. An example of this was found in the reluctance of many of the students to accept the fact that chocolate liquor lines and pumps need not be cleaned daily, weekly or even monthly. The comparison with milk processing seemed always uppermost in the minds of many of the sanitarians.

A list was made of various divisions of the food industry active in the Philadelphia area, such as baking, candy, meat, poultry, pre-cooked foods, etc. These were then grouped in as closely similar areas as possible and those which seemed to be parallel in either processing techniques, or sanitation practices were considered together for lecture and illustrative purposes. For example, "MEAT and POULTRY PRODUCTS" were grouped into a lecture, and "FROZEN FOODS" and "PRE-COOKED FOODS" were also grouped. The baking industry and macaroni products were the topic for a full day, while candy, confectionery, chocolate and nuts made up the topic of another day. Topics were eliminated which did not seem to be too important either to the general problems being discussed, or to a basic understanding of the major problems encountered or anticipated in the Philadelphia area.

The problem of orienting the course toward sanitation or technology was considered. An understanding of food technology was felt to be basic to the comprehension of the sanitation problems involved. The students had extensive education, training and experience in sanitation, but few had had any experience in actual food technology. It was decided to concentrate on basic food technology and to minimize any specific sanitation considerations.

A convenient time period for the course seemed to be a week. Certainly this did not cover the field as well as we would have liked, but it presented an opportunity for a full day on unit operations and a half day for discussion and review in addition to the



specific food processes. We believed it advisable to give the entire course in one full week, rather than breaking it down to one day a week for 5 weeks or some similar variation. The importance attached to a full week's work by all participants was the prime reason for this choice. Also, transportation time and interference with other activities were minimized. One large inconvenience is frequently less costly in effort and expense than frequent small inconveniences.

Field trips were considered. The group had some field experience in making inspections at food plants. Field trips are time consuming and some plants are so noisy and offer such poor opportunities for visualization of the processes, that it was decided not to have any field visits. Instead, as many visual aids as could be obtained were employed. This included motion pictures, slides, filmstrips, booklets put out by some of the participating companies, charts, flow sheets and outlines, etc. Samples of actual foods and raw materials were also used. Visual aids were of inestimable value.

No text was used in the course, although a number of references were suggested. Some of the students had these books, and all were in the library of the Health Department.

One of the most valuable parts of the course was a panel composed of representatives of the Food and Drug Administration, Pennsylvania Department of Agriculture, the Philadelphia Department of Health, and an Industrial Food Consultant to answer questions and discuss food plant sanitation based on their respective responsibilities and points of view. This panel followed a review of the course which helped to solidify the information presented during the week.

There was active interest on the part of the students in the discussion by members of the panel. Generally, the topics covered were the legal aspects of enforcement, new legislation in this field and the reaction of industry toward food regulations. As a climax to the week's work, this seemed quite stimulating and provided the concrete connection between the training course and the daily activities of each of the students.

During this entire program, the students were quite enthusiastic. Their overt reactions were positive and question and answer periods, as well as class sessions, met with the most active interest. There seemed little boredom, which reflects well on the participants, but also is a measure of student interest.

Some of the participants began lectures with some hesitation, probably due to inexperience in lecturing or teaching, but also due perhaps to some reservations as to the genuineness of interest of the students in the participant's particular field. These reservations

were almost completely dispelled by the attitude of the sanitarians. Some of the industry lecturers made a point of indicating their surprise and gratification that the students were both interested and well qualified for their work.

#### COURSE EVALUATION

There are several ways of judging the degree of success of a training course. One way is through a subjective evaluation of audience participation and audience interest. On the basis of this measurement, the course was successful. Another evaluation measurement is through objective testing. A written examination was given to the sanitarians at the end of the five day course. The examination consisted of 10 questions, some examples of which are:

1. Describe the various methods of curing meat and meat products.
2. What are the basic elements of a quality control program in the canning industry, the baking industry, and the frozen food industry?
3. Draw a flow chart for bread baking from the receiving of the raw materials in the bakery to the finished product.
4. List the several different methods of preserving food. Give an example of the food preserved by each method. Explain how or why each of the preservation methods prevents spoilage.
5. Discuss the different defects of canned goods and give a reason for each defect.

In the last analysis, the best evaluation of the training course must be how well the sanitarian performs in the field. We are not able to answer this question fully at this time, however, a study of the inspection reports of the food plants would indicate that the sanitarians have added to their competence in this area.

#### DISCUSSION

The trend in our society is to a shift from food preparation in the home to the preparation of more completely processed foods ready-to-eat foods and convenience foods in the food plant. Health departments should recognize this shift in consumer preference and place a greater percentage of the total food sanitation program time into the food processing industries. Food processing industries can not be effectively regulated by the health agencies unless the sanitarians have a good knowledge of the industry and the specific processes carried on in the industry. There is a need for a standardized training course in basic food technology for sanitarians, in the same way as there are standardized training courses for restaurant sanitation and for milk plant sanitation. These courses could be organized by the Public Health Service or by the Food and Drug



Administration. The university departments of food technology can also play a major role in the organization of courses in food technology for sanitarians. There is also a need for written publication in food processing for sanitarians. There are, of course, excellent books on food processing and the food processing industry, however, these are designed for the use of the food technologist. The texts in public health and in public health sanitation are concentrated on food establishment sanitation and to milk plant sanitation, and the coverage on food processing is not extensive. There is a need for a publication which stresses the public health and sanitation aspects of the food processing industry with special attention to the basic food processes. There are excellent visual aids for eating and drinking place establishment sanitation and for milk plant sanitation, and even for retail food sanitation. However, there is limited visual aid material for training in food plant sanitation. If these materials and courses are not made available to the local health departments, they will have to continue to carry on their own training activity in this field. We have found that it is most useful to bring in the food industry, the trade associations, and the professional groups of food technologists to help plan and present the course in food technology for sanitarians.

#### CONCLUSION

The Philadelphia Department of Public Health in cooperation with the local chapter of the Institute of Food Technologists developed a basic training course in food technology for sanitarians. The course followed from a need to implement the new regulations on Food Processing and Food Manufacturing which were promulgated by the City. The course was intended to acquaint the sanitarian with unit processes and unit operations in the food industry and with some specific food processes. It was felt that sanitarians are basically oriented toward eating and drinking place establishment and toward milk plant establishment and that training in food processing is desirable. A program of sanitation for the food processing industry can not be successfully implemented unless the inspection personnel are acquainted with the different food processes and the sanitation significance of these processes. The course description and organization is presented here as a beginning effort, and it is hoped that schools of food technology and organizations such as the Public Health Service and the Food and Drug Administration will organize a training course in basic food technology for sanitarians.



## PREEMPTION BY FEDERAL GOVERNMENT IN THE FIELD OF FOOD REGULATION<sup>1</sup>

BENJAMIN G. HABBERTON

*Fistere & Habberton*

1012 Fourteenth St., N. W., Washington, D. C.

### Abstract

It frequently happens that the federal government and a state government attempt to regulate the same commercial activity — or what may appear to be the same commercial activity. If the laws or regulations are in agreement, there is no problem. But suppose they are not in agreement. Here, the problems arise. The teaching of the numerous judicial decisions appears to be that even if the state requirement in issue is different from the federal, if it is not in direct conflict with the federal, and does not interfere with the policy or administration of the federal, the two may co-exist and both be enforced. But if the state requirement is in direct conflict with the federal and interferes with the policy or administration of the federal, the federal law or regulation will prevail over the state, and the state law or regulation will be stricken down. In this situation, the federal government with its paramount constitutional power to regulate interstate commerce, is said to have occupied or preempted the particular field of government control and thereby to have excluded regulation by the state. This doctrine, articulated in the foregoing or comparable language, has been applied in numerous cases involving the regulation of commerce in food products. There are cases, for example, involving federal versus state food standards, and these are of particular interest.

The framers of the Constitution of the United States did a wonderful thing for lawyers when they wrote the Commerce Clause. To be quite specific, this is clause 3 of Section 8 of Article 1 and it provides as follows: "The Congress shall have power . . . to regulate commerce with foreign nations, and among the several states, and with the Indian Tribes." The regulation of commerce with foreign nations and more especially with the Indian Tribes has not occasioned too much difficulty, relatively speaking. It is the power of Congress to regulate commerce among the several states that has proved so problematical. The amount of litigation that this simple expression has caused is rather overwhelming and it may fairly be said that it is one of the constitutional happy hunting grounds of lawyers representing clients engaged in commercial pursuits.

Needless to say, the problems of law arise chiefly because each of our fifty states also has the power to regulate commerce, and although state regulation is primarily concerned with intrastate commerce, it frequently happens that both a state and the Congress (or one of the federal governmental agencies

to which the power of Congress has been delegated) attempt to regulate the identical commercial activity. The consequences of this collision are apt to be interesting.

An unusually important situation of just this kind involving a state standard of identity for ice cream and the new federal standard has quite recently been adjudicated by a United States District Court and is now on appeal. Later on, we shall consider this case at length, but first we shall trace the development of this area of the law as applied to food regulation. And since some of the cases we shall discuss are not too easily understood, we shall look first at an instructive and comparatively simple case which involves the same principles of law but does not involve food. This case, which was decided by the United States Supreme Court only last year, is *Huron Cement Co. v. City of Detroit*, 362 U. S. 440.

This was a criminal prosecution under the Detroit Smoke Abatement Code. The cement company operated several ships on the Great Lakes, and Detroit was one of the ports of call. Two of the ships were equipped with marine boilers, and it was necessary to keep these boilers fired and cleaned while the ships were docked for loading and unloading, in order to operate deck machinery. When the cleaning occurred, the boiler stacks emitted smoke which, in density and in duration, exceeded the maximum standards allowable under the Detroit Code.

Now these ships operated in interstate commerce and the ships and their equipment, including their boilers, had been inspected, approved, and licensed to operate in interstate commerce under a comprehensive system of regulation enacted by Congress. The Cement Company urged that by the enactment of this comprehensive system of regulation, the federal government had preempted the field and had manifested an intention that states should take no conflicting action in that field. Accordingly, the provisions of the Detroit Smoke Abatement Code could not constitutionally be applied to the Company's ships.

The Supreme Court, affirming the lower courts, ruled adversely to these contentions and upheld the application of the Detroit Code. The court reviewed the federal inspection and licensing laws and found that although they are comprehensive in scope, their purpose is only to afford protection from the perils of maritime navigation. On the other hand, the

<sup>1</sup>Presented at 15th Annual Meeting of the Dairy Products Improvement Institute, Inc., Hotel Governor Clinton, New York City, February 15, 1962.



purpose of the Detroit Code is to protect the health and enhance the cleanliness of the local community. Accordingly, the court concluded that the federal law has not preempted the field of regulation covered by the local law.

This case illustrates the nature and some of the limitations of the doctrine of preemption.

Turning now to food regulation we find that there have been several landmark cases in the United States Supreme Court, and the first of these was *Savage v. Jones*, Indiana State Chemist, 225 U. S. 501. In this case, decided in 1912 under the old Federal Food and Drug Act of 1906, the plaintiff was the manufacturer of "International Stock Feed," a preparation for domestic animals. Plaintiff manufactured this product in Minnesota and shipped it to numerous other states including Indiana. The Manufacturer sued the Indiana State Chemist to enjoin him from enforcing, as to the manufacturer's product, the provisions of the Indiana statute regulating the sale of "concentrated commercial feeding stuffs." The manufacturer contended that his shipments into Indiana were regulated by the federal act and that the Indiana statute, if applied to his products, would be unconstitutional. More specifically, he contended that insofar as the Indiana statute was applied to interstate commerce, it has been "superseded" by the federal law.

The court first considered the Federal Food and Drug Act of 1906 and found that as applied to food for domestic animals, it prohibited the interstate shipment of such foods as misbranded only if the label bore any false or misleading statement, design, or device. The plaintiff's labels contained no such false or misleading statements, designs, or devices, and hence complied with the federal law. The court then examined the Indiana law and found that it went beyond this and required that every label contain a full declaration of ingredients.

The court upheld the Indiana statute. Comparing the two statutes, the court found that Congress had so limited the scope of those acts which were prohibited as adulteration or misbranding that they did not include the object at which the state law was aimed. Congress, in enacting the federal act, had seen fit only "to occupy a limited field." The requirements of the state law were "not in any way in conflict with the provisions of the Federal act," and "they may be sustained without impairing in the slightest degree" the "operation and effect" of the federal law. Hence, the court says, "There is no question here of conflicting standards or of opposition of state to Federal authority."

Only a year after *Savage v. Jones*, the Supreme Court distinguished that case in deciding the leading case of *McDermott v. Wisconsin*, 228 U. S. 115.

This case involved the sale in interstate commerce

of the well-known product "Karo Corn Syrup." The package was labeled "Karo Corn Syrup - 10% Cane Syrup - 90% Corn Syrup." It was conceded that this label complied with a regulation, promulgated under the Federal Food and Drug Act, which prescribed the wording for labels for corn syrups, with or without added cane syrup, and which stated that a syrup so labeled "is not misbranded." On the other hand, the Wisconsin statute required that corn syrup be labeled "Glucose," together with language indicating the presence of other ingredients, if any. Furthermore, the Wisconsin statute provided that corn syrups should have no label other than the one prescribed.

This troubled the court, and it concluded that the Wisconsin statute was not valid. Even giving full recognition to the principles and ruling of *Savage v. Jones*, the court said that "the State may not, under the guise of exercising its police power or otherwise, impose burdens upon or discriminate against interstate commerce, nor may it enact legislation in conflict with the statutes of Congress passed for the regulation of the subject, and if it does, to the extent that the state law interferes with or frustrates the operation of the acts of Congress, its provisions must yield to the superior Federal power given to Congress by the Constitution."

It is important to observe that the court here found a state law which directly conflicted with a federal law intended to regulate the very field covered by the state law.

*Savage v. Jones* and *McDermott v. Wisconsin* were both decided by unanimous courts. Coming along a number of years later, the case of *Cloverleaf Butter Co. v. Patterson*, Alabama Commissioner of Agriculture, 315 U.S. 148, was decided five to four.

This case involved the manufacture of renovated butter from packing stock butter. The federal regulation of this business was contained in the Renovated Butter Act and the Internal Revenue Code. The State of Alabama also regulated the production of renovated butter, and one of the specific provisions of the Alabama statute was that authorizing the seizure of packing stock butter being held for renovation. The state authorities made repeated seizures of Cloverleaf's packing stock butter, and Cloverleaf brought this suit to enjoin further seizures. Cloverleaf urged that the federal law establishes a comprehensive scheme of regulation of the manufacture of renovated butter and that these seizures of the materials to be renovated interfered, and were inconsistent, with the federal scheme of regulation and hence were "excluded" by the federal law. Five members of the Supreme Court agreed with these contentions.

Four members of the Court disagreed. They point out that the Federal legislation grants authority to seize the finished product - renovated butter - but



as to the packing stock butter, it authorizes only inspection. The federal government, say these four justices, has thus not completely occupied this field of regulation and there is no conflict with the federal law. In their view, the effect of the majority opinion is to create a vacuum: It deprives the state of the right to seize the packing stock butter, and under the federal legislation the federal authorities have no right to do so.

It is not too difficult to see why the decision of this case resulted in a sharply divided court.

To this point we have considered only cases decided by the Supreme Court of the United States. We come now to a series of three cases decided by the highest court of the State of New York.

The first two of these cases — *Quaker Oats Company v. City of New York*, and *Hill Packing Company v. City of New York*, 68 N.E. 2d 593, were considered by the court together since they brought into question the constitutional validity of the same New York City ordinance.

The ordinance in question was one which required that any horse meat intended for animal feed be decharacterized by the addition of harmless coloring. The purpose was, of course, to cause the product to be readily distinguishable from foods intended for human consumption. Now the federal government also had entered this field. A regulation promulgated under the Federal Meat Inspection Act provided that horse meat intended for animal feed might either be decharacterized by the addition of harmless coloring or by being packed in hermetically sealed cans and labeled, for example, "Dog Food." The Quaker Oats Company's product "Ken-L-Ration" complied with the federal law because it was packed in a can and labeled "Dog Food." However, it was not decharacterized by the addition of color and hence did not comply with the New York ordinance.

As applied to this product, the court had no difficulty in concluding that the city ordinance must give way to the federal regulation. The court says that "a state or municipal statute will be stricken only if — in terms or in practical administration — it conflicts with the Federal law or infringes on its policy." Here, the court found "a conflict, actual and open, on the very face of the two provisions." This is true because "the city forbids to interstate commerce what the Federal government has authorized." This ordinance did not "supplement the federal prescription;" it "adds a further requirement."

The Hill Packing Company case was quite simple. The Hill Company was marketing its product without complying with either the Federal regulation or the city ordinance, and since the city requirement of decharacterization by the addition of color was also one of the alternative requirements of the federal regulation, the company had no cause for complaint.

The third of the three New York cases involved the amount of added moisture that may be present in briskets of beef. A New York City ordinance provided that briskets of beef should contain a maximum of ten percent moisture added by processing, and at the same time a regulation of the United States Department of Agriculture, promulgated under the Federal Meat Inspection Act, provided that they might contain a maximum of twenty percent.

As to shipments of this product from outside the State of New York, the New York Court held the New York City ordinance unconstitutional. *Kansas Packing Company v. City of New York*, 127 N.Y.S. 2d 107; modified 131 N.Y.S. 2d 351; affirmed 128 N.E. 2d 411. The court says that a state statute or municipal ordinance "must fall if in terms or practical administration it either conflicts with the Federal law or infringes on its policy. This ordinance does both. In terms it prohibits importation of a product which has received the imprimatur of approval from that authority. In practice it renders nugatory the inspections conducted by the Federal authority and effectually substitutes a different standard. Trading pursuant to the sanction thereby given is infringed upon to an extent that can render it impossible. The statute is therefore unconstitutional.

It is significant to observe in this case that the New York ordinance provided for a food product of higher nutritional value than did the Federal regulation, since the former permitted only ten percent moisture while the latter permitted twenty percent. But the New York court did not regard this factor as affecting the paramount authority of the Federal law under the conditions here found to exist.

To these judicial decisions on the question of the preemption by the federal government of the field of food regulation, there should be added at least one opinion by a State Attorney General. This is an official opinion by the Attorney General of Wisconsin given to the Director of the Department of Agriculture of that state (Reported in Vol. 3, C.C.H. Food, Drug & Cosmetic Law Reporter at Par. 85, 127). The Director had asked the Attorney General for his opinion as to the validity of the Wisconsin standards of identity for canned vegetables and canned fruits, jams, and jellies. "The federal standards of identity for these products permitted the use of certain optional ingredients such as water, sugar, vinegar, spices, and vegetable oil in certain canned vegetables and canned fruits, and permitted jams and jellies to be made of frozen and canned fruit as well as fresh fruit. The Wisconsin standards recognized none of these optional ingredients in canned vegetables and canned fruits and required that jams and jellies be made of fresh fruit only. The Attorney General found that the state standards were



in direct conflict with the federal standards and relying largely upon the case of *McDermott v. Wisconsin* heretofore discussed, expressed his opinion that the state standards were invalid and unenforceable.

One further non-judicial pronouncement should be noted. In January 1959 - some nine months before the final promulgation of the new federal standard of identity for ice cream - the International Association of Ice Cream Manufacturers, through its counsel, asked the Federal Food and Drug Administration whether, in its opinion, an ice cream containing milk fat in the proportion provided by a federal standard could legally be shipped into a state whose statute or regulation provides for a greater proportion of milk fat. The Food and Drug Administration replied that in its opinion the situation hypothesized would present a direct conflict between federal and state law, and that upon the basis of the decided cases, especially *Kansas Packing Co. v. City of New York*, heretofore discussed, the federal regulation, by preemption, would be controlling over the state law, and the product meeting the federal standard could legally be shipped into the state having a higher requirement.

We have now gone full circle in our consideration of preemption in the field of food regulation. At the outset, it was stated that a case involving the new federal standard of identity for ice cream had quite recently been adjudicated by a United States District Court and is now on appeal. We have traced the development of the law applicable to this situation from its beginnings down to the present, and we now again come to the recent case.

The case is that of *The Borden Company v. Liddy, Secretary of Agriculture of the State of Iowa*, and it was decided in the United States District Court for the Southern District of Iowa on December 15. The case is a fascinating one to food law lawyers and it is a largely important one to this audience. As you know, the federal standard of identity for ice cream provides that the weight of the milk fat shall be not less than ten percent of the weight of the finished ice cream. An Iowa statute prescribes that it shall be not less than twelve percent. The Borden Company manufactured a ten percent ice cream within the State of Iowa for sale outside the state, and it manufactured a ten percent ice cream in other states for sale in Iowa. The Iowa Secretary of Agriculture made demand upon The Borden Company to discontinue both practices and threatened to invoke criminal sanctions unless Borden immediately complied. Borden promptly brought this suit seeking an injunction and a declaratory judgment.

During the course of the proceedings, the Secretary conceded Borden's right to manufacture ten percent ice cream in Iowa for shipment into other

states. He did this because another Iowa statute expressly provided that "articles" might be held in Iowa for sale in other states notwithstanding that they failed to comply with Iowa standards. Thus, a ruling upon this point as a matter of general law, uncontrolled by legislation, was avoided. However, there remained for decision the classic question of whether Iowa could exclude the product manufactured outside the state which failed to meet the Iowa twelve percent requirement but which complied with the federal standard in that and every other respect. The court ruled, surprisingly, that Iowa could exclude it.

The Borden Company quite naturally brought many arguments to bear. One of these arguments was based upon an Iowa statute concerning the "labeling of mixtures." This statute says, in effect, that any food product labeled in conformance with the labeling requirements of federal law shall be deemed to be labeled in conformance with the laws of the State of Iowa. Arguing from this, Borden urged that its ten percent product labeled "Ice Cream" in conformance with federal law is hence properly labeled "Ice Cream" in conformance with Iowa law and is entitled to be sold as such in Iowa. As to this, the court said: "If limited to this statute, plaintiff's argument is correct, but this argument tends to ignore the effect of the Iowa statute which prohibits the sale of adulterated food." The court then proceeded, at great length, to point out that the Iowa statutes prohibit the sale of both misbranded and adulterated foods and that among adulterated foods, as defined, are foods which do not conform with the Iowa standards.

However, later in its opinion the court says: "Nothing in the Iowa adulterated food statute forbids the sale of Borden's frozen dessert product containing only 10 percent milk fat. It merely prohibits the sale of said product as the food 'ice cream'." Presumably, a change of the name of the product would cure the adulteration, and the inference is that at least this portion of the adulteration statute is, after all, only a matter of labeling. The court's disposition of this argument can scarcely be considered adequate.

Of greater relevance to our discussion here is Borden's argument that by the promulgation of the federal standard of identity for ice cream, the federal government had preempted this field of regulation and that to exclude a product which fully complies with the federal standard would be to impose an undue burden on interstate commerce. The court specifically rejected this argument. The court said there was no indication that the federal regulation was intended to supersede state laws or regulations. The effect of the federal regulation was only to establish a minimum standard which states are at liberty to improve upon. Under this interpretation,



said the court, there is no conflict between the federal law and the state law, and no undue burden is imposed upon interstate commerce. It is of course true that the federal regulation prescribes a minimum standard: It says that ice cream must contain at least ten percent butterfat. But in my opinion it goes farther than this: It says also that a product which contains ten percent butterfat *is* ice cream and is entitled to be recognized as ice cream and to move in interstate commerce as ice cream.

The Federal Food and Drug Administration issued

its standard of identity for ice cream nineteen years after proceedings for that purpose were begun. The standard itself is long, comprehensive, and detailed. If this standard is not intended to preempt this field of regulation, one wonders how *any* regulatory pronouncement could be so construed.

More light will be thrown on the merits of this case in the course of time, for, as has been stated, The Borden Company has appealed. The outcome of the appeal holds much significance for the dairy manufacturing industry.

## ANNOUNCEMENT

In conjunction with International Association of Milk and Food Sanitarians Annual Meeting

### THE NATIONAL ASSOCIATION OF FROZEN FOOD PACKERS

Will Hold A

Penn.-Del.-Mar.-Va. Seminar on Sanitation (9th of a Series)

BEN FRANKLIN HOTEL

WEDNESDAY, OCTOBER 24, 1962

9:00 A.M. to 4:00 P.M.

### PROGRAM

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| <p>9:00 Participants secure complimentary registration packet.</p> <p>9:15 EXECUTIVES VIEW SANITATION<br/>Moderator: H. P. Schmitt, NAFFP Research Director<br/>TODAY'S TEAMWORK IS TOMORROW'S PROGRESS — Charles E. Walton, President, International Association of Milk and Food Sanitarians, Inc.<br/>TRIANGULATIONS ON SANITATION, PACKING AND THE OFFICIAL SANITARIAN — Frank E. Fisher, Chairman, IAMFS Committee on Frozen Food Sanitation<br/>PREREQUISITES OF THIS BUYER — William Spence, Head Frozen Food Buyer, Acme Markets, Inc.<br/>OUR POSITION ON SANITATION — A. W. Dutcher, Vice President, Dulany Foods Inc.</p> <p>10:15 COFFEE BREAK</p> <p>10:30 RATING YOUR PLANT OPERATIONS<br/>USE OF NAFFP'S MANUAL, "5 STEPS TO SANITARY QUALITY OF FROZEN FOODS" — On the job surveillance with the sanitary control equation, a watch and a thermometer — H. P. Schmitt, NAFFP Research Director, Moderator<br/>"X" IS FOR MIKE — Movie from NAFFP's Loan Library showing what bacteria are, where they live and what to do about them<br/>PLANT LAYOUT AND OPERATIONS — How proper facilities, equipment and operating practices protect your product — Joseph W. Barclay, Superintendent on Prepared Foods, Seabrook Farms Company<br/>THE HUMAN FACTOR — Programing for a greater instinct of sanitary workmanship — Ruth W. Engler, Director, Food Quality Control, Stouffer Foods Corporation</p> <p>BREAK</p> <p>12:00 LUNCHEON</p> | <p>1:30 MEETING THE CHALLENGE OF DAILY PLANT SANITATION — Authorities moderated by H. P. Schmitt discuss classes of commodities to develop means for better practices and business growth<br/>SANITARY PRACTICES IN FREEZING FRUITS AND VEGETABLES — Precautions to observe for a quality pack — James W. Morrison, Quality Control Manager, Pocomoke Plant, Birds Eye Division, General Foods Corporation<br/>SANITARY TECHNOLOGY IN FREEZING PREPARED FROZEN FOODS — Operating know-how that protects the integrity of your label — James K. Cameron, Research Director, Morton Frozen Foods, Division of Continental Baking Company<br/>SANITARY SCIENCE IN CONCENTRATING AND FREEZING CITRUS JUICES — Tailoring technology to the specific product requirement — D. I. Murdock, Staff Bacteriologist, Minute Maid Company<br/>SANITARY PROGRAM FOR FREEZING POULTRY AND SEAFOODS — Designing your program with considerations of the unseen ingredient — Dr. M. F. Gunderson, Director, Microbiological Research, Campbell Soup Company</p> <p>2:45 BREAK</p> <p>3:00 KITCHEN HABITS — Another movie from NAFFP's Loan Library showing personal habits that insure food quality and safety</p> <p>3:20 FORUM ON SANITATION — Your chance to quiz the technical authorities of this seminar on good processing, bacterial control and sanitary quality of frozen foods</p> <p>3:50 INDUSTRIAL PROGRESS REPORT ON SERVING THE PUBLIC INTEREST, SAFETY AND WELFARE</p> <p>4:00 ADJOURNMENT</p> |
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# A STUDY ON CLEANING AND SANITIZING A PORTABLE MILK TRANSFER SYSTEM<sup>1</sup>

W. S. MUELLER

*Institute of Agricultural and Industrial Microbiology  
University of Massachusetts, Amherst*

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About five years ago research on cleaning and sanitizing a portable milk transfer unit was initiated at the University of Massachusetts. A portable milk transfer unit generally consists of a stainless steel dumping tank and a long length (100 feet more or less) of flexible plastic pipe line, which transfers the milk from the barn into the bulk milk storage tank. The milk is either pushed through the pipe by a pressure pump or sucked through by the use of vacuum.

There are now at least five companies manufacturing this type of equipment. The scarcity and high cost of labor are stimulating dairy farmers to buy these transfer units. However, before the dairy farmer can legally use such equipment, an approval by the State and/or municipal sanitary authorities is necessary. While many states and municipalities have approved these transfer units, others have accepted them on a temporary basis pending additional data on whether these units can be maintained in a sanitary condition.

The purpose of this report is to furnish information which may help Milk Sanitary Authorities to determine whether or not the use of portable milk transfer units will result in impaired quality of milk supplies. This study consists of tests made at the University dairy barn, at a dairy farm near Amherst and in the dairy laboratory.

After the data had been collected in this study, a report (2) from the University of Illinois showed bacterial counts of milk to be as low with plastic tubing as with stainless steel or glass pipe lines, when the equipment was properly sanitized.

## EXPERIMENTAL METHODS AND MATERIALS

### *Portable milk transfer unit.*

The milk transfer unit used for this study was manufactured by the Plymouth Engineering Corporation of Boston, Massachusetts. Basically, the unit consists of dumping tank (capacity 38 quarts), strainer, centrifugal pump, all made of stainless steel, and a 100-ft length of 7/8-in inside diameter flexible plastic, raw milk pipe line (Transflow), weigh scale holder, and aluminum truck.

### *Determination of sanitary condition of the milk transfer unit.*

The Millipore filter membrane (Millipore Filter Corporation, Watertown, Massachusetts) was used for this determination. Microorganisms were rinsed from the transfer unit by recirculating, for five min, 16 liters of sterile distilled water containing 20 ml of stock phosphate buffer solution and, when needed, an appropriate neutralizing agent for the germicide. The stock phosphate buffer was prepared according to Standard Methods (1). Within two hours after recirculating the rinse water, portions varying from 50 ml to 2 liters, were passed through the Millipore filter membrane (approximately 2 in in diameter). Immediately after filtration each membrane was placed on top of a pad in a small petri dish. The pad was previously moistened with 1.5 ml of triple-strength nutrient broth containing 0.01% of 2, 3, 5 triphenyltetrazolium chloride. The plates were incubated at 35°C for 48 hr and colonies appearing as red spots were counted with the aid of a broad-field microscope.

### *Sanitary standard for plastic pipe line.*

Since sanitary standards for flexible, plastic, raw milk pipe lines had not been formulated at the time this study was made, standards as set forth for other dairy equipment (1) were used. Accordingly, by the water rinse method large well-cleaned dairy equipment is considered satisfactory when estimates from rinse water indicate less than one colony per milliliter of capacity.

### *Water source.*

The Amherst Municipal Water Supply was the source of water for the entire study, and its hardness was 18 p.p.m. CaCO<sub>3</sub>.

### *Cleaning and sanitizing procedures used.*

For the test at the University dairy barn, the barn personnel were instructed as follows:

1. Rinse milk from system with cool tap water.
2. Recirculate general dairy cleaner solution (recommended concentration on label) for 15 min, having a starting temperature of at least 145°F.
3. Rinse detergent solution from system with hot water. (125°F to 145°F)
4. Before next milking recirculate sanitizing solu-

<sup>1</sup>The mention of trade names in this paper is for identification and implies no endorsement of the products. Contribution No. 46 of the Massachusetts Agricultural Experiment Station.



tion (either hypochlorite, quaternary or dodecyl benzene sulfonic acid) in concentrations recommended by manufacturer and at room temperature, for three to five min.

5. Use acid cleaner in place of the alkaline cleaner once a week.

6. Dismantle pump once a week for inspection and cleaning with a brush.

For the tests at a dairy farm near Amherst the instructions in numbers two and four were changed from those used at the University barn as follows:

Item 2: Recirculate chlorinated alkaline pipe line cleaner solution (1/2-oz per gal) for 15 min at a starting temperature of 160°F.

Item 4: Immediately before the next milking, sanitize with hypochlorite (200 ppm chlorine) by recirculating at approximately room temperature for five min.

For the test in the Dairy Laboratory the milk transfer unit was soiled by recirculating warm (100°F - 106°F) raw milk of varying bacterial count (50 thousand - 1 billion per ml). Extremely high counts in the raw milk were obtained by recirculating the same milk the following day. Recirculation of the raw milk was an automatic controlled cyclic operation, on for 12 min and off for 6 min, which lasted for a period of 1 1/2 hours. The temperature of the milk at the end of the cycle period varied between 88°F - 96°F. At the close of the milk recirculating period the system was drained and then rinsed with cool tap water. Next a 5-gal portion of a chlorinated, alkaline cleaner (1/2 oz to 1 gal) was adjusted to varying temperatures and recirculated for 15 min, after which the temperature was again checked. The system was rinsed free of cleaning solution with hot water 120° - 130°F., after which the sterile, buffered distilled water was recirculated for determining bacterial counts by the Millipore filter method. A special plastic-rubber plug was pushed through the 100-ft plastic pipe line by the use of compressed air, to remove excess water. The plastic pipe was then stored without further treatment until the next test. The portable unit did not receive any other sanitizing treatment other than washing with the chlorinated alkaline cleaner. An acid cleaner was used in place of the alkaline cleaner once a week, and the pump was dismantled and checked for visible soil once a week.

#### RESULTS AND DISCUSSION

##### *Tests at the University dairy barn.*

The rate of flow of a cleaning solution through the 100-ft length of plastic pipe line was checked and found to be slightly over five ft per second, which is the velocity often recommended for pressure circulation method for cleaning rigid pipe lines.

During the three months (May, June, and July) test period, a general dairy cleaner and three types of sanitizers, calcium hypochlorite, alkyldimethylbenzylammonium chloride and dodecyl benzene sulfonic acid were used. The sanitary condition of the milk transfer unit was checked approximately every five days by the Millipore Filter technique. Results from these checks showed that 50% did not meet the desired standard of less than one colony per ml of capacity. When not meeting the standard the counts per milliliter of volume ranged from 2 to 22 with an average of about 8. Visual inspection of the pump showed that the cleaning procedure used in these tests was inadequate. Failures in meeting the desired standard occurred more frequently as the test period progressed, suggesting a soil build-up. The three types of sanitizers used showed no significant differences in sanitizing effectiveness. When the quaternary ammonium sanitizer was used the plastic pipe looked dull, probably due to a film build-up. Also, when the quaternary sanitizer was recirculated, sometimes a floc was deposited on the surface inside of the tank and plastic pipe line.

The results of the tests at the University barn show clearly that for the specific procedure outlined, a portable milk transfer unit would not be maintained consistently in a sanitary condition over a period of time, when an ordinary general dairy cleaner was being used.

##### *Tests at a Dairy farm near Amherst.*

As the experimental cleaning procedure used at the University barn was found to be unsatisfactory, the procedure was changed for the new tests; namely, a chlorinated alkaline pipe line cleaner was substituted for the general dairy cleaner. One criterion for determining the sanitary condition of the milk transfer unit while being used at the dairy farm near Amherst, was the raw and pasteurized, bacterial counts of samples taken at the bulk tank as reported by the milk dealer purchasing the milk. The results are given in Table 1. A period of four months preceding the test period, during which time the milk was carried in pails from the barn to the milk room, where it was dumped into the bulk tank, served as a control. It will be noted that milk of satisfactory bacteriological quality was produced throughout the control period and also when the milk transfer unit was used. It will also be noted that the bacterial count of milk produced, when the portable transfer unit was in use, was considerably lower as compared to the control period. The writer is aware that the improved bacterial count probably was influenced by the tendency of barn personnel to do their job more conscientiously during test periods. Results of weekly checks on the sanitary condition of



TABLE 1. EFFECT OF PORTABLE MILK TRANSFER UNIT ON BACTERIA COUNTS OF MILK<sup>a</sup>

Before milk transfer unit was used			Milk transfer unit in use		
Date	Raw SPC/ml	Pasteurized SPC/ml	Date	Raw SPC/ml	Pasteurized SPC/ml
1957			1957		
April 16	4,600	90	August 5	10,000	700
April 23	12,000	50	August 16	20,000	160
May 13	3,400	60	August 19	4,100	120
May 20	10,000	50	August 27	8,200	50
June 5	23,000	130	September 2	10,000	40
June 10	15,000	120	September 8	9,300	90
June 11	20,000	120	September 16	8,200	100
June 16	28,000	3,100	October 1	18,000	110
July 1	20,000	100	October 20	13,000	109
July 2	62,000	3,200	October 28	2,300	160
July 14	120,000	1,000	November 5	5,300	190
July 16	24,000	160			
July 22	8,400	150			
Average	27,000	640		9,900	170

<sup>a</sup>Plates incubated for 48 hours at 35°C.

the milk transfer unit by the Millipore filter technique in all instances met the standard of less than one colony per ml of capacity. Thus, it appears that a portable transfer unit can be readily maintained in a sanitary condition for a considerable period of time by a cleaning and sanitizing procedure as was used at the dairy farm near Amherst.

#### Tests in dairy laboratory.

Additional tests on cleaning and sanitizing the portable milk transfer unit were made in the dairy laboratory rather than in a dairy barn, because the experiments could be better controlled. Table 2 shows the effect of varying chlorinated alkaline cleaner solution temperatures on the effectiveness of cleaning and sanitizing as measured by the Millipore filter technique. The data in the table are average values for three trials. The test period was spread over a period of three months and not more than a single test was run in one day. It will be noted that reducing the temperature of the cleaning solution too far greatly reduced cleaning and sanitizing efficiency. The sharp break in cleaning and sanitizing efficiency falls somewhere between 130°F and 120°F. When judged by the standard of less than one colony per ml of volume, cleaning solution temperatures of 130°F and above were satisfactory and temperatures of 120°F or below were unsatisfactory. There was no visible soil in the centrifugal pump when checked each week. It should be pointed out that the satisfactory sanitary condition of the transfer unit by the use of a chlorinated alkaline cleaner was obtained without additional sanitizing treatment. Chlorinated alkaline cleaners have considerable sanitizing properties, although they are

not usually labeled as detergent-sanitizers. Additional sanitizing treatment seems advisable as a safety factor.

#### SUMMARY AND CONCLUSIONS

The portable milk transfer unit, including 100 feet of plastic pipe line, was readily maintained in a satisfactory sanitary condition when recirculating a chlorinated alkaline cleaner at a velocity of five ft per second for 15 min, at a minimum start and finish temperature of 130°F and 115°F respectively. The portable milk transfer unit was not maintained in a satisfactory sanitary condition when an ordinary dairy cleaner was used in place of the chlorinated alkaline

TABLE 2. — EFFECTIVENESS OF A CHLORINATED, ALKALINE CLEANER AT VARIOUS TEMPERATURES FOR CLEANING AND SANITIZING A PORTABLE MILK TRANSFER UNIT<sup>a</sup>

Solution temperature		Number of colonies per ml capacity of plastic tube and tank <sup>b</sup>
Start	After recirculating 15 min	
°F	°F	
160	129	0.02
150	121	0.02
140	115	0.06
130	111	0.15
120	107	15.9
110	103	18.8
100	98	27.0

<sup>a</sup>Data are the average of three trials.

<sup>b</sup>The standard is not more than one colony per milliliter capacity.



cleaner. This was true even when a good sanitizer was used after the cleaning operation.

When the chlorinated alkaline cleaner was used it was found unnecessary to use any additional sanitizing treatment. However, a sanitizing treatment immediately before use is recommended as a safety factor.

Because of the tendency for quaternaries to form flocs in certain waters and also to dull the appearance of the plastic pipe line, other commonly used sanitizing agents are preferred for sanitizing portable milk transfer units.

The use of an acid cleaner in place of the alkaline

cleaner once each week was sufficient for local water conditions.

Dismantling the centrifugal pump for inspection once each week was sufficient for test conditions. More frequent inspection can be recommended as a safety factor.

#### REFERENCES

1. Standard Methods for the Examination of Dairy Products, 11th Edition, American Public Health Association, Inc., New York, New York. 1960.
2. Nelson, W. O., Alexander, M. H. and Ormiston, E. E.: Flexible Plastic Milk Pipelines are Here. Hoard's Dairyman, 104:68-69.1959.

# News and Events

## Dietary Food Changes Receive More Time For Public Airing

The Food and Drug Administration has announced a two-month extension of time for receiving public comments on proposed changes in the Nation's special dietary food regulations. The extension was ordered because of requests which had been received for additional time to study the proposals and prepare written comments for the record. The new deadline is October 18.

In announcing the 60-day extension, FDA said that some of the comments received to date indicate that a number of consumers have been misled about the purpose and contents of the proposals.

FDA said it is *not* true that a prescription would be needed to buy health foods or that "health food" stores would be put out of business; that consumers would be unable to buy natural foods or vitamins from natural sources, or that sellers would be unable to make truthful statements about inherent dietary properties, such as the Vitamin C content of orange juice.

*It also is not true, FDA said, that the proposed change from the present term "minimum daily requirement" to "daily requirement" would put a ceiling on the nutritive value of special dietary foods.* This change was proposed to discourage the addition of needlessly large amounts of vitamins and minerals to food supplements simply as a sales promotion device.

FDA said the proposed changes would prevent consumers from being misled by a listing of ingredients which have no value as food supplements. The changes are also directed at false or misleading labeling which may lead consumers to believe that the average American diet results in ill health and that nutritional supplements are required to prevent or cure this.

The Federal Agency said the proposals are designed to provide the consumer with complete and reliable labeling information which will enable intelligent selection and use of special dietary foods of all kinds.

## FERRAZZANO TRANSFERRED TO PHS MOBILIZATION HEAD

Dr. Gabriel P. Ferrazzano assumed the post of Chief of the Division of Health Mobilization, U. S. Public Health Service, August 1; transferring from the position of Deputy Chief of the Division of Hospitals.

A general surgeon with a distinguished career in both clinical surgery and hospital administration, Ferrazzano has served as Medical Officer in charge of the U. S. PHS Hospital in Chicago; the U. S. PHS Outpatient Clinic in New York City; Assistant Chief of Surgery and later Clinical Director of the U. S. Public Health Hospital in New Orleans; and Chief of Surgery, U. S. Penitentiary Hospital, Atlanta.

He is a Fellow of the American College of Surgeons, a member of the American Medical Association, and the American College of Hospital Administrators.

Dr. Ferrazzano attended elementary and secondary schools in his home state, Rhode Island. Premedical study was taken at Holy Cross, Worcester, Mass.; he received his M.D. degree from Marquette Univer-



sity, Milwaukee. Ferrazzano interned at both Waltham General Hospital, Waltham, Mass., and the U. S. Marine Hospital in Portland, Maine. He took his residency in surgery at the U. S. PHS Hospital, Boston.

Following commissioning as an Assistant Surgeon in the Public Health Service in 1940, he served with the U. S. Coast Guard; was Ward Surgeon at the U. S. Marine Hospital, Boston, and for two and one half years, Chief Medical Officer at the Federal Reformatory, Chillicothe, Ohio.

The father of four children, Dr. Ferrazzano resides at 7603 Newmarket Drive, Bethesda, Md., with his family.

## WATER CONDITIONING IS STILL BOTHERSOME

You don't have to put up with hard water troubles. Because few farmers are lucky enough to have a naturally soft supply of well water, a great deal of scientific effort has been put into solving hard water problems.

Getting rid of milkstone is a typical example. Milkstone is formed by lime deposits in cleaning water combined with milk residue in pails, milkers, and milk-handling equipment. It is not only unsightly, it gives bacteria a place to live and grow, and can seed bacteria into fresh milk day after day.

One way to help eliminate milkstone would be to soften your whole water supply. This could be expensive, if industrial-type water conditioning equipment is needed.

Since water conditioning units are not usually practical, milkstone can be removed with cleaners that combine mild acid action with strong wetting agents capable of penetrating into and under milkstone scale.

There are also cleaners made especially for use in hard water which will help prevent formation of milkstone. They are generally economical in spite of a slightly higher price than ordinary cleaners, because you use far less for a given job than you would with a cleaner not made for hard water.

Cistern water is soft, but it can be dangerous for cleaning because cisterns are excellent places for bacteria to grow. To make cisterns safe, use chlorine-bearing powder to sanitize the water, and make sure the cistern is clean and free from cracks and leaks.

## FAO - WHO Releases Report On Use Of Food Additives

A technical report (No. 228) on the Evaluation of the Toxicity of a Number of Antimicrobials and Antioxidants has just been released by the World Health Organization. This Sixth Report of the Joint FAO/WHO Expert Committee on Food Additives results from a meeting held in Geneva in June 1961. It presents a critical appraisal of the most relevant toxicological literature, references to which have hitherto not been readily accessible in a single source.

The available data have been considered in relation to acute, short-term, and long-term toxicity studies in various species (including man where possible), as well as in relation to biochemical and metabolic findings. Following a summary of properties and uses of each additive, the monographs contain an evaluation in terms of the level causing no significant toxicological effect in the rat, and an estimate of acceptable daily intake for man. In certain instances, the latter is expressed on a conditional as well as unconditional basis. Further investigations are also suggested where desirable. The literature sources on which these appraisals are based are cited.

In addition to the common antimicrobial and antioxidant agents permitted in this country, the report contains monographs on octyl and dodecyl gallates, boric acid and borates, and hexamethylenetetramine. The gallates are considered acceptable interchangeably with propyl gallate. However, the other compounds named, though used in some countries, are not recommended on the basis of present evidence. The difficulties of making judgments when data are inaccessible through publication is illustrated by the doubt expressed by the Committee as to the acceptability of the antioxidant nordihydroguaiaretic acid (NDGA) for which further long-term and metabolic studies are recommended.

This document covers a continuation of the program of the Joint Expert Committee which is scheduled to meet again in Rome next February. There it will consider stabilizers, emulsifying agents, and maturing agents.

### *Second Document On Pesticides*

Another document resulting from joint FAO/WHO effort is entitled Principles Governing Consumer Safety in Relation to Pesticide Residues. Recognizing the indispensibility of pesticides for agriculture, the report considers the controls surrounding their safe use, including the requirements for toxicological



evaluation and for the establishment of residue tolerances. Recommendations are made for future research leading toward more international uniformity in regulatory policies.

These reports may be obtained in the U. S. from the Columbia University Press, International Documents Service, 2960 Broadway, New York 27, New York. The only ones in the food additive series not yet published are the third and fourth, both dealing with Specifications for Identity and Purity of Food Additives, the former covering Antimicrobial Preservatives and Antioxidants, and the latter, Food Colors.

<sup>1</sup>Reprinted from *Food and Drug Research*, August, 1962, No. 31.

## QM Food Institute Releases Storage Study Findings

Results of a "Marathon" study of the storage behavior of rations, conducted by the University of Georgia, for the QM Food and Container Institute, have recently been published by the Quartermaster Food and Container Institute for the Armed Forces.

The study is well supplied with charts and tables, including a nomograph that provides a quick means of predicting shelf life of rations. The purpose of this study was to determine the stability of rations stored for long periods of time, at selected temperatures, and at relative humidities from 90% to ambient. Forty-five different types of foods, including candy and cookies, and their packaging were evaluated.

In general, temperature tolerance was a function of length of storage. Minor packaging failures were revealed during the course of study, and the investigators have offered suggestions for correction in the section devoted to recommendations. This section contains many tips on storage management that derive from the storage tests.

The study has amply verified the value of refrigeration in the storage of combat rations, providing experimental data to prove the point.

### *Confusing But Not Necessarily Amusing*

<sup>1</sup>Following is an editorial which appears in the September 1 issue of *FORBES*, a business magazine, which makes light of the "Fashions in Food," but which may, in its attempt to be amusing, be more predictive of what's happening than many of the straight news reports.

"For generations Americans have been weaned to the words, 'Now drink your milk.' In my youth, as I recall, all that was needed to be an All-American football hero was the consumption of at least a quart of milk with every meal. Milk made the man. In

fact, between doctors and the dairy industry, the cow was rapidly replacing the dog as 'man's best friend.'

"How Now Brown Cow!

"The beasts may still be sacred in India, but the poly-unsaturated old things are no longer safe on Main Street, America.

"Cholesterol's done it.

"I don't quite understand what cholesterol is, but it sounds like a cross between a chigger and fallout. Whatever it is, it seems that cows spread it around disguised as milk and all these generations we've been pumping poison into the kids. No wonder all our forebears are dead!

### **Mealtime Problem**

"It's gotten so I don't even know how to talk to my children at the breakfast table. There were always only two proper things for a proper American father to say to his proper offspring at breakfast anyway: 'Did you brush your teeth?' and 'Drink your milk!' With our morning togetherness mealtime conversation now cut in half, there are long periods of nervous silence, which I'm not sure are any good for one's health either.

"Things weren't much improved the other day when the eight-year-old defended his negative to my 'Did you brush your teeth?': 'There's chloroform in the water now and this fills in the cavities so you don't need toothbrushes anymore.' The ten-year-old said the eight-year-old meant chlorophyll. Somebody else said it was cholesterol, and my wife said that if cholesterol was now in both milk and water, we were going to have a very high liquor bill if we had to start pouring scotch for everyone at the breakfast table.

"My oldest son, who reads, said it was fluorine in the water and that it prevented cavities instead of filling them, but that some cities voted down flouridation because too much of it was also fatal.

"I have found the only way a parent can win an argument with children is to lose his temper and be arbitrary so I ordered the non-toothbrusher to go do it.

"Tell him, Pop, that if he doesn't you'll kill him by making him drink his milk,' suggested his gleeful sister.

"The whole thing may seem udderly ridiculous, but, you know, it is a food fashion shift involving billions of dollars.

**"Investors take note!"**

<sup>1</sup>Reprinted in part from *American Dairy Assn's. "For Your Information,"* September 5, 1962.

A PROVERB: The best farmer is not the one who has no problems, but the one who learns to solve his problems.



# Four IAMFS Affiliates Hold Meetings

Connecticut, Georgia, South Carolina and Wisconsin, affiliates of IAMFS, held their annual meetings during the past summer months. There was an estimated combined attendance of over 1000 members and guests at the meetings.

## CONNECTICUT

The Connecticut Dairy and Food Sanitarians held their Annual Outing at Restland Farms, Northford, Conn., Aug. 29, 1962. Prior to the outing, on August 28, the officers of the Connecticut Association held their Interstate Conference with representatives of the New York and Rhode Island Association.

Representatives were (Conn.) President, John J. Egan, Vice-Pres., Arnold C. Smith, Secretary, R. M. Parry, Treasurer, Curtis W. Chaffee, Asst. Treasurer, R. F. Anderson; Board of Governors—Herbert Messenger, Oscar Johnson, Herbert M. Ewell, Eric Mood, Edmund G. Beach, Albert Pernise, W. W. Buckingham, "Cliff" Goslee, former Secretary; (New York) President, Wade Alexander; (Rhode Island) Secretary-Treasurer, Sidney Shepard and (IAMFS) H. L. Thomasson, Executive Secretary.

A very beneficial discussion was held, particularly on (1) change of the name of IAMS to include Environmental Sanitarians, (2) development of another Sanitarian Award limited to Federal and state sanitarians since the present award is granted to local sanitarians only, (3) possibilities of publishing particularly outstanding work of affiliate committees which would be of interest to other affiliates.

The final event of the day was a fine banquet at which prizes were awarded to winners of the various sports. Special recognition awards were also presented. Over 500 were in attendance.

## GEORGIA

A change in name, from Georgia Society of Sanitarians to the Georgia Society of Registered Professional Sanitarians, Affiliate of IAMFS, highlighted Georgia's Annual Conference held on August 22-23-24.

According to Mr. John J. Sheuring, Sec.-Treas., a large crowd attended the highly successful annual meeting at Jekyll Island, Georgia. Thorough discussions of topics relating to many phases of sanitation contributed in no small degree to the success of the meeting. Discussions held ranged from Public Relations to detection and control of psychrophilic organisms in raw milk to hospital sanitation.

Dr. Robert Wheeler of the University of Georgia was the guest speaker at the banquet held in the Sky Room of the Wanderer Motel. His address was followed by the presentation of the Outstanding Sanitarian Award by Dr. J. H. Venable, Director, Georgia Department of Public Health.

## SOUTH CAROLINA

"Tell Me Another Truth" was the topic of the address given by Mr. Alfred R. Kenny, Chief of U. S. PHS Training Center, Atlanta, Ga., to the members of the South Carolina Association of Sanitarians, Inc., June 8, at their Annual Meeting at Myrtle Beach, South Carolina.

Kenny's talk was directed to the problems of communication, the telling of the truth and its consequences (bitter *and* sweet), and usage of terms and an understandable vocabulary. Speakers on the subject of waste disposal (including septic tanks and lagoons) were also present.

Eighty members and twenty-five guests attended the meeting held at the Ocean Forest Hotel. Officers and directors to serve from July 1, 1962, to June 30, 1963 were elected.

## WISCONSIN

Lake Delton, Wisconsin was the scene of the Eighteenth Annual Meeting of the Wisconsin Association of Milk and Food Sanitarians. A round of golf and an informal get-together kicked off the two day meet on the afternoon of September 10.

A full day of discussion on such timely topics as "Radioactivity and Milk," "Uniformity of Labeling," and "Do Present Quality Tests Tell the Story?" was held on Tuesday, September 11. A panel discussion concerning the selling of milk on the basis of protein content was presented by representatives of the Golden Guernsey Dairy Co-op and the University of Wisconsin. The representatives were Mr. Gavin McKerrow of Golden Guernsey and Doctors William C. Winder and James Crowley of the University of Wisconsin.

The "Sanitarian of the Year" award was presented at the noon luncheon on September 11, which was followed by a general business meeting.

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## Farmers' Homemade Tools Can Do The Job As Well

Farmers are among the world's best inventors. Walk through a farm lot anywhere in the country and you'll more than likely see something homemade, doing an important job that no commercially-manufactured product could do better.

A classic example is on an Amish farm near Lancaster, Pennsylvania. Here, a water wheel 200



yards from the house and farm buildings is harnessed by a system of overhead wires to run a churn, a washing machine and a water pump.

In Indiana, an enterprising farmer is already doing something that is not supposed to come until the next century —i.e. putting in his crop with just one pass over the field. A tank mounted on a tractor puts down liquid fertilizer ahead of a gang plow, and an offset drawbar pulls a corn planter.

People in other walks of life can also take lessons from the farmer in finding different ways to use the same things and products. For 30 years, farmers have been using chlorine-bearing powder for everything from purifying drinking water to sanitizing and disinfecting entire barns.

Before the era of milking machines, farmers used chlorine-bearing powder to sanitize pails, separators and cows' udders. Now it is used for sanitizing milking machines, milk-cooling tanks, pipelines, and other milk handling equipment.

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#### **TUBING AIMED AT EASY HANDLING**

An Akron firm has announced the availability of a new Transflow tank truck tubing. The new tubing is designed for increased resistance to scuffing and scratching and for easier handling.

Designated "Ribbed Transflow M-34R," the tubing is of the same FDA-approved composition as its forerunner, Transflow M-34R tubing. However, its design represents a new concept: eighteen ribs running along the tubing's length which are distributed around its circumference, acting as supports to protect the outer wall from scratches and cuts caused by dragging the tubing over concrete or other abrasive surfaces.

The longitudinal ribs of the new tubing allow the operator to obtain a firmer grip on the tubing in wet or icy weather, as well as adding strength to the wall; thus, helping to prevent vacuum collapse.

Complete information on "Ribbed Transflow Tubing" will be sent upon request to Dairy and Food Products, Chamberlain Engineering Corp., Box 1187, Akron 9, Ohio.

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## **Available Soon — 10 Year Index To Journal of Milk & Food Technology**

### **VETERAN CHEMIST RETIRES**

After 40 years of research on dairy products, Dr. George R. Greenbank, a U. S. Department of Agriculture chemist, has retired.

Dr. Greenbank, recipient of the Borden Award in the Chemistry of Milk, who has lived to see many of his original ideas on dairy processing adopted by the industry, worked in Washington, D. C., at the Dairy Products Laboratory of the Agricultural Research Service's Eastern Utilization Research and Development Division.

As a result of his research, it was established that dried milk for use in baking could be improved for this purpose and could be given greater storage stability by heat treatment, homogenization, and clarification. Other research of Dr. Greenbank's has contributed new knowledge about phosphatides and enzymes.

A native of Woodsfield, Ohio, Dr. Greenbank is a graduate of Ohio State University. After doing graduate work at Ohio State, Johns Hopkins University, and MIT, he received his Ph.D. degree from American University in 1930.

Doctor and Mrs. Greenbank will reside at their Arlington, Va. home.

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### **Institute Of Environmental Science**

**To Meet On April 17 At L. A.**

The 1963 Institute of Environmental Sciences Technical Meeting and Equipment Exposition will be held in Los Angeles, California, on April 17, 18 and 19, 1963, at the Statler Hilton Hotel.

This symposium will provide a meeting ground for presentation and receipt of information on the latest advancements in earth and space environments. Shock, vibration, high temperature, weightlessness, radiation, vacuum, education and management will be discussed. Selected papers will be presented at panels on new methods and applications in many environmental fields.

The theme of the meeting is "Bridging The Gap" between an understanding of the physics and the engineering applications.

The deadline dates are: Abstracts by November 1, 1962, and Final Format by January 15, 1963. All inquiries to be directed to the Technical Program Chairman, Mr. W. A. Gardner, Org. 7300, Sandia Corporation, Albuquerque, New Mexico.



## Letter To The Editor

10 Meadow Street  
Garden City, N. Y.  
August 10, 1962

Mr. H. L. Thomasson  
Executive Secretary  
International Association of  
Milk and Food Sanitarians  
Box 437  
Shelbyville, Indiana

Dear Red:

That time has come when a main job comes to an end and time seems to become available for a host of other side-line activities. I retired July 1 from seventeen years as Director of Sanitation for National Biscuit Company. Since then, I've had my first real vacation in about fifty years. My wife and I will be making a trip to Europe in September and October and I'm looking forward to it with much pleasure as it will be uncomplicated with company business.

So it is now appropriate to change my mailing address to the above. As to the Journal, I must compliment you and the others concerned for the steady progress it is making, both in form and content. I hope it will work out that you may be able to institute perhaps shorter and more editorial comments on what goes on in the field as it always seems to me that such a professional publication should be as vocal as possible on behalf of its field and membership.

With all good wishes.

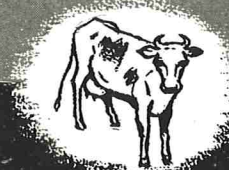
Sincerely,  
/s/ Lloyd  
J. Lloyd Barron

## Dr. John C. Wilk Joins Kentucky U. Dairy Staff

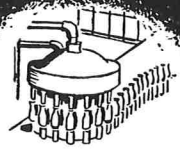
Dr. John C. Wilk, former instructor at the University of Minnesota, has joined the staff of the Department of Dairy Science of the University of Kentucky. He will be an extension specialist for 4-H dairy projects and breed improvement.

A native of Clearwater, Kansas, Dr. Wilk was raised on his family's farm and for nine years was either a member or leader in 4-H Club work. After receiving a Bachelor of Science degree from Kansas State University in 1951, he operated a dairy farm for three years, served in the U. S. Marine Corps

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for two years, and was with the American Jersey Cattle Club at Columbus, Ohio, for two years. Since 1958, he has been with the University of Minnesota where he received his M.S. and Ph.D. degrees in the field of dairy breeding. He is a member of Alpha Zeta and Gamma Sigma Delta.

The position Dr. Wilk will assume at Kentucky is that previously held by Mr. Garland Bastin who was recently advanced to district supervisor of county agents.

## P. Edward Riley Dies At 62 After 25 Years Of Service

Mr. P. Edward Riley, 62, Milk Sanitarian in the employ of the Illinois Department of Public Health for the past 25 years, died Sunday, August 12, 1962, at the Edgewater Hospital, Evanston, Illinois.

Mr. Riley was a native of Chicago. He received his degree in Dairy Science from the University of Wisconsin in 1922. After graduation, he was employed by the Forest Glen Creamery Company, operated by his father in Chicago. The dairy was sold in 1929, and Mr. Riley joined Frank Bobrytzke and Company, where he was employed until he began his career with the Illinois Department of Public Health in 1937. At the time of his death, he had completed 25 years of continuous service in the State Health Department, and was actively engaged in milk sanitation survey activities.

Pete Riley, as he was affectionately known to his friends, was Secretary-Treasurer of the Associated Illinois Milk Sanitarians for many years. He served as official delegate for the Illinois affiliate to the Annual Meeting of the International Association of Milk and Food Sanitarians, and participated actively on many committees of the national organization. Mr. Riley was also a member of other organizations in the Public Health field, including the Illinois Public Health Association.

His friends in both the dairy industry and the field of Public Health will always admire him for his firm convictions on the fundamental principles of Public Health, his unwavering loyalty to his friends, and his fearless approach to the tasks assigned.

Mr. Riley is survived by his wife, Alice, a daughter, Mrs. Patricia Anne Severin, and two grandchildren.



## Dairy Conference To Be Held On Kentucky Campus

Representatives of several universities, of industry, and of government will be featured on the staff of the Annual Dairy Manufacturing Conference of the University of Kentucky.

The conference, sponsored jointly by the Dairy Products Association of Kentucky and the University's Department of Dairy Science, will be held November 19 and 20, 1962. The meeting place will be on the University campus at Lexington.

The two day program has been streamlined to include meetings on all products in major production in the state. Included will be a chocolate ice cream clinic and a cottage cheese clinic led by outstanding experts in the field.

For further information contact Dr. A. W. Rudnick, Jr., Department of Dairy Science, University of Kentucky, Lexington, Kentucky.

## Schedule Is Set For Dairy Show

The 23rd Dairy Industries Exposition, which occurs in Convention Hall, Atlantic City, New Jersey, October 28 through November 2, will be open during the following hours:

Sunday, October 28	.....1 p.m. - 5 p.m.
Monday, October 29	.....Noon - 6 p.m.
Tuesday, October 30	.....9 a.m. - 6 p.m.
Wednesday, October 31	.....9 a.m. - 6 p.m.
Thursday, November 1	.....Noon - 6 p.m.
Friday, November 2	.....9 a.m. - 6 p.m.

Admission to the Exposition is limited to those persons with a direct vocational interest in the dairy and food industries. The general public is not admitted.

All dairy processors, educators, students, public health officials, representatives of government and military agencies, and editorial personnel of all media will be admitted free. Admission fees will be charged to manufacturers or sellers of supplies, equipment and services competitive with those on display at the Exposition.

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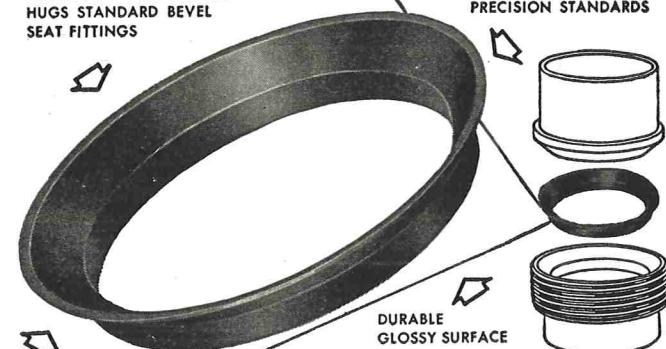
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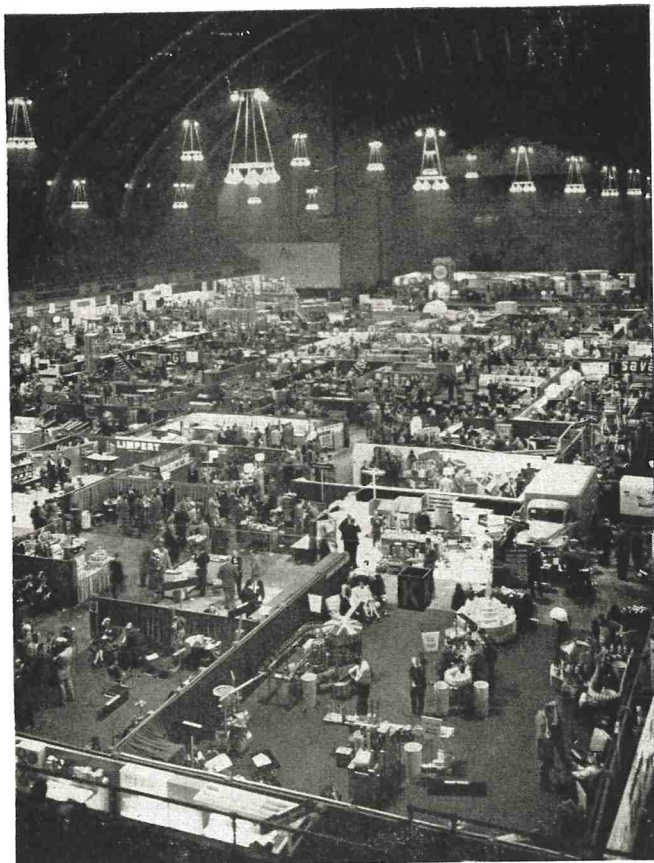
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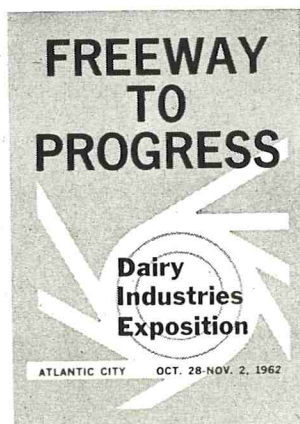
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*A scene from the last Dairy Industries Exposition in Atlantic City.*

**This . . .** is where the Freeway to Progress begins! Atlantic City's mammoth Convention Hall, where the Dairy Industries Exposition will open on Sunday, October 28 and run through Friday, November 2, 1962. 350 displays of every item of equipment, every supply, every service needed for Today's—and Tomorrow's—dairy industries. If you're in the dairy industries, you *belong* in Atlantic City during the week of the Exposition and nine concurrent conventions! *Be sure you're there.*



*For a booklet describing the Show, write the Exposition's sponsor:*

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### **NEW PAMPHLET IS PUBLISHED ON SEAMLESS ALUMINUM PIPE**

Recently a new technical brochure reviewing titanium seamless pipe and tube has been published. Contents include weight per foot charts for tube, rod, and pipe; standard manufacturing limits for tube and pipe; conversion factors; standard tolerances for titanium tubing; specifications and characteristics of titanium alloys; and a comprehensive corrosion data chart for the metal.

The booklet also discusses the manufacturer's capabilities as a producer from sponge to finished product and lists applications for titanium tube, pipe, and other mill products. The report is of special interest to works managers, process engineers, product designers, research and development engineers, chemists and metallurgists, and purchasing agents in industries such as petrochemical, chemical, power, anodizing and plating, marine, food processing, pulp and paper, missiles, jet aircraft, ordnance, and generally wherever corrosion problems exist.

Copies of the brochure on titanium seamless pipe and tube can be obtained free by writing Harvey Aluminum, 19200 S. Western Ave., Torrance, California.

## **Illinois Milk & VPH Chief, Dr. Davenport, Passes Away**

Dr. L. R. Davenport, 58, Chief of the Division of Milk Control and Veterinary Public Health for the past seven years, died August 16, 1962 at Springfield, Illinois.

Dr. Davenport was born at What Cheer, Iowa. He received his Doctorate of Veterinary Medicine at Michigan State University in 1943, and his Master of Public Health degree in 1955 from the University of California, Berkeley.

From 1946 to 1948, Dr. Davenport was Assistant Superintendent of the Division of Livestock Industry, Illinois Department of Agriculture, and joined the Illinois Department of Public Health May 1, 1948. He was a past president of the Illinois Public Health Association, and a member of the American Board of Veterinary Public Health. He was associated with the newly developed Zoonoses Research Center at the University of Illinois, and active on the National Mastitis Council.



## FDA EXPRESSES ATTITUDE ON INSPECTION OF FACTORIES

If anyone in the food industry was nursing a hope that the Food and Drug Administration might be receptive to limiting its requested increased factory inspection authority to drugs, this was pretty effectively blasted in FDA's comments on testimony on the bill sent to the House Interstate Commerce Committee last week.

The following excerpts from these comments make the point.

"The potentiality for serious harm from food is significant and is increasing as food technology becomes more complex and more chemicals are used in food processing . . .

"The Pesticide Chemicals and Food Additives Amendments allow poisons to be present in the food supply in small amounts that have been proven safe by adequate scientific procedures. This permits the public to receive the benefits of modern technology. But a necessary precaution is authority for the Government to make complete inspections in factories to determine that the poisonous materials are being added in safe amounts.

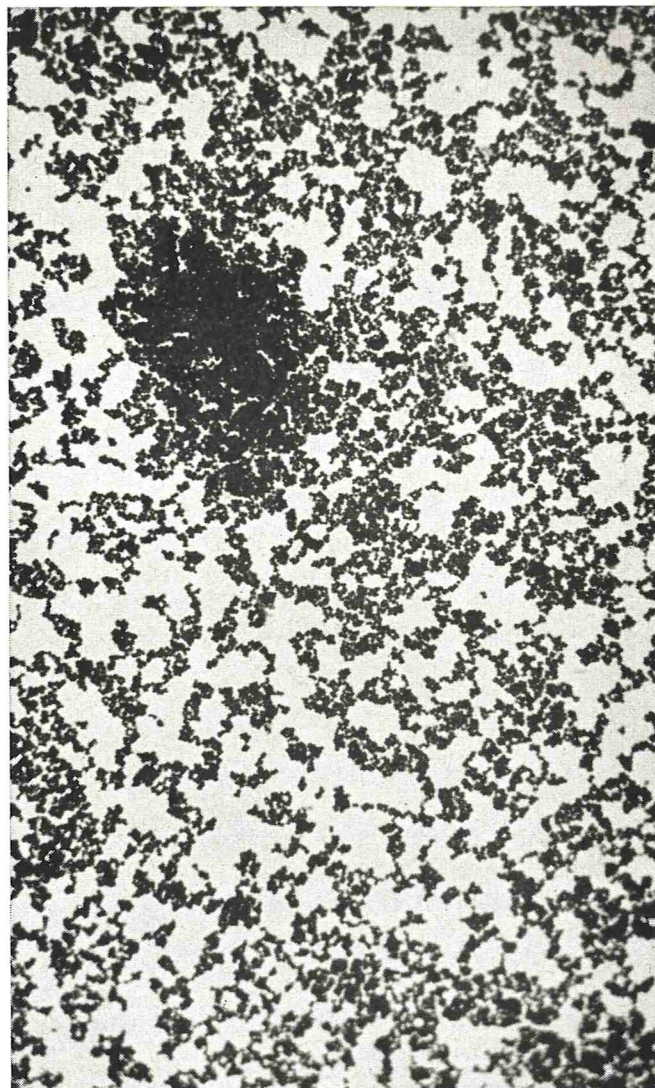
"In past years we have had to take actions against food containing non-permitted poisons. For example, a number of foods contained monochloroacetic acid; oranges and frozen peaches contained thiourea. The first evidence that these poisons were being used came from factory inspection and then our chemists developed analytical procedures enabling us to detect the poisons without factory inspection evidence. But without the initial evidence, we would not have known what chemicals to develop analytical methods for. Further the development of an analytical method suitable for enforcement purposes may be a separate research job for each food in which the chemical is found. It is not possible to obtain adequate protection solely on the basis of the examination of interstate shipments."

<sup>1</sup>Reprinted from "Dairy Industry Newsletter" Volume VIII No. 10.

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at the

**Annual Meeting**



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### CALENDAR OF MEETINGS

1962

- Oct. 2-3—Minnesota Creamery Operators' and Managers' Association, Annual Convention and Business Sessions, Hotel Lowry, St. Paul, Minnesota. Administrative Officer, Floyd Thompson, 416 New York Building, St. Paul 1, Minnesota.
- Oct. 8—California Association Milk and Food Sanitarians, Annual Meeting, Charter House Hotel, Anaheim, Calif. Administrative Officer, Leland Lockhart, Room 7013, 1078 Broadway, Los Angeles 12, Calif.
- October 8-12—12th Annual Instrument Symposium and Research Equipment Exhibit, National Institutes of Health, Bethesda 14, Maryland. Administrative Officer, James B. Davis, National Institutes of Health, Bethesda 14, Maryland.
- Oct. 9-10—ADA of North Dakota and North Dakota Dairy Industries Ass'n., Joint Annual Meeting, Gardner Hotel, Fargo, N. D. Administrative Officer, Vernon L. Pepple, 819 Avenue B. West, Bismarck, N. D.
- Oct. 10-11—Vermont Dairy Industry Association, Annual Meeting and Educational Conference, University of Vermont, Burlington, Vt. Administrative Officer, Henry V. Atherton, Dairy Bldg., Burlington, Vt.
- Oct. 10-11—Washington State Dairy Foundation, Statewide Convention, Chinook Hotel, Yakima, Wash. Administrative Officer, Robert J. Keyser, 550 Skinner Bldg., Seattle 1, Wash.
- Oct. 11—Dairymen's League Coop. Assn., Inc., Annual Meeting, Onondaga War Memorial, Syracuse, N. Y. (Headquarters — Hotel Syracuse, Syracuse, N. Y.) Administrative Officer, Glenn Talbott, Pres., Hume, New York.
- Oct. 13-16—National Automatic Merchandising Association, Brooks Hall, San Francisco, Calif.
- Oct. 19-20—Iowa Creameries Association, Iowa Milk Producers Federation, Iowa Milk Driers Ass'n., State Convention, Hotel Roosevelt, Cedar Rapids, Iowa. Administrative Officer, Arthur Kirchoff, P. O. Box 377, Ames, Iowa.
- Oct. 21-24—National Association of Food Chains, Annual Convention, Denver Hilton & Brown Palace Hotels, Denver, Colo. Administrative Officer, Clarence Adamy, 1725 Eye Street, N. W., Washington 6, D. C.
- Oct. 24-27—International Association of Milk and Food Sanitarians, Inc. Annual Meeting, Ben Franklin Hotel, Philadelphia, Pennsylvania. Administrative Officer, H. L. Thomasson, P. O. Box 437, Shelbyville, Indiana.
- Oct. 28—Dairy Society International, Annual Meeting, Atlantic City, New Jersey. Administrative Officer, George W. Weigold, 1145 - 19th Street, N. W., Washington, D. C.
- Oct. 28-Nov. 2—Dairy Exposition, Atlantic City, New Jersey. Administrative Officer, Joseph Cunningham, Dairy Industry Supply Association, 1145 - 19th St. N. W., Washington, D. C.
- Oct. 29-31—National Association of Retail Ice Cream Mfgs., Inc., Annual National Convention, Hotel Haddon Hall, Atlantic City, N. J. Administrative Officer, E. M. Warder, 2223 Detroit Ave., Toledo 6, Ohio.
- Oct. 29-31—Milk Industry Foundation, Annual Convention, Dennis Hotel, Atlantic City, N. J. Administrative Officer, E. L. Peterson, 1145 19th St., N. W. Washington 6, D. C.
- Oct. 31—Evaporated Milk Ass'n., Industry Meeting, Atlantic City, N. J. Administrative Officer, E. H. Parfitt, 223 N. LaSalle St., Chicago 1, Ill.
- Oct. 31-Nov. 2—International Association of Ice Cream Mfgs., Annual Convention, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J. Administrative Officer, Robert H. North, 1105 Barr Building, Washington 6, D. C.
- Nov. 7-8—Wisconsin Cheese Makers' Association, 71st Annual Meeting and 1962 Worlds Championship Cheddar Contest, Northland Hotel, Green Bay, Wisc. Administrative Officer, Joseph J. Bauer, 115 W. Main St., Madison 3, Wisc.
- Nov. 8-9—National Creameries Association, Annual Convention, Hotel Lowry, St. Paul, Minnesota. Administrative Officer, Otie M. Reed, 1107 - 19th St. N. W., Washington 6, D. C.



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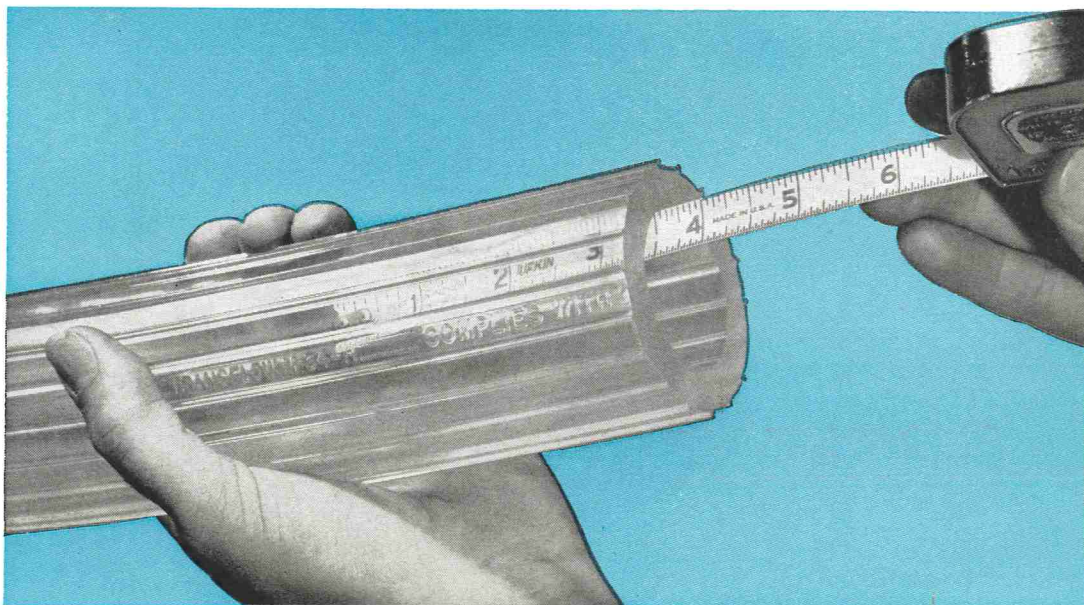
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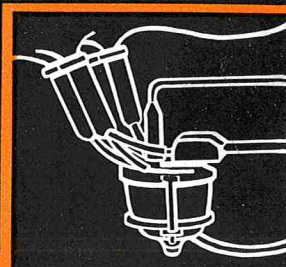
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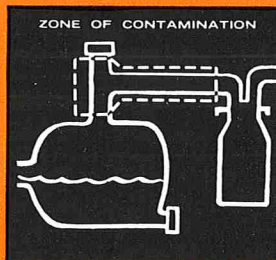
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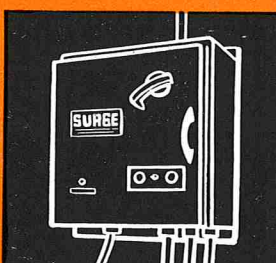
The **SURGE** washes the zone of contamination . . . a critical area that other systems miss.



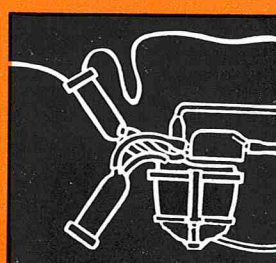
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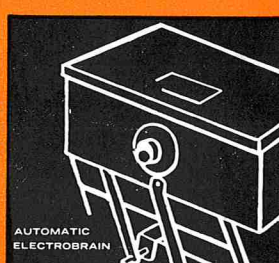
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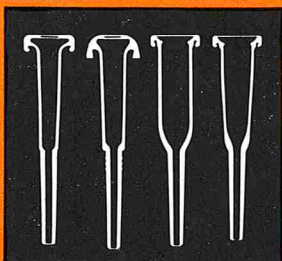
The **SURGE** lets you drop teat cups when individual quarters are milked out . . . eliminating a major cause of mastitis.



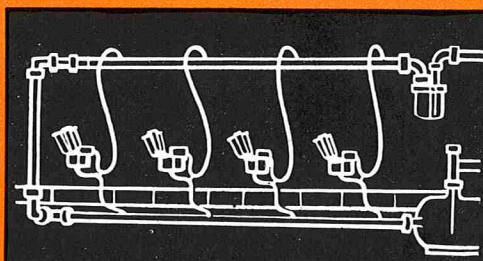
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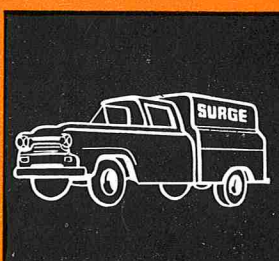
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