

VOLUME 20

No. 1

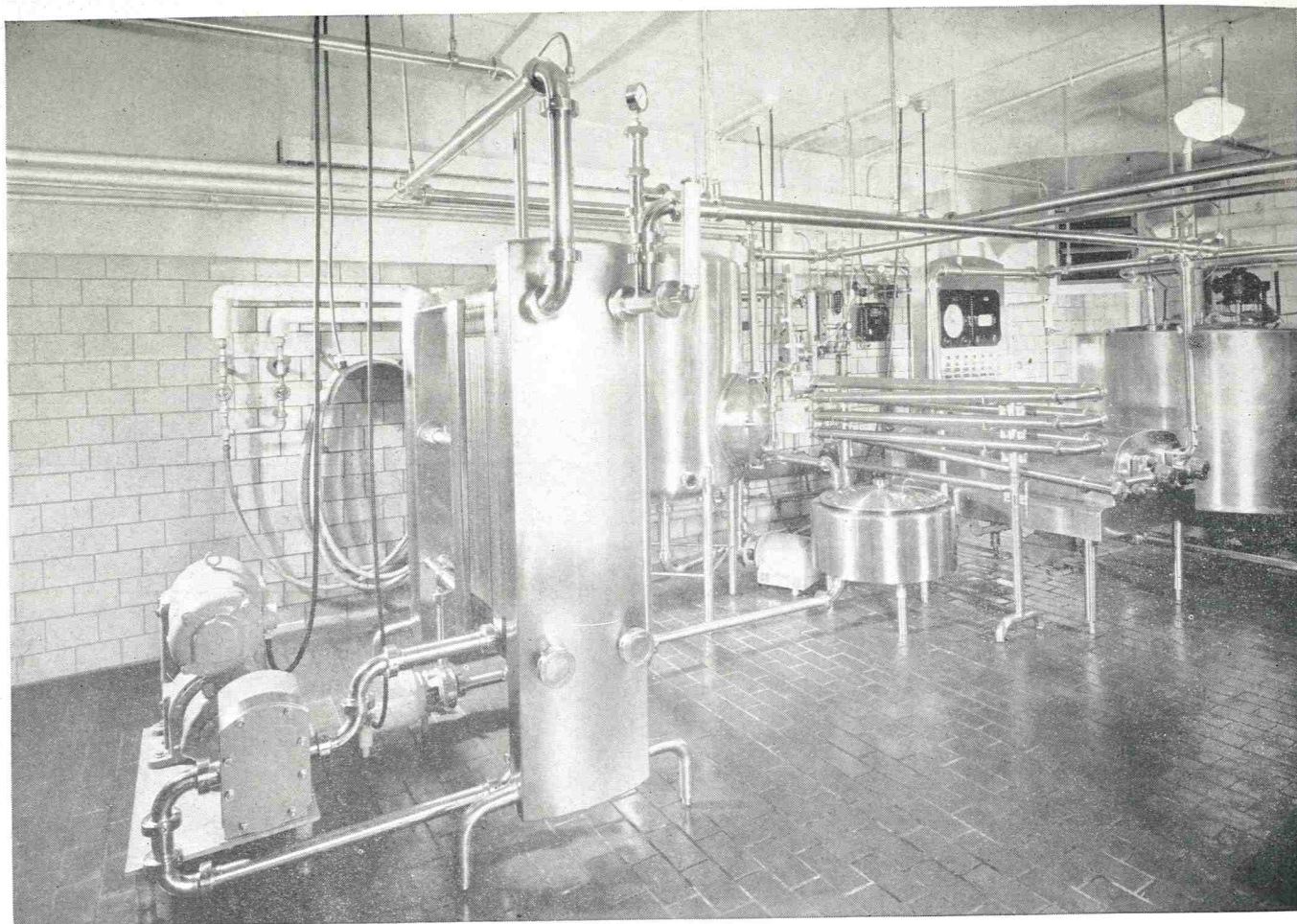
JANUARY, 1957

Journal of

MILK and FOOD TECHNOLOGY

Official Publication

International Association of Milk and Food Sanitarians, Inc.



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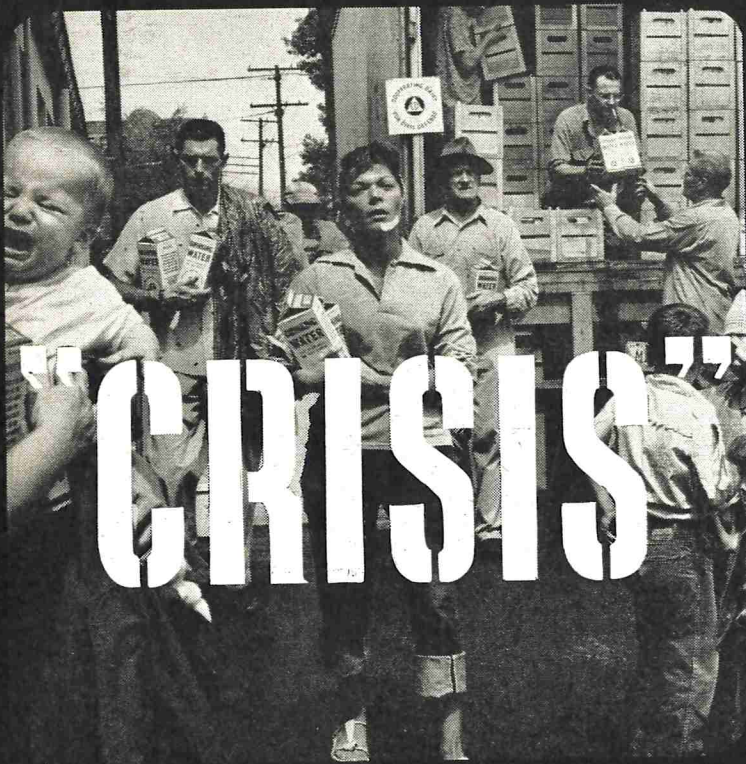


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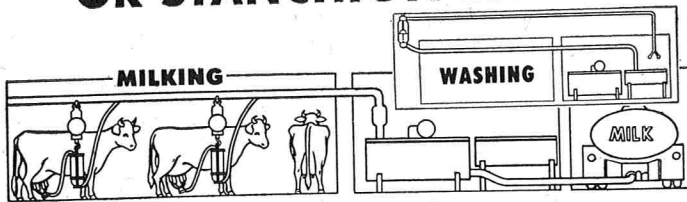
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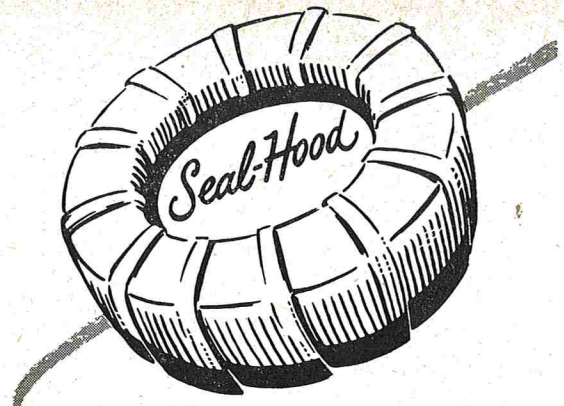
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INCLUDING MILK AND FOOD SANITATION

Official Publication

International Association of Milk and Food Sanitarians, Inc.

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Vol. 20 January No. 1

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Business Matters: Correspondence regarding business matters, advertising, subscriptions, orders for single copies, etc, should be addressed to H. L. Thomasson (address above).

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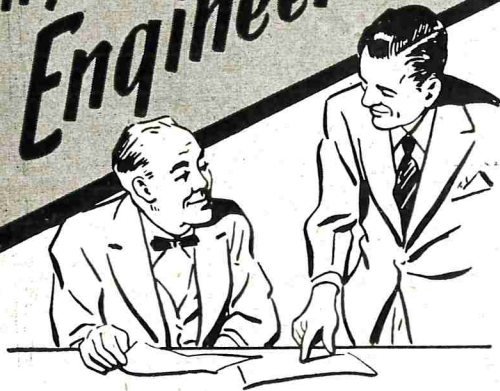
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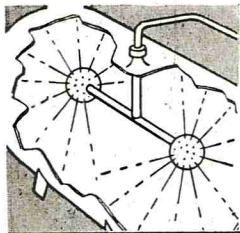
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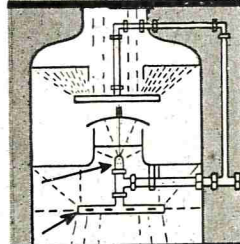


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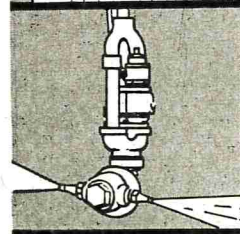
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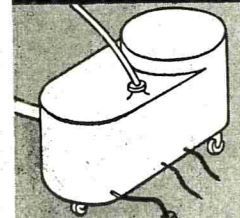
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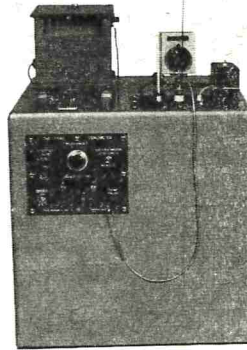
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ANNOUNCEMENT CONCERNING THE SANITARIANS AWARD FOR 1957

Announcement is made that nominations will be accepted for the annual Sanitarians Award until May 1, 1957 and the members of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., are requested to give consideration to the nomination of individuals whose professional work in the field of milk and food sanitation in their communities has been outstanding.

The award consists of a Certificate of Citation and \$1,000 in cash, and is sponsored jointly by the Diversey Corporation, Klenzade Products, Inc., Oakite Products, Inc., Pennsylvania Salt Manufacturing Company, and the Olin Mathieson Chemical Corporation. It is administered by the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., and is presented annually. The next presentation will be made at the 44th annual meeting of the ASSOCIATION which is to be held at Louisville, Kentucky, in October 1957. The Sanitarians Award was initiated in 1952, and was presented in 1956 to Jack Fritz, Chief of the Milk and Food Section of the Kansas City Board of Health, Kansas City, Missouri.

The Executive Board of the ASSOCIATION has established the following rules and procedures governing the Sanitarians Award.

Eligibility

The rules concerning eligibility of candidates for nomination are:

- (1) Any living citizen of the United States or Canada who, at the time of nomination, is employed as a professional milk and food sanitarian, or both, by a county or municipality, is eligible for the Award, except members of the Executive Board and members of the Committee on Recognition and Awards of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., Employees of State or Federal agencies and of industry are not eligible for the Award. Membership in the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., is not a prerequisite of eligibility; and there are no restrictions as to race, sex, or age.
- (2) A candidate shall have made a meritorious contribution in the field of milk and food sanitation to the public health and welfare of a county or municipality within the United States or Canada.
- (3) The achievements and contributions on which the Award is to be based, must have been completed during the five-year period immediately preceding January 1 of the year during which the Award is to be made. Under special circumstances, consideration will be given to related work accomplished by the can-

didate during the seven-year period preceding January 1 of the year during which the Award is to be made. Under this rule, the principal work to be considered for the 1957 Award must have been performed during the period January 1, 1952 to January 1, 1957, and the related work during the period January 1, 1950 to January 1, 1957.

(4) Co-workers are eligible for nomination if both have contributed equally to the work upon which the nomination is based.

(5) No person who has once received the Award shall be eligible for nomination.

Nominations

Nominations of candidates for the Sanitarians Award may be submitted by the Affiliate Associations of the IAMFS, or by any member of the ASSOCIATION in good standing except members of the Executive Board, members of the Committee on Recognition and Awards, and employees of the sponsoring companies. Nominations from persons who are not members of the ASSOCIATION cannot be accepted. No member or Affiliate may nominate more than one candidate in any given year.

Each nomination must be accompanied by factual information concerning the candidate, a resume of his work and achievements, evidence supporting his achievements and, if available, reprints of publications. A form for the submission of nominations may be obtained upon request from I. E. Parkin, Room 213 Dairy Bldg., Penna. State University, University Park, Penna., or H. L. Thomasson, Executive Secretary, INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., P. O. Box 437, Shelbyville, Indiana.

Deadline for submission of nominations

The deadline for submission of nominations is May 1, 1957, and all nominations and supporting evidence must be postmarked prior to midnight of that date.

Selection of the recipient

The Committee on Recognition and Awards of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., has full responsibility for selecting from among the candidates nominated the recipient of the Sanitarians Award. In judging the contributions of each candidate, the Committee will give special consideration to (a) originality of thought, mode of planning, and techniques employed, (b) the comprehensive nature of the candidate's achievements, and (c) their relative value as they affect the health and welfare of the candidate's community. The Committee will give consideration also to the efforts of the candidate to establish professional recognition in the community in which he serves, as well as to his re-

search and development, administrative, and educational achievements. Additional information or verification of submitted information will be requested when considered necessary by the Committee. Testimonial letters in behalf of a candidate are not desired.

If, after reviewing the nominations and supporting evidence, the Committee should decide that the work and achievements of none of the candidates have been significantly outstanding, the Award shall not be made. In this connection, it is fundamental that if meritorious professional achievement cannot be discerned the Award shall be omitted for a given year, rather than to lower the standards for selection of a recipient.

The 1957 Committee on Recognition and Awards consists of I. E. Parkin, *Chairman*, University Park, Pennsylvania; H. S. Adams, Indianapolis, Indiana; C. G. Leonard, Columbia, South Carolina; Richard M. Parry, Warrick, Rhode Island, Wm. V. Hickey, Salt Lake City, Utah, John H. McCutchen, Jefferson City, Missouri.

ANNOUNCEMENT CONCERNING THE CITATION AWARD

The International Association of Milk and Food Sanitarians, Inc., has had established since 1952 a Citation Award that is designed to bestow well deserved recognition upon members of this Association who through long and distinguished service have contributed greatly to the professional advancement, growth and reputation of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC.

As to the rules of eligibility the recipient must be a member in good standing of INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC.

Any member of our ASSOCIATION or an Affiliate Association can nominate an individual for the Citation Award.

Such Nomination must be accompanied by supporting evidence of the individual's past contributions and services to the ASSOCIATION. Nominations for the 1957 Citation Award should be sent to I. E. Parkin, Room 213 Dairy Building, Penna. State University, University Park, Pennsylvania, or to H. L. Thomasson, Executive Secretary, INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., P. O. Box 437, Shelbyville, Indiana, not later than April 15, 1957.

Selection of the recipient of the Citation Award will be made by the Committee on Recognition and Awards.

SOMETHING NEW HAS BEEN ADDED

When sanitarians want answers to problems they usually ask others who have been faced with similar problems. The best time and place to do this is at the meetings of their state associations, or at the annual meeting of the INTERNATIONAL, which now has more than 4,300 members. However, not all the members can get to the annual meetings of the state or INTERNATIONAL Associations and yet they have questions they want answered. The Executive Board of INTERNATIONAL took action on this by creating a committee whose primary function is to serve the man in the field.

The Committee on Research Needs and Application is composed of the following eleven men: C. K. Johns, L. C. Peckham, K. G. Weckel, W. C. Lawton, F. C. Baselt, W. Litsky, W. K. Moseley, H. J. Barnum, J. E. Guinn, H. Froiland and S. H. Hopper, *Chairman*. This group will serve as a clearing house for new ideas and as a panel of experts who are requesting questions and proposals from membership. They are guided by a spirit of fellowship, sincerity, and willingness to help and be helped. An attitude of mutual assistance is in the background of all decisions.

Do you have any technical problems?

Write the undersigned a postcard with your question and your name and address. We will find an answer, if there is one, and publish your question and answer on a special page in the *Journal of Milk and Food Technology*. The Committee will be just as useful as you want to make it. Use it. It represents the considered opinion of the expert in the fields of milk and food sanitation. If the committee doesn't have the answer, they will go to the research scientists and try to get it.

Do you have any suggestions about a name for this page? The title, "Questions and Answers", seems kind of dull. Send us your ideas. You do not need any milk caps, box tops, or money, only a two cent postcard.

Write to:

Department of Public Health
Indiana University Medical Center
Indianapolis 7, Indiana

Take time to review those problems that have been puzzling you and on which you need information. Be brief and to the point since space in the *Journal* is valuable. We are looking forward to hearing from you.

THE PERFORMANCE OF A DETERGENT-SANITIZER FOR MILK UTENSIL SANITATION IN UNSUPERVISED FIELD TESTS^{1 2}

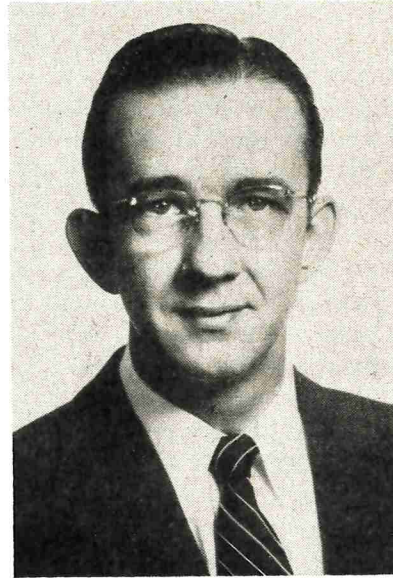
M. L. SPECK AND H. L. LUCAS

*Departments of Animal Industry and Experimental Statistics
North Carolina State College, Raleigh*

In a field study covering 15-16 months and which involved 155 Grade A milk producers in three widely separated areas, a detergent-sanitizer was compared with customary methods of milk utensil sanitation. No supervision was made of the producers other than that normally given by the sanitarian and fieldman. Bacterial counts, thermoturic and total, tended to be lower in the milk from producers using the detergent-sanitizer sanitization procedure. Milking utensils appeared cleaner and milk-stone deposits were absent from the utensils of those producers who used the detergent-sanitizer method. Since this study covered an extended period of time with only normal supervision of the producers, the detergent-sanitizer method appears to be one that can be used routinely over an indefinite period of time with entirely satisfactory results.

The main purpose in conducting a field experiment with a product, such as a detergent-sanitizer, is to determine the performance of the test material with normal usage. Such an evaluation procedure is intended to subject a product to its most critical test. There is one factor in field trials which may deserve consideration regarding its impact on the performance of the product; this factor is supervision. It is natural that a dairyman should feel certain pressures during a controlled field trial which otherwise would not exist. These pressures would arise from: (a) the performance of a task in a manner different from the usual one; (b) the supervision naturally resulting from the interest of the sanitarian, fieldman, and others concerned with the study; (c) knowledge by the dairyman that his milk was being tested more frequently than usual. There is, therefore, some possibility that a product might perform better under these circumstances than it would if the dairyman, after receiving complete instructions on the procedure for its effective use, were allowed to use it with no more supervision than that normally given by the sanitarian and fieldman.

Speck *et al.* (3) reported on a field trial study of a detergent sanitizer used for sanitization of producer milking utensils. In this study two comparable groups of producers were placed on a double-reversal trial which covered a period of about 4 months. The re-



Marvin L. Speck was educated at the University of Maryland and Cornell University. He was bacteriologist at Western Maryland Dairy, Baltimore 1935-36; instructor in bacteriology at the University of Maryland, 1940-41; and assistant chief bacteriologist with National Dairy Research Laboratories, 1941-47. He also has held temporary appointments as bacteriologist in the Dairy Research Laboratories, U. S. D. A., 1936, and with the Dairymen's League, Poughkeepsie, N. Y., in 1940. His present position is Professor of Dairy Bacteriology, Department of Animal Industry, N. Carolina State College, Raleigh, N. Carolina.

sults of the study showed that the use of the detergent-sanitizer resulted in cleaner utensils and that by other measures of performance, the detergent-sanitizer and more conventional methods of cleaning and sanitizing were comparable. This study indicated quite satisfactory performance of the detergent sanitizer during the trial. There existed, however, a question on the performance that could be expected of it during a more extended period during which only normal supervision was given to the dairyman. The present study, therefore, was made in order to obtain an answer to this question.

EXPERIMENTAL

Before proceeding with the study, consultations with the State Board of Health and Department of Agricul-

¹Presented at the annual meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, Seattle, Washington, September 5-7, 1956.

²Published with the approval of the Director of Research, North Carolina Agricultural Experiment Station, Raleigh, as paper No. 756 of the Journal Series.

ture were held and then their approval to proceed with the study was obtained. The same procedure was used with the local health departments and sanitarians in the areas in which the field trial was to occur.

A total of 155 producers in three areas of the state representing the mountain, piedmont and coastal plain sections participated in the study. The groups of producers were selected with no reference to past performance; they were representative of the producers in each milk shed. In each area 25 - 30 producers voluntarily used the detergent-sanitizer method. A comparable group of producers was used for control; this group used conventional cleaning and sanitizing methods. At the beginning of the study the test group used conventional cleaning and sanitizing methods. They were given a 30 day trial period to become accustomed to the new method and to decide if they wanted to participate further. Those who continued on test thereafter purchased the detergent-sanitizer from the dairy at regular retail price; this was considered necessary in order to avoid any bias for the new method based on economics. The study was initiated in September and October 1954 and continued until December 31, 1955. Since the actual use of the detergent-sanitizer was begun at different times by the participating producers, the data only for the calendar year 1955 were used for analysis. This also provided data on the performance of the detergent-sanitizer after its use became a routine operation.

The producers using the detergent-sanitizer³ were instructed to use the product in the following manner: (a) rinse milk from the utensils immediately after use with cool water; (b) brush wash the utensils in a warm (about 110°F) solution of the detergent-sanitizer; (c) allow the utensils to drain and store dry until the next milking; (d) immediately before use, rinse the utensils with hot (110° - 120°F) water. This procedure also was used on rubber inflations and tubes.

Further contact with all producers was that normally provided by local sanitarians and fieldmen who made the usual inspections of the participating farms.

Bacterial counts were obtained on the milk shipped by each producer. These usually were obtained at monthly intervals. This provided about 2,600 individual samples for bacteriological testing. Samples

³This product, under the label of D-S, was obtained from the Yale Chemical Co., Nashville, Tenn.; active ingredients listed were sodium carbonate 35%; methyl dodecyl benzyl trimethyl ammonium chloride 5%; inert ingredients 60%, composed of non-ionic detergent, sequestering and chelating compounds. The manufacturer's instructions specify that this product be used in a concentration of 1½ oz. to 10 qt. water.

were collected at the weigh vat. The bacterial counts were obtained by the dairy laboratory and the local health department on separate samples. In one area (C) the public health and dairy laboratory have a cooperative arrangement and therefore, in this area only one set of counts was available. In this area the laboratory makes direct microscopic clump counts on raw milk and has a microscope working factor of 20,000. Since many counts were reported as "less than 20,000", the counts were analyzed by determining the per cent of counts greater than 20,000 for the two groups of producers. Also, the log average of those counts greater than 20,000 was determined. Two of the dairy laboratories also obtained counts on laboratory pasteurized samples of each producer's milk at each sampling period. The counts obtained by the various laboratories were sent to N. C. State College for analysis.

RESULTS

All bacterial counts were converted to logarithms and then subjected to analysis of variance. The variance sources were as follows:

- Between methods (detergent-sanitizer vs. regular)
- Between farms within methods
- Between months
- Month by method interaction
- Month by farm interaction

Analyses were made separately for thermoduric and raw counts, for each area and for the dairy and health department laboratories.

The month by method interactions were found to be non-significant; hence the monthly averages are not shown. The over-all mean log counts for the two methods are presented for each group of data in Table 1. The variation between farms within methods was used as experimental error when computing the least significant difference.

In two of the areas thermoduric counts were obtained on the samples from producers in those areas. In area A the milk from producers using the detergent-sanitizer method had a significantly lower thermoduric count than did the milk from producers using regular methods of utensil cleaning and sanitization. In area B the thermoduric count of milk was also lower for the producers using the detergent-sanitizer method, but the difference was not statistically significant. Since the thermoduric count of milk reflects the degree of milking utensil sanitation, these data indicate that the utensils were maintained in as good as or better sanitary condition by those producers who

TABLE 1 — SUMMARY OF BACTERIOLOGICAL RESULTS COMPARING DETERGENT-SANITIZER AND REGULAR METHODS OF TREATING MILKING EQUIPMENT

Area	Laboratory	Geometric mean count		Mean log count		Difference ^a (log)	L.S.D. ^b (log)
		Regular	D-S	Regular	D-S		
Laboratory Pasteurized Milk Samples							
A	Dairy	760	270	2.8822	2.4334	-0.4488	0.2465
B	Dairy	390	350	2.5892	2.5492	-0.0400	0.2066
Raw Milk Samples							
A	Dairy	58,000	50,000	4.7665	4.6992	-0.0673	0.1589
A	Health Dept. ^c	52,000	35,000	4.7195	4.5550	-0.1645	0.1845
B	Dairy	22,000	25,000	4.3328	4.4034	+0.0706	0.2125
B	Health Dept.	96,000	82,000	4.9837	4.9140	-0.0697	0.2134
C	Dairy and Health Dept.	15.29 ^d 87,000 ^e	17.09 ^d 72,000 ^e	4.9373 ^e	4.8583 ^e	-0.0790	—

^a Difference = count with detergent-sanitizer minus count with regular.

^b Least difference required for significance at the 0.05 level.

^c Direct microscopic counts.

^d Per cent of counts greater than 20,000 per ml.

^e Means of counts 20,000 or greater per ml.

used the detergent-sanitizer instead of the regular method of sanitization.

In all of the areas total bacterial counts were obtained on the raw milk samples. Although it was recognized that factors other than the sanitary condition of the milking utensils would have effects on the bacterial count of the milk, it was considered that such counts would at least partially reflect the condition of the utensils. The mean log counts in all areas, excepting those by Dairy Laboratory B, showed lower counts by the groups of producers who had used the detergent-sanitizer method. Although the differences between the mean log counts of the milk from producers using the two sanitization methods were not statistically significant, those using the detergent-sanitizer method showed a consistent trend to lower mean log counts. In the single exception (Dairy Laboratory B) to this trend the mean counts were unusually low for raw milk. In area C the producers using the regular cleaning methods showed a slightly lower per cent of counts greater than 20,000 per ml. However, the mean log counts of those counts greater than 20,000 was lower for the producers using the detergent-sanitizer method.

Reports from sanitarians and fieldmen were obtained regarding the cleanliness of the milking utensils treated by the different methods. There was general agreement that the utensils cleaned and sanitized with the detergent-sanitizer were maintained in an entirely

satisfactory condition. Particularly noticeable was the absence of milk-stone and the need for a special milk-stone remover was, therefore, eliminated. General satisfaction also was expressed by the producers who used the detergent-sanitizer method.

The three dairy plants involved in this study reported no instance of buttermilk or cottage cheese culture failure which could be attributable to the presence in milk of quaternary ammonium chloride from the detergent-sanitizer. This agrees with an earlier study (3) which showed that only occasionally was a trace of this germicide present in milk from producers who used the detergent-sanitizer for treating milking utensils.

DISCUSSION

In determining the performance of a detergent-sanitizer several factors must be evaluated, such as the bacterial count of the milk, the physical appearance of the equipment after treatment, and the adaptability of the method to a routine cleaning operation.

The present study has shown that the use of the detergent-sanitizer resulted in counts in milk that were as low as, or lower than, those obtained with the use of regular methods. This situation held for the thermoduric and total bacterial counts. The lower mean thermoduric count of milk that was produced on farms using the detergent-sanitizer method was associated

with the clean condition of the milk utensils on these farms. It was interesting that the total bacterial counts of milk also tended to be lower from the producers using the detergent-sanitizer. From the standpoint of bacterial content in the milk, therefore, the detergent-sanitizer method appears to be as good as, and under some conditions, better than conventional methods of sanitization.

This study covered a continuous period of 15-16 months which, therefore, included all seasons and varying climatic conditions. During this entire period the effectiveness of the detergent-sanitizer was maintained. This was evidenced by the nonsignificance of the months by method interaction obtained in the analysis of variance. Since there was no unusual supervision of the producers during this period there is no reason to suspect that the detergent-sanitizer method would not perform satisfactorily over an indefinite period of time. This has been the situation on two farms where the product has been used continuously for three years. The data of this long-term field trial agree with a previous study from this station (3); actually in the present study the detergent-sanitizer showed better performance with respect to bacterial counts of the milk.

The adaptability of the detergent-sanitizer method to a routine cleaning procedure has been well demonstrated. The manipulations involved in its use are simple and are easier to perform than sanitization by conventional methods. Furthermore, less time is required for completing the cleaning and sanitizing operations. Since the participants in the present study were representative of milk producers throughout the state, the data showed that the detergent-sanitizer method could be used equally as well by producers with records of varying farm sanitation.

The economics of farm operations is now receiving the attention formerly reserved primarily for industry. On the basis of the present study and others (1, 2, 3), it appears that the detergent-sanitizer method offers advantages consistent with efforts to simplify and lessen the cost of farm operations and simultaneously to do a job in an equally or more effective manner.

SUMMARY

In a field study covering 15-16 months and which involved 155 Grade A milk producers in three widely separated areas, a detergent-sanitizer was compared with customary methods of milk utensil sanitization. Producers were divided into two comparable groups, one using the detergent-sanitizer method continuously and the other using regular methods. No supervision was made of the producers other than that normally given by the sanitarian and fieldman.

In one area the thermoduric count of milk was significantly lower when the detergent-sanitizer was used. This was the case for another area, except that the lower thermoduric count was not statistically significant. Raw milk counts also were lower when the detergent-sanitizer was used, although the difference between the counts of milk produced under the different methods of utensil sanitization was not statistically significant.

Milking utensils appeared cleaner and milk-stone deposits were absent from the utensils of those producers who used the detergent-sanitizer method.

Since this study covered an extended period of time with only normal supervision of the procedures, the detergent-sanitizer method appears to be one that can be used routinely over an indefinite period of time with entirely satisfactory results.

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THE DEVELOPMENT OF A PROCEDURE FOR THE INVESTIGATION OF FOODBORNE DISEASE OUTBREAKS¹

(REPORT OF THE COMMITTEE ON COMMUNICABLE DISEASES AFFECTING MAN — 1956)

We can justly be proud of the significant advancements which have been made during the past three decades in milk and food sanitation. The incidence of foodborne disease outbreaks as reported by the States to the National Office of Vital Statistics, however, is increasing, and during the 10 year period, 1945 to 1954 inclusive, 2,902 outbreaks involving 167,706 cases were reported by the States. Since investigation and reporting of foodborne disease outbreaks in the United States is notoriously poor, these figures are hardly a true index of the magnitude of the problem. In fact, Dr. K. F. Meyer has estimated that several hundred thousand cases of foodborne illness occur annually.

The number of outbreaks which occur and the number of cases involved is an index used by local, state and federal public health agencies when determining the public health problem associated with milk and food. However, what is more important from the standpoint of effective food protection programs, is the accumulation of knowledge as to what conditions contribute to individual outbreaks and how such a program can be strengthened to prevent repeated outbreaks. In order that these data can be accumulated on a national basis, and thereby take on proportionately greater significance than if accumulated individually by various states and municipalities, it is important that each outbreak be reported to the state health department, and that department, in turn, forward the report to the National Office of Vital Statistics for inclusion in its weekly and annual summaries of disease outbreaks.

Serious outbreaks of foodborne illnesses in which the cause has been definitely proven, can do much to awaken the general public and public officials to the need for adequate food protection programs. A report on an outbreak to the effect that "an epidemiological investigation showed conclusively the cause was potato salad which had been contaminated with *Staphylococcus aureus* from an infected wound on the hand of the person who prepared it," commands a great deal more attention and credit for a program, than the usual inconclusive report that "potato salad was believed to have caused the illness". Unfortunately, circumstances do not always permit conclusive findings as to the cause of an outbreak, but the Committee believes that with the aid of the *Procedure for the*

Investigation of Foodborne Disease Outbreaks, utilization of what epidemiological and laboratory assistance is available to the locality involved, and the application of a concerted effort on the part of local milk and food control officials, the cause of a large percent of the suspected cases of foodborne illness can be accurately determined. It is believed also that the total number of outbreaks reported will be increased several fold, that our knowledge of the control of foodborne diseases will be increased, and that food protection programs throughout the country will be materially improved.

After having determined (a) that only a very few States and municipalities have guidelines which could be followed by the average milk and food sanitarian in initiating an investigation of a suspected foodborne disease outbreak, and (b) that professional epidemiologists, health officers and sanitarians generally were of the opinion that a definite need for such guidelines existed, the Committee on Communicable Diseases Affecting Man in 1952 initiated the development of a procedure for the investigation of foodborne disease outbreaks. The principal objectives in undertaking this project were to: (a) Provide public-health workers with a suggested procedure for guidance when confronted with an outbreak of disease which may be attributed to milk, food, or water; (b) Prevent future outbreaks, through application of knowledge gained as a result of complete and thorough epidemiological investigations; (c) Stimulate an active interest on the part of public-health workers in the epidemiological aspects of their programs; and (d) Improve reporting of foodborne disease.

The first step in developing this publication was to collect and review several existing procedures and other related materials pertaining to the investigation of disease outbreaks, which the Committee felt would be particularly helpful to milk and food control officials in initiating investigations of suspected foodborne disease outbreaks pending arrival of epidemiological assistance. A draft of the proposed procedure was then prepared and copies were sent to a large number of well known epidemiologists engaged in either governmental, educational or research programs. In addition, copies of the draft were submitted to committees of other national health organizations which would have concern with such a procedure. These committees included (a) the Subcommittee on

¹Presented at the Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., at Seattle, Washington, September 5-7, 1956.

Epidemic Intelligence, State and Territorial Health Officers Association, (b) the Subcommittee on Communicable Disease Control, APHA, and (c) the Coordinating Committee on Laboratory Methods, APHA. It was also submitted to the Communicable Disease Center and the Division of Sanitary Engineering Services, U. S. Public Health Service for review and comment. Review by all of the above groups required considerable time and an extensive exchange of correspondence, particularly on the part of committees which usually meet only once a year and which submit their reports for approval by their respective parent organizations at an annual meeting.

All the comments and suggested changes received were carefully studied by your Committee on Communicable Diseases Affecting Man. They were also reviewed by a special committee of the Association of State and Territorial Epidemiologists appointed by its president to assist in this project. On the basis of the report of this special committee, the Association of State and Territorial Epidemiologists, which met in the Spring of 1955, endorsed the Procedure, in principal, reserving full endorsement until each of the members of that Association would have an opportunity to review it. Accordingly, copies of the redraft were sent by the Secretary of that Association to each of its members for final review prior to publication. On the basis of the comments received, the Secretary of that Association advised that "I am both pleased and surprised to say that they (the state and territorial epidemiologists) are 100 per cent favorable among the score or more of replies received. I think it would be fair to say in any publicity you use in connection with its sale that it has received the hearty endorsement of the state and territorial epidemiologists for those purposes for which it was intended".

The Committee on Communicable Diseases Affecting Man takes great pleasure at this annual Association meeting in presenting to the Executive Board for publication, the Procedure for the Investigation of Foodborne Disease Outbreaks. We sincerely hope it will be of great value to the entire membership of the Association, as well as to other public-health workers. The Committee will welcome comments from all of those who use it and find that certain changes may be indicated. Such comments will be documented in a form that will enable the Committee to review them for possible incorporation into a later edition.

The Committee is exploring the need for a model regulation for adoption by each State and Territory requiring public-health workers, physicians, nurses, persons in charge of institutions, and others to report to either the local or state health department all cases of illness believed to have been due to the consumption of contaminated or otherwise unwholesome foods. It is believed that such a publication would do much to promote more complete reporting of foodborne disease outbreaks, and that organizations such as the Association of State and Territorial Health Officers and the Association of State and Territorial Epidemiologists would be interested in participating in such a project.

R. J. Helvig, *Chairman*, Silver Spring, Maryland;
John Andrews, Raleigh, North Carolina;
H. L. Bryson, Vancouver, B.C., Canada;
Raymond Fagan, Kennett Square, Pennsylvania;
John H. Fritz, Missouri Association;
Stanley L. Hendricks, Iowa Association;
Harry G. Hodges, Ithaca, New York;
E. R. Price, Missouri Association;
H. H. Rothe, Florida Association;
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NEW HIGH-TEMPERATURE PASTEURIZATION PROCESSES— INSTRUMENTATION AND CONTROL¹

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During the past few years, there has been an interest in the pasteurization of milk and milk products at higher temperatures without a measured holding time. This interest has been advanced by the development of equipment which is capable of heating milk and milk products very rapidly to temperatures above 190° F. without "burn-on" of milk solids. Along with this have come reports that higher temperatures provide some definite advantages to the dairy industry. Tobias (1) points out that ice-cream mix has improved body and texture when pasteurized at 240° F. in equipment capable of rapid heating. He also mentions that processing other types of dairy products at higher temperatures presents possibilities of greater bacterial destruction and, therefore, better keeping qualities.

The pasteurization of milk and milk products imposes exacting requirements on a process. It must be capable of destroying the causative agents of those diseases which may be transmitted through milk, and it must be such that controls may be applied which will assure uniform and adequate treatment of every particle of the product being pasteurized. Obviously, temperatures above 190° F. require considerably less time for the destruction of pathogenic microorganisms than the 15 seconds current standards specify for conventional high-temperature, short-time pasteurization, but research from which the HTST standards were derived does not provide an adequate basis for determining the time necessary for proper pasteurization in the 190° F. range. However, the prospects of simpler operation and improvement in some product characteristics have stimulated several research projects relating to the extent of holding time necessary for pasteurization when temperatures above 190° F. are used.

Two avenues of study were open to the investigators. First, they might follow the classic method employed by Rosenau, North, Park, and other early investigators, namely, to determine the combination of time and temperature which is necessary to destroy milkborne pathogens. Second, on the assumption that the current standards for pasteurization provide adequate margins for safety, they could determine the



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time at given temperatures which is necessary to provide the same degree of bacterial destruction as is furnished by present pasteurization methods.

The second consideration in evaluating a pasteurization process is the ability of the equipment to maintain adequate time and temperature during all phases of operation. Much of the bacterial destruction in these processes takes place during the heat-up period, and the design of the equipment should be such that all of the product being processed is heated at a uniform rate. In addition, automatic controls are needed which will guard against even momentary departures from safe-process conditions. Much of the early criticism of continuous-flow pasteurization was generated from scepticism that the equipment and control de-

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vices then available would assure a completely safe product.

UNIFORMITY OF HEATING

Commercial equipment now available for pasteurization at temperatures above 190° F. have features which tend toward a high degree of uniformity in product heating. One such pasteurizer heats by gravitational fall of the product through steam under vacuum. Controls are provided which assure that a more than adequate quantity of steam is present for heating the product to proper process temperature whenever a product is being introduced in the chamber. Since the product is homogeneous, the most likely possibility for variance in heating rate and final temperature would occur when conditions permitted the product to fall in different-sized streams. Tracy, Pedrick, and Lingle (2) studied this aspect of the problem and reported that this type of equipment would pasteurize satisfactorily even though the distributor which divides the product into fine streams might be plugged or removed.

Other pasteurizers now being used for pasteurization at temperatures above 190° F. heat by exchange through a metal barrier. In order to achieve the high heating rate necessary, these heaters are designed to provide high surface volume ratios, and to use a high heating-medium product-temperature differential. Consequently, high velocities are necessary to prevent burn-on of milk solids and impaired heat exchange. These high velocities result in a degree of turbulence which is conducive to uniform heating of the product.

TEMPERATURE CONTROL

Temperature controls on pasteurizers which operate at temperatures above 190° F. must fulfill the same basic functions as those used on conventional HTST equipment; namely, a control to maintain a reasonably uniform product temperature and, more important from the public-health viewpoint, a control to prevent the passage of subtemperature product. In providing the latter type of control, it becomes necessary to consider the rate at which the temperature can drop under adverse conditions in relation to the reaction time of control instruments.

Existing specifications for thermometric lag and reaction time of flow stops are predicated on observations of their effectiveness when used on conventional HTST equipment. The adequacy of these specifications to accommodate the needs when higher temperatures and shorter holding times are used, is sub-

ject to some question. In practice, manufacturers have been providing more sensitive or different types of controls for use with these process conditions.

It was obvious that the flow-diversion valve could not be utilized on the pasteurizer which heats by direct contact of the product with steam. First, product transport is by entrainment in a vapor stream, and the passage in which the valve should be located is larger than could be accommodated by existing flow-diversion valves. Second, the passage is under negative pressure, and a diversion line would have to terminate in a chamber of higher vacuum if diverted flow was to occur. Third, the rate of product transport is so rapid that an impracticable response time would be necessary if forward flow of subtemperature product was to be prevented.

In view of these considerations, controls were developed which went beyond temperature *per se* and which were applied to the operating components which govern heating and product flow. The product is introduced in this equipment by means of a pump, and the functional manifestation of all the control instruments is the control of pump operation. Since the negative pressure within the first chamber could result in some flow without the pump in operation, a spring-loaded valve is also provided at the inlet to the pasteurizer, to prevent entrance of product when the pump is not operating.

The control system is composed of three interlocks with the infeed pump: (a) a temperature-sensitive element in the passage between the first and second chambers permits pump operation only when temperatures above 194° F. are registered; (b) the quantity of steam supplied for product heating is so regulated by a fixed orifice that, when a predetermined pressure (35 lbs.) is maintained between the orifice and the cut-off valve, there will be adequate steam for product heating; and (c) a pressure switch located at this point permits pump operation only when sufficient pressure is present. A third element in the control system is more closely identified with proper operation and with product composition than with the maintenance of adequate pasteurization conditions. This control consists of a vacuum switch located in the condenser which will stop the infeed pump unless sufficient vacuum is present for proper functioning of the pasteurizer.

Equipment which heats by means of exchange through a metal barrier is not subject to the same limitations on the use of a flow-diversion device as those noted above. In this equipment, the product is under pressure and fitting sizes are adaptable to standard valves. However, one problem has resulted from the desire of the industry to use temperatures

in excess of the boiling point when pasteurizing ice-cream mix; namely, that the sealing of the diversion and leak-escape ports on the valve, although adequate in lower temperature ranges, has not proven entirely satisfactory in this application. At the present time, such valves are usually modified to prevent excessive leakage at these points.

In commercial installations, the response of the valve to temperature change is more rapid than that of flow stops employed on conventional HTST equipment. The control instrument has been designed with a substantially shorter lag, and the speed of the driving mechanism of the valve has been increased by use of higher spring tension and air pressure. Field observations indicate that response of such devices is sufficiently rapid to prevent the passage of subtemperature product.

TIME CONTROL

Time, as a regulated factor, assumes less importance than when lower temperatures are employed. This is due, principally, to the difference that exists in the contribution of the heat-up period to the total lethality of these processes. When milk is processed at 143° F. and heating is reasonably rapid, the lethal effect of the heat-up period is negligible as compared to that of the ensuing 30-minute holding period. However, when temperatures above 190° F. are employed, the heat-up period in commercial equipment appears to provide the conditions of time and temperature necessary for pasteurization of milk and milk products without further holding time.

This should not be construed as instantaneous pasteurization. Each pasteurizer now available requires an increment of time to bring product to process temperature and back below the lethal range. The evident fact is that it is not necessary for the product to be held at one temperature for a given interval in order for microorganisms to be destroyed.

Time control in the higher temperature ranges may differ in concept from time control in conventional HTST pasteurization. The conditions of time and temperature for conventional HTST systems are established in the definition of the process, and pasteurizers are built and operated to conform to these specifications. In the higher temperature ranges, individual processes have been accepted by regulatory authorities on the basis of specific studies showing their ability to destroy microorganisms at a given temperature. Here, the problem of time control is one of assuring that the time during which lethal temperature was applied during test conditions will be met or exceeded during all phases of operation.

Need for a time control on a given pasteurizer will depend substantially on whether it is possible to heat any product to the pasteurization temperature at a faster rate than that used to establish the acceptability of the process. If the time of product transport through the equipment is independent of operating variations, or if it is so interrelated to the control of temperature that sufficient time is always assured when adequate temperature is provided, a time control as a separate entity becomes unnecessary.

The latter situation exists in the pasteurizer which heats by product exposure to steam under vacuum. In this equipment, the transport time of product through the equipment is governed by the amount of steam introduced, the presence of a proper operating vacuum, both of which are controlled, and gravity. Tracy, *et al*, in the study cited above, considered the effect of varying the steam supply and the amount of vacuum, and reported no loss of pasteurization effectiveness within a range where the temperature control would permit continued operation. Accordingly, there appears to be no need for a separate time control on this pasteurizer.

In other types of equipment in which product heating is achieved by exchange through a metal barrier, there exist greater possibilities for variation in the heating rate. While there is a theoretical maximum rate beyond which the product would not reach the proper process temperature, the effectiveness of this maximum heating rate for the destruction of bacteria is not normally established during test conditions. Further, units of different capacity or of modified design might well be expected to provide different heating rates.

In view of these potentials for varying the heating rate, it may prove simpler for all concerned to provide a short, supplemental holding period which will assure a sufficient time for pasteurization at all possible flow rates through such equipment.

INDICATING AND RECORDING INSTRUMENTS

Up to this point only the functional aspects of instrumentation have been considered. However, it is axiomatic in milk sanitation that a variable which requires control should also be measurable. Accordingly, there is need for indicating instruments and in some instances recording devices. In the preceding discussion, situations have been described in which steam pressure and vacuum have been interlocked by switches to the infeed pump to provide proper operating conditions during pasteurization. It appears logical to expect suitable gauges to be provided at the same point, in order that both the operator and the sanitarian can test for proper operation.

Measurement and recording of temperature are an established procedure with all pasteurization processes. These newer methods present a need for instruments which operate in different ranges and possibly with greater speed. The desire of the industry to process certain products at temperatures well above that required for pasteurization and to have such temperatures recorded, has presented a problem to instrument manufacturers in providing accuracy at both ranges. Recording thermometers which utilize a separate pen for each range may be necessary to fill this need. The scales needed on such instruments are of about the same type as those now specified for conventional HTST equipment. The difference will rest with the focal point for accuracy and readability which, in these processes, should be the temperature which is established for their use as pasteurizers.

SUMMARY

Pasteurization of milk products at temperatures above 190° F. with only momentary holding is now being performed commercially in equipment designed for rapid product heating. In such processes, most of the lethal effect occurs during the heat-up period and all factors which contribute to the maintenance of both heating rates and final temperature must be considered in providing process controls. Equipment now being offered commercially incorporates design features and supplementary controls which appear adequate to assure properly processed products.

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REPORT OF THE COMMITTEE ON RESOLUTIONS — 1956¹

The following Resolutions were unanimously adopted on September 7, 1956, at the business meeting of the 43rd Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC.

- (1) Resolution of appreciation to the Washington Milk Sanitarians Association and the Washington Dairy Industry.
- (2) Resolution of appreciation to various members of Washington industry who sponsored the get-together meeting on Tuesday evening, September 4.
- (3) Resolution urging the Postmaster General to take action on Senate Resolution 2936 which authorizes issuance of a commemorative stamp honoring Dr. Samuel J. Crumbine.
- (4) Resolution requesting the National Health Council to revise its recent publications on the profession of the Sanitarian.
- (5) Resolution in commemoration of deceased members of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC.

A copy of each of these Resolutions is attached and made a part of this Report.

Respectfully submitted:

John D. Faulkner, *Chairman*, Bethesda, Maryland.

Kenneth E. Carl, Oregon Association of Milk Sanitarians.

L. O. Tucker, Washington Milk Sanitarians Association.

Dr. Kenneth G. Weckel, Wisconsin Milk Sanitarians Association.

RESOLUTION NO. 1

WHEREAS, the Washington Milk Sanitarians Association and the Washington Dairy Industry have provided an unexcelled spirit of western hospitality; and

WHEREAS, the arrangements have been handled most efficiently by the Local Arrangements Committee, under the leadership of Cameron Adams, and have contributed greatly to the success of this meeting; and

WHEREAS, we have thoroughly enjoyed our visit

to Seattle and the Northwest with its many beautiful attractions;

THEREFORE, BE IT RESOLVED, that the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC.; hereby expresses its appreciation and thanks to the host organization, and to the Washington Dairy Industry, and hereby instructs the Secretary of the Association to send a copy of this resolution to the Washington Milk Sanitarians Association.

RESOLUTION NO. 2

Because the pleasure of this Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., has been greatly enhanced by the reception and get-together held on Tuesday evening, September 4; and

WHEREAS, various members of the Washington Industry kindly enabled this event,

NOW, THEREFORE, BE IT RESOLVED, that this Association express its thanks to the following industries:

Inter-State Supply, Inc.	Fibreboard Products Co.
Diamond Alkali Co.	The Diversey Corp.
Lily Tulip Cup Corp.	Klenzade Products, Inc.
Monroe Food Machinery Inc.	Pennsylvania Salt Mfg. Co.
Ex-Cello-O Corporation,	Wyandotte Chemical Corp.
Pure-Pak Div.	Continental Can Co.
Owens Illinois Glass Co.	American Can Co.
Turco Products, Inc.	The Creamery Package Mfg. Co.
Northwestern Glass Co.	Liberty Glass Co.
Kieckhefer Container Co.	

BE IT FURTHER RESOLVED, that the Secretary of the Association write each of the above mentioned industries of our pleasure and appreciation of their courtesy.

RESOLUTION NO. 3

WHEREAS, Samuel J. Crumbine, M. D., a pioneer in the field of public health, devoted a major share of his professional life to the establishment and development of principles of sanitation and the furtherance of public understanding in matters of personal hygiene and public health; and

WHEREAS, Senate Resolution 2936 proposes the issuance of a suitable commemorative stamp to perpetuate his memory,

NOW, THEREFORE, BE IT RESOLVED, that the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., join with other public health organizations in approving issuance of this memorial stamp, and

¹Presented at the 43rd Annual Meeting of the International Association of Milk and Food Sanitarians, Inc., Seattle, Washington, Sept. 5-7, 1956.

BE IT FURTHER RESOLVED, that, in the interest of all sanitarians, the Postmaster General be notified of this resolution and urged to take action on Senate Resolution 2936 authorizing issuance of a stamp honoring Dr. Crumbine, and that the Secretary of this Association be instructed to forward copies of this resolution to Senator Frank Carlson of Kansas, to Secretary of the Department of Health, Education, and Welfare, and to the State and Territorial Health Officers Association.

RESOLUTION NO. 4

WHEREAS, the National Health Council sought the aid of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., in the development of materials pertaining to the functions, responsibilities, training and other qualifications of the sanitarians for inclusion in publications designed to encourage young people to seek careers in public health; and

WHEREAS, the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., through its Committee on Education and Professional Development, did provide the information requested on the profession of the sanitarian, and did review and submit recommendations on the draft material prepared by the National Health Council; and

WHEREAS, the National Health Council did not incorporate the recommendations of the Association in its recent health careers publications; and

WHEREAS, these recent publications of the National Health Council do not, in the opinion of the Association, adequately describe the functions, responsibilities, and educational qualifications of the profession of sanitarian, and leave the impression that a person seeking employment as a sanitarian need have only high-school education;

BE IT RESOLVED, THEREFORE, that the Secretary be instructed to respectfully request the National Health Council to revise its recent publications on

the career of the sanitarian in conformity with the previously submitted recommendations of the Association.

BE IT FURTHER RESOLVED, that the Secretary be instructed to send copies of this resolution to the Conference of Municipal Public Health Engineers, the Conference of State Sanitary Engineers and the National Association of Sanitarians, all of whom have expressed similar concern, and to the American Public Health Association.

RESOLUTION No. 5

Because of the inevitable fate of all men, by the wisdom of God, and for the work they have done for their fellow men as Sanitarians, may we pause in our deliberations for a moment in memory of the following members of this Association who have passed on during the year:

J. A. Anderson, Springfield Missouri
 Dr. Robert S. Breed, Geneva, New York
 Dr. Paul B. Brooks, Montgomery, New York
 E. J. Buckley, Johnstown, New York
 Charles Cotton, Boise, Idaho
 Raymond Davis, Manchester, Connecticut
 L. M. Dorsey, Orono, Maine
 D. A. Grover, Battle Creek, Michigan
 Anthony Harrick, South Norwalk, Connecticut
 Dr. W. H. Haskell, Jacksonville, Florida
 Donald E. Joy, Hartford, Connecticut
 F. Leonard Kenyon, Binghamton, New York
 George F. Kirckhoff, Birmingham, Alabama
 Harry G. Lundquist, Amherst, Massachusetts
 Thomas J. O' Connor, Bloomer, Wisconsin
 Robert B. Pearson, Chicago, Illinois
 Max H. Shapiro, Rochester, New York
 Dr. Virgil C. Stebnitz, Chicago, Illinois
 Earl Weishaar, River Falls, Wisconsin
 Phoecian R. York, Knoxville, Tennessee

REPORT OF THE MEMBERSHIP COMMITTEE¹ — 1956

As of August 20th, 1956 the membership of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS is reported to be 4,200. This compares with 4,033 a year ago, or a gain of 4 per cent for the year.

As the membership continues to increase the number of new members each year grows somewhat smaller, and naturally the percentage grows smaller. Also, as the membership increases it includes more of those who might well join the organization, and there are less new prospects to contact for membership. There have been no affiliate associations organized during the past year.

As was the case last year the basis for this report will have to be information collected from questionnaires that have been returned by the members. A year ago we reported that there had been 288 returns, and now there are approximately 500. This is still a very disappointing number, as it represents 12 per cent of the total membership of the association.

The questionnaires which have been received since the last report came from 38 states and the District of Columbia, two Canadian Provinces and Western Australia.

While the summation of the approximately 500 questionnaires shows a slight variation from what was reported last year there is really not enough variation in the classifications and activities of the various members to warrant a repetition of the figures which were presented a year ago.

One cannot help but be impressed with the increase in the number of bulk milk holding tanks that have been reported within the past year.

The number of cows on milk farms that are under inspection by members of this organization represents a large proportion of those cows actually producing milk for the fluid milk market.

The activities of our membership are certainly interesting, there being 216 who felt they could only enter one classification, whereas there were 16 that had 6 or more classifications which they felt they could meet. Naturally sanitarians were the largest group. On the basis of employment 310 reported only one employing agency, while one person felt that he qualified for 12 employment agencies. Of course, someone in industrial work in plants handling milk, drying milk, evaporating, making ice cream, cheese and butter would get a lot of extra figures as compared with someone employed entirely by a Government unit.

The number of farms inspected by any one person ranged from 3 to 3,000; milk plants from 2 to 850; restaurants from 1 to 1,166; 263 persons reported inspecting anywhere from 45 to 1,000,000 cows apiece. One inspector had 20,000 milking machines in his territory; another had 2,500 bulk tanks.

Of those answering the questionnaire, 86.5 per cent felt that the advertising was beneficial to them; 8.6 per cent were not interested in the advertising; and 5.3 per cent did not commit themselves.

We must concede that some of our members do a tremendous amount of driving in a year as there were 3 who indicated that they drove over 55,000 miles a year.

I am sure that the Ford Motor Company would be pleased to know that more members drove Fords than any other make of car, with Chevrolet second and then Plymouth.

The coordination of the membership campaign does not lend itself to the general peace of mind because naturally with such a widely scattered membership, the members of the committee must be very widely scattered also, and it is impossible to hope to ever meet all of them at any one time, or even during the course of a year unless one can do considerable traveling.

At this time the Chairman of the Membership Committee wishes to express his thanks to all of those who have been on the committees for the past three years, and he also wishes to indicate that due to the press of other activities he is definitely going to have to reduce his schedule, and therefore is retiring from the membership committee.

We wish at this time also to express our appreciation to Mr. H. L. Thomasson and the members of the Executive Committee for their cooperation, and trust that future membership committees can continue the good work of spreading information about the Association and bring about a much better rate of increase per year than has been possible in the past few years. It is going to be a real job, but we wish them well, and feel that it is only fair that the present membership committee should be completely disbanded and a new one formed so as to give others a chance to help in the work of the association.

H. L. Templeton, *Chairman*

H. L. Thomasson, *Co-chairman*

H. J. Barnum, *Rocky Mountain Association*

L. W. Brown, *Wisconsin Association*

H. E. Calbert, *Wisconsin Association*

¹Presented at the 43rd Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITATIONS, INC. of Seattle, Washington, September 5-7, 1956.

L. K. Crowe, Rocky Mountain Association
 H. Clifford Goslee, Connecticut Association
 Mel Herspring, California Association
 C. K. Johns, New York Association
 Emil Mikolajcik
 J. M. Nakahara
 A. A. Pais, Virginia Association
 K. L. Poole

P. E. Riley, Illinois Association
 F. L. Schacht, New York Association
 O. E. Skiles, Tennessee Association
 H. R. Thornton
 L. O. Tucker, Washington Association
 Ivan Van Nortwick, Kansas Association
 H. H. Wilkowske, Florida Association

REPORT ON COMMITTEE ON APPLIED LABORATORY METHODS¹ — 1956

During the past year the activities of the Applied Laboratory Methods Committee have been concerned with an evaluation of laboratory problems of importance to milk and food sanitarians. A number of problems were selected and each committee member was requested to submit his comments as well as any particular problems which might be of interest. This report is a summary of these comments.

STAINING TECHNIQUES FOR THE DIRECT MICROSCOPIC EXAMINATION OF DAIRY PRODUCTS

A number of years ago a collaborative study was undertaken on the comparison of six staining techniques. As a result three staining methods were approved and included in the 10th Edition of Standard Methods for the Examination of Dairy Products. However, there has been increasing evidence that these methods of staining smears for the direct microscopic examination of dairy products are not entirely satisfactory. Recently Levowitz and Weber (J. Milk and Food Technol. 19:121, 1956.) published a paper on "An Effective Single Solution Stain". Several reports indicate that this stain is a satisfactory one.

It is reported that collaborative studies on this subject are being planned by the Standard Methods Committee of the American Public Health Association. It is possible that laboratories of some of our members may be asked to participate. A study sponsored by the American Dry Milk Institute is also in progress comparing the aniline oil stain and the Levowitz and Weber stain for the direct microscopic examination of dry milk products. Comments by committee members support the importance of this problem. The progress of the various collaborative studies will be followed closely during the coming year.

RAPID METHOD FOR THE DETECTION OF LOW NUMBERS OF PSYCHROPHILIC ORGANISMS IN FOOD PRODUCTS

More and more attention is being given the problem of psychrophiles in dairy products as is shown by the increasing number of papers on the subject. Present methods for the detection of psychrophiles require

long periods of incubation and frequently the organisms are detectable only after considerable growth has occurred in the product. A number of laboratories are investigating methods for the more rapid detection of low numbers of these organisms. One approach has been the inclusion of penicillin in the culture medium and incubation of plates at 25° C. Another approach has centered around the use of membrane filter techniques as a means of recovering small numbers of the bacteria. It has been suggested that a combination of pre-incubation of the sample at temperatures slightly above refrigeration temperatures followed by plating or use of the membrane filter might make possible a rapid detection of psychrophiles. A suitable method is not available but progress is being made.

The committee was in complete agreement as to the importance of this problem. It was suggested by one member that when a method is available a study of the application of the test for keeping quality of pasteurized milk should be made in various sections of the country. This problem will be followed closely during the coming year.

A RAPID DECK TEST FOR INHIBITORY SUBSTANCES IN MILK

There are numerous tests for the detection of inhibitory substances in milk. Many are excellent tests but none are sufficiently rapid for use on the receiving platform. This problem is one requiring more research before it is solved. The committee was in agreement as to the importance of the problem but offered no suggestions as to how to obtain an answer. The progress of the research in various laboratories will be followed and reported as information becomes available.

A RAPID LABORATORY METHOD FOR THE DETECTION OF PHAGE IN MILK

This is another important problem for which no satisfactory answer is presently available. There is little question as to the occurrence of inhibitory substances in milk which result in slow fermentations of either cheese or fermented milks but there is some

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question as to the prevalence and importance of phage. The availability of a rapid laboratory or plant procedure for the detection of phage would do much to answer this question. This problem requires further research which will be followed and reported as information becomes available.

AN ABRIDGED MORE PRACTICAL STANDARD METHODS

The comment has been made that a shorter more practical form of Standard Methods might better suit the needs of control laboratories while the present edition is more suited for regulatory laboratories. The feeling of the committee on this subject was divided; six regarded the suggestion as worthwhile and needed, one thought the idea was good but not practical, and six were against such a proposal. With this divided opinion it would seem that further questioning of those involved in this problem should be undertaken before any definite recommendations are made by this committee.

THE ASTELL ROLL TUBE TECHNIQUE

This is a procedure used extensively in England and is reported to provide great savings as to media, space, and time in making bacteria counts on milk. It has not been accepted very well in this country but it is believed that little more than exploratory investigations have been made. The majority of the committee were familiar with the method and several stated the need for an extensive study on the statistical correlation between the plate and roll-tube methods. Others were not impressed by the method while still others believed it might be of value in instances where large numbers of samples were to be roughly screened. It would appear that more information is needed on the roll tube method, especially along the lines of comparative cost, plate count vs. roll tube count.

OTHER SUGGESTED PROBLEMS

The committee was asked to submit other problems which might be considered for further study. These problems are listed without comment.

Evaluation of test papers for quarternary ammonium compounds and recommendation of suitable tests.

Evaluation of germicidal agents for use in the food industry — a better test than the Weber and Black method.

Methods for detecting staphylococcus enterotoxin in dried milk and other foods.

A quick method for determining whether dry milk has been incorporated in a fluid milk product.

Development of proper and reliable check samples which could be sent out by a central laboratory for checking the accuracy of other laboratories in the same territory.

Include in Standard Methods a standard shaking machine for shaking dilutions for plate counts.

Use of the membrane filter technique for a quick screening test for *Escherichia coli* and other organisms in various dairy products. (A report on the membrane filter in dairy laboratories is being prepared for the Milk Industry Foundation meeting this fall.)

Efficiency of "live steam" pasteurization of milk (194° F. momentarily.) What are the bacteriological and physical changes which take place during such a treatment?

An evaluation of methods for testing the sanitary conditions of milk tankers and farm pick-up tanks.

A study of the various methods used to take samples of bulk tank milk and the methods used in handling samples prior to plating in the laboratory.

Should laboratory pasteurization tests on milk which will be HTST pasteurized be checked by a batch (long hold) test or a flash (HTST) test in the control laboratory?

Would it be possible to recommend bacterial standards for cottage cheese and buttermilk (based on extensive experiments)?

Need for standardized procedures in the bacteriological examination of pressurized creams whether sold in single service or multiuse containers.

As some of you may know, at our last annual meeting a new committee was suggested to consider research problems which may be of value to milk and food sanitarians. The Applied Laboratory Methods Committee respectfully submit the foregoing problems as problems of interest to our members and suggest that they be considered by the new committee when it is formed.

For the next year the Applied Laboratory Methods Committee plans to follow up developments on the first six problems given in this report and present the latest available information to our membership in our 1957 report.

Franklin W. Barber, *Chairman*, New York State Association

T. R. Freeman, Kentucky Association

J. J. Jezeski, Minnesota Association

C. K. Johns, New York State Association

W. C. Lawton, Minnesota Association

J. C. McCaffrey, Associated Ill. Milk Sanitarians

E. F. McFarren, New York State Association

W. K. Moseley, Indiana Association

W. S. Mueller, Rhode Island Association

R. B. Parker, California Association

H. B. Richie, Associated Ill. Milk Sanitarians

G. W. Shadwick, Associated Ill. Milk Sanitarians

H. W. Weiser

TO CORRECT THE RECORD

The "Report of the Committee on Applied Laboratory Methods — 1955", published in the *Journal of Milk and Food Technology* 19:7-13, 17, 1956, contained a sub-committee report on "Relative merits of various tests for determining bacteriological quality of milk."

The sub-committee report made reference to specific data obtained "on a selected group of producers from seven dairies in the Chicago milk shed" and to "the results of the Chicago study".

These data were obtained in the laboratories of the Illinois

Department of Health in Chicago, but it should be emphasized that the raw milk samples were taken from producers who were not under the jurisdiction of the Chicago Health Department. The producer samples came from an area in the vicinity of the city of Chicago and were taken at dairies which did not deliver finished products in the city of Chicago.

REPORT OF THE COMMITTEE ON FOOD EQUIPMENT SANITARY STANDARDS¹ — 1956

Your Committee feels that the first order of business should be to voice its appreciation for the fine support given by the Officers and Directors of the Association. This is especially true with reference to President Harold S. Adams who found time to not only read the Committee correspondence but to write to your Committee Chairman as well, offering words of encouragement. Many people have contributed their talents to assist in the Committee work. Time does not permit the naming of all the other individuals whose contributions have enabled the Committee to carry on its work, but without their help, there would be little to report at this time.

The Eleventh Draft of the Proposed Fourth Standard relating to "Gas Commercial Warming and Cooking Equipment" and the Fourth Draft of Standard No. 4 relating to "Electrical Commercial Cooking and Warming Equipment" is in the hands of the Committee members. It is the opinion of the Joint Committee of the National Sanitation Foundation that these drafts should be utilized to establish the standards, and that they be published in mimeograph form with the two standards in one publication for about one year after which printing in the usual manner by the National Sanitation Foundation would be carried out. Everyone concerned with the problem of formulating such a set of standards is agreed that these present drafts are not entirely satisfactory. Everyone is equally agreed that an entirely acceptable set of standards probably never will be formulated — at least not until they have actually been utilized for some time. Experience with Standards 1, 2 and 3 prove that changes are needed in all of the Standards after working with them for a while. This will undoubtedly be true of No. 4 perhaps even before it goes into printed form.

It is the recommendation of the Committee on Food Equipment Sanitary Standards that the 11th Draft of Standard No. 4 relating to "Gas Commercial Cooking and Warming Equipment" be adopted provisionally and further that the Fourth Draft of Standard No. 4

relating to "Electrical Commercial Cooking and Warming Equipment" be adopted provisionally by the National Sanitation Foundation, with the understanding that it will be adopted — subject to change, if needed, in printed form in about one year.

Revisions of the National Sanitation Foundation Standard No. 3 relating to spray type dish washing machines have been considered by this Committee during the past year. Better definitions for conveyor speeds, nozzle flow pressures and other matters pertaining to the efficiency of such equipment have been devised. Many sanitarians have expressed the need for a standard which would provide for a power interlock with hot water supply for the dish machine. This is suggested as a means of preventing use of the machine at any time when the final rinse temperature drops below the required 180° F. This Committee feels that such a requirement has much merit, however, the dish machine equipment, the hot water generating equipment and finally the restaurant itself has not reached a state of perfection where such a limitation would be very effective. This Committee suggests that such a limitation would be very effective. This Committee suggests that such a limitation is worthy of future consideration but not at the present stage of development.

It is suggested that National Sanitation Foundation Standard No. 5 should be formulated to provide sanitary standards for mechanically operated food service equipment of the bench type such as, slicers, mixers, grinders, etc. This Committee recommends that the National Sanitation Foundation be notified of this suggestion.

The National Sanitation Foundation is being asked to test many other devices and pieces of equipment than just food equipment. This is as it should be and a policy has been adopted by the Joint Committee of the NSF Foundation to handle such requests. This does pose a question with reference to your Committee on Food Equipment Sanitary Standards of the IAMFS. Is it the desire of the Association to enlarge the scope of its Committee to consider the sanitation aspects of equipment other than just food equipment? There is no question but what many members of the

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International Association are well qualified to consider such questions; however, any decisions as to changing the character, name or functions of the Committees should be made by the Officers and Board of the Association. This matter is therefore referred to the Officers and Board of the association without recommendation. No recommendation is made because the Committee realizes that the Officers and Board may see fit to appoint a new Committee or take such other action as it may deem proper in this matter.

In closing, your Committee urges all sanitarians and health departments to lend support to the Food Equipment Sanitary Standards Program by demanding that food equipment bear the seal of the *National Sanitation Foundation Testing Laboratory* indicating compliance with sanitary standards and that all purchasers of food equipment be urged to purchase only such

equipment as bears the seal of approval. Equipment should be checked in the field to see that installation and equipment are both in compliance with standards. In this manner, every sanitarian can lend substantial support to the Committee and the Association which it represents.

Wm. V. Hickey, *Chairman*, Utah Association
 Lewis Dodson, Texas Association
 Vincent T. Foley, Missouri Association
 F. H. Downs, Jr., Texas Association
 D. E. Hartley, Indiana Association
 Jerome Trichter, New York Association
 James Westbrook, Illinois Association
 J. H. Millar, West Virginia Association
 John H. McCutchen, Missouri Association
 Charles Cotton, Idaho Association
 W. R. McLean, Georgia Association
 James Stalbird, New York Association

REPORT OF THE COMMITTEE ON BAKERY INDUSTRY EQUIPMENT¹ — 1956

At the Spring meeting with the Bakery Industry Sanitation Standard Committee (BISSC) there was no final approval of any standard. The standards reviewed were sent back to their respective committees for further changes and revisions. It is expected that they will again be brought up at the next meeting with the necessary changes incorporated in them.

The trend to bulk handling of ingredients, discussed in last year's report, has accelerated and it is expected to continue to grow in popularity. Bulk handling of materials has many economic and sanitary advantages but it is by no means the panacea to our sanitation problems. Rather, it creates new problems, often on a regional scale, outside of the jurisdiction of the local and state health departments.

The movement of food manufacturing plants into unincorporated areas or small towns having no health departments poses a serious problem. Their products move into regular food channels and are transported to other cities, often traveling hundreds of miles to the receiving bakery. Experience has proven that it is a mistake to assume, that because a product has been shipped in a large volume, the product itself is pure.

Inspection of the stored product is difficult or even impossible depending upon the construction of the transporting or storage facilities. The construction and design of bulk handling equipment including tanks and vats has attracted the attention of the Food Equipment Committee and of this Committee also.

Unfortunately, many of our present day installations were patterned after non-food storage facilities. Little thought was given to sanitary design, proper metals, cleanability or accessibility. It is quite common to find vats designed so that the product outlet is six inches or more above the bottom of the vat. This, in effect, makes it practically impossible to clean as there is always a large quantity of the product retained in the tank.

The problem of tolerances enters into the picture, but now we are dealing with thousands of gallons and thousands of pounds, rather than a fifty-five gallon drum or a hundred pound bag. The plants are dependent on the products in the tanks and vats for a continuous flow of ingredients and any embargo or condemnation, of necessity, forces a complete shut-down of the entire operation.

Sampling as we have known it in the past, with the holding of the product for days until a laboratory analysis has been received, is not feasible.

Product identity must also receive attention. Bakeries usually have several suppliers for the same products and frequently divide their purchases among several companies. There is at present no way to identify the product without checking the shipping room records and/or the office records.

It is recommended that regulations be promulgated to require the necessary information to be posted on the vat or tank or to be posted in the immediate adjacent area.

This could be accomplished by having an additional invoice which would contain the shipper's name, his

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address, the date delivered, the product delivered, the quantity delivered, and in the case of a blend or mixture — a list of the ingredients.

Bulk handling has materially increased the role of the sanitarian and with this increased responsibility must also come increased knowledge, training and judgment.

The Baking Industry Sanitation Standard Committee (BISSC), working through concerned manufacturers and in close cooperation with this committee and other health officials, has published a total of eleven standards.

The standards with their number and effective date are as follows:

No. 1—Flour Handling Equipment	Dec. 1, 1952
No. 2—Dough Troughs	Feb. 1, 1953
No. 3—Mechanical Proofer	Feb. 1, 1953
No. 4—Pan, Rack and Utensil Washers & Industrial Sinks	July 1, 1953
No. 5—Cake Depositors, Fillers and Icing Machines	Mar. 1, 1954
No. 6—Horizontal Mixers and Vertical Mixers	Nov. 1, 1954
No. 7—Conveyors	Nov. 1, 1954
No. 8—Dividers, Rounders and Bun Machines	Jan. 1, 1956
No. 9—Bread Moulders	Jan. 1, 1956
No. 10—Proofing and Fermentation Rooms and Coolers (Including a Revision of Dough Troughs No. 2)	Jan. 1, 1956
No. 11—Ingredient Water Coolers and Ice Makers (Atmospheric Type)	Jan. 1, 1956

Several additional standards are expected to be approved soon, possibly to be effective January 1, 1957. They will cover coaters, doughnut machines and casters and caster assemblies.

There is still no progress being made on a bread pan standard. The problem arises over the divergent views held by the Pan Committee members and the consultants regarding the merits of the conventional folded end pan. Both sides are at an impasse, and

it would seem that a fresh approach to this standard is indicated.

A review and revision of the earlier standards is anticipated in the near future. This was foreseen in the writing of the standards and in each standard the following paragraph is incorporated, "It is intended that this standard shall allow and encourage freedom for inventive genius and new developments. Equipment specifications which are developed proposing differences in design, material, construction, or other features, which are, in the opinion of the manufacturer or fabricator, equivalent or better, may be submitted at any time for consideration of the Baking Industry Sanitation Standard Committee." In line with this policy there has been a revision of the Dough Trough Standard included in the No. 10 Standard, "Proofing and Fermentation Rooms and Coolers."

SUMMARY

There has been no final approval of any standard since the 1955 report.

A standard for bulk transporting and bulk storage facilities for flour has been drafted and will be reviewed in the near future.

Product identity must be retained in bulk handling of ingredients.

The writing of a bread pan standard continues to be a major stumbling block.

A review of some of the earlier standards is in order.

Vincent T. Foley, *Chairman*, Missouri Association
James H. Burrows, Michigan Association
Richard S. Doughty, New York State Association
W. R. McLean, Georgia Association
Louis W. Pickles, Associated Illinois Milk Sanitarians
Armin Roth, Michigan Section

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..... Packer, Arizona
2nd. Vice-Pres., John Adams
..... Dodson, Montana
Sec.-Treas., Frank C. Estes
..... Sisseton, South Dakota
Auditor: Verlyn Owen
..... Rosebud, South Dakota

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..... 422 Wheeler Blvd., Oxford, Pa.
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..... Betterton, Md.

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NEWS AND EVENTS

HELPFUL INFORMATION

Editorial Note: Sources of information on a variety of subjects all listed below. Requests for any of the material may be sent by letter or post card to the source indicated.

Sanitation guide for food and drink concessions at fairs, circuses and carnivals. Bulletin, New Mexico Dept. of Health, Santa Fe, New Mexico.

..... Plum Island animal disease laboratory. Bulletin, Superintendent of Documents, Washington, D. C., 15 cents.

Handbook on sanitation of airlines. 31pp., Superintendent of Documents, Washington, D. C., 20 cents.

Whey cream butter. Research Bull. 197. Bulletin Room, College of Agriculture, University of Wisconsin, Madison, Wisconsin.

Housefly control in dairy barns. Leaflet, 1955 Progress Report 1867. Texas Agr. Exp. Sta., College Station, Texas.

The Cowculator. Magazine, (much interesting information for fieldmen). 2843 W. 19th Street, Chicago, Illinois.

Margarine and other food fats. M. K. Schwitzer, 385 pp. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, New York, \$7.00.

Barn mow hay drying for better quality hay. Circular 154. Calif. Agr. Exp. Sta., Davis, California.

Food poisoning. 3rd Ed., 1956, 251 pp. G. M. Dack, University of Chicago Press, 5750 Ellis Avenue, Chicago, Illinois, \$6.00.

Rural water supply sanitation. 2nd Edition, 347 pp., F. B. Wright, John Wiley and Sons, New York, New York, \$4.96.

Animal diseases. Year Book, U. S. Dept. of Agr. 1956, 591 pp. Supt. of Documents, Washington, D. C.

Flexible plastic tubing. Bulletin T-97. U. S. Stoneware Co., Plastics Division, Akron, Ohio.

Coordinated sanitation program for dairies. Booklet, Oakite Products Inc., 130 Rector Street, New York 6, New York.

Poultry grading manual. Handbook 1956. Supt. of Documents, Washington, D. C. 30 cents.

Handbook of official grain standards of the United States. 1956. 104 pp. Supt. of Documents, Washington, D. C. 35 cents.

Applied cookery. 1955. 81 p. Supt. of Documents, Washington, D. C. 50 cents.

Five points to better milking operations. Universal Milking Machine Division, Nat'l. Cooperatives, Inc., Albert Lea, Minn.

Bulk handling of milk. U. S. Steel Co., 525 William Penn. Place, Pittsburgh 30, Pa.

Proper cleaning and care of stainless steel bulk milk equipment. U. S. Steel Co., 525 William Penn. Place, Pittsburgh 30, Pa.

Poultry grading manual. 1956. 38 p. Supt. of Documents, Washington, D. C.

Statistics, a new approach. W. Wallis and H. V. Roberts, 646 pgs. \$6.00. Free Press, Glencoe, Ill.

Pesticide handbook. 8th Ed. Edited by D. H. Frear. 1956, 208 pgs. College Sci., Publishers, State College, Pa. Paper \$1.25, cloth \$3.00.

Biological effects of atomic radiation. Summary Report. Report to the public, 40 pgs. 1956. Nat'l. Academy of Sciences, 2101 Constitution Ave., Washington, D. C.

Principles and methods of sterilization. John Perkins. 340 pgs. 1956. Thomas Publishing Co., Springfield, Ill. \$8.00.

Cross connection control. Handbook, 28 pgs., illustrated. Febco, Inc., 1993 Blake Ave., Los Angeles 39, Calif. \$1.00.

Manual L-1. Warning labels for 186 industrial and 92 pesticidal chemicals. 115 pgs. Manufacturing Chemists Assoc., 1625 Eye Street N.W., Washington, D. C.

Insecticide recommendations of the entomology research branch for the control of insects attacking crops and live-stock, 1956 season. Agr. Handbook AH 103. 97 pgs. Supt. of Documents, Washington, D. C. 50 cents.

Easy steps in cleaning dairy utensils on the farm. Circular. Kansas Agr. Exp. Sta. Circ. 325. Manhattan, Kansas.

The vital story of cereal grain products enriched with vitamins and iron for better nutrition. Vitamin Division, Hoffman La Roche Co., Nutley, N. Jersey. Dept. JMFT.

How can I sanitize my utensils properly? Olin Mathieson Chem. Corp. Indiana Div., Dept. JMFT., Baltimore, Md.

Chemistry and uses of pesticides. 2nd Ed. R. E. De Ong. 334 pgs. 1956. Reinhold Publishing Corp., 430 Park Ave., New York 22, New York, \$8.75.

Principles of fungicidal action. J. G. Horsfall. 279 pgs. 1956. Chromica Bohanica Co., 977 Main St., Waltham 54, Mass., Hafner Publishing Co., 31 E. 10th St., New York 3, New York, \$6.50.

Handbook of poisons. R. H. Dressback, 426 pgs., 1955. Lange Medical Publications, P. O. Box 1215, Los Altos, Calif. \$3.00.

TENTH ANNUAL MEETING DAIRY PRODUCTS IMPROVEMENT INSTITUTE, INC.

The Tenth Annual Meeting of the Dairy Products Improvement Institute will be held on Thursday, February 14, 1957 in the Keystone Room of the Hotel Statler, New York City, New York.

The meeting this year will feature several talks on subjects of current interest and importance to regulatory officials and to industry representatives.

The first speaker of the main session in the afternoon will be Walter D. Tiedeman, University of Michigan, School of Public Health, Ann Arbor, Michigan who will discuss the "Economic Squeeze On Regulatory Agencies And Its Effect On The Future Of Milk And Milk Product Sanitation". Then Dr. Robert W. Metzger, Director of Quality Control for the Dairy-men's League Cooperative Association, Syracuse, New York will review and discuss "Dairy Farm Inspection Forms". Following this address Mr. John D. Faulkner, Chief of the Milk and Food Program, United States Public Health Service, Washington, D. C. will discuss "The Dating Of Pasteurized Milk".

Also included in the program will be a report by Dr. Albert F. Ranney, Chief of the Brucellosis and Tuberculosis Eradication Section, Agriculture Research Service, Washington, D. C. on the "Current Status Of Brucellosis Testing Programs". This will be followed by a brief report from Donald H. Race, Field Director, Dairy Products Improvement Institute, Inc., Ithaca, New York on the Institute's quality control program "Requirements for the Sanitary Production of Sweet Cream, and Milk for Manufacturing".

The morning session will be devoted to committee meetings and a general business meeting for members. The afternoon session will begin with a noon luncheon after which the speakers will be presented by the Institute's President, A. C. Fisher of the General Ice Cream Corporation, Schenectady, New York.

REMARKS

by George P. Larrick
Commissioner of Food and Drugs
Department of Health, Education, and Welfare
at Food Law Institute luncheon in New York
on October 29, 1956

It is a privilege to meet with such a distinguished group, particularly one with whom we have so much in common. This makes the luncheon in our honor all the more appreciated. There has always been a large area of common interest between the food industry and food law enforcement officials. It has always been true that when an unworthy food reached the consumers it hurt the reputation of the producer and, to some extent, the whole industry. At the same time it reacted unfavorably upon food law officials because the public questioned their ability and competency. It is axiomatic that consumer acceptance for the product of a whole industry is hurt when consumers are disappointed in or injured by, the product of even a small segment of that industry.

The Food and Drug Administration is grateful for the constructive part that the food industry has played in celebrating the 50th anniversary of the enactment of the original food and drug law. Mr. Dunn deserves credit for a very important part in that program. We believe that this celebration has in a very worthwhile way called public attention to the great strides which the industry has made in the improvement of consumer goods in the food field, and likewise the part that food officials, both Federal and local, have played in this desirable evolutionary process.

Current developments in the food industry make Industry-Government cooperation even more important. There is an insistent demand from the public for a higher standard of living. Your sales show that

the public wants more and more convenient food, greater and greater diversification, new flavors, improved nutrition, better packaging. To meet these demands your scientists must employ a wide variety of substances in food which have not previously been included in their composition. New preservatives, antioxidants, surface-acting agents, stabilizers, thickeners, beaching and maturing agents, buffers, acids, alkalis, food colors, nutrient supplements, flavoring agents, and a host of others are essential to satisfy this insistent and legitimate consumer demand.

In the development of these newer foodstuffs there is opportunity for serious error. We must be sure that these products, designed for good, are not in fact harmful, have not lost nutritive qualities, and do not in some other way react to the detriment of the consumer whom we all wish to serve faithfully and well.

We are in an era of great changes in food production and distribution in this country. At times these developments and changes present questions which are difficult for the consuming public to understand. Of course, change will always be resisted by some people. False accusations will be made against some materials added to foods. Certain misleading statements that got into our daily press recently about cancer-producing food substances allegedly used in the United States are an example.

In these days it is essential that both food producers and food law enforcement officers have lines of communication which will prevent misunderstandings. Many of you are aware of our traditional open-door policy under which we are willing and eager at all times to discuss mutual problems with members of the industry. Now I am glad to say that we have been fortunate to take another step in this direction by appointing Mr. G. Cullen Thomas, recently retired vice president of General Mills, as our consultant. We believe Mr. Thomas will help us to further develop and perfect our lines of communication with the food, drug, and cosmetic industries. This should help us in our joint efforts to keep these industries, the Federal and local officials, and the public accurately and fully informed.

If you are to discharge your obligations adequately you will need to continue to employ scientists of increasing knowledge and ability. You will need to continue to provide them with the most modern laboratories and technical facilities. There is no question that you are able and willing to do this.

Likewise, we ask you to help us to provide Federal and local governments with a continuing supply of competent scientists. To attract young, able scientists

to the Government we, too, must have modern laboratories and scientific facilities. It appears inevitable to me that industry will be doing itself a service if they see to it that Government in the food law enforcement field is not manned with second-raters. If we do not have competent people, the advice which industry gets from us, the information which we give to the public, and the evidence upon which our law enforcement programs are predicated, will be mediocre and often wrong.

We in the Federal service have had the happy experience of being supported in our requests for more modern facilities and increases in personnel, so that our obligations may, if the present trend of supporting our activities continues, be more nearly balanced by our resources. For the most part the State facilities have not as yet been so favorably considered. We recommend to you as a public service and in your own interest serious and continued attention to the problems of both Federal and local food officials.



Winning health department officials receive national Crumbine awards for outstanding programs at annual meeting of American Public Health Association at Atlantic City. Left to right, Clyde B. Eller and Dr. T. Paul Haney of Tulsa City-County Health Department; Dr. Daniel Bergsma, Commissioner, New Jersey State Health Department and Awards Jury Chairman; and, representing the Macon-Bibb-Jones (Georgia) Department of Health, Dr. R. J. Walker and Joel C. Beall. Awards are sponsored annually by Public Committee of Paper Cup and Container Institute.



The "Cooperating Dairy for Civil Defense" plan became truly national in scope at the Atlantic City Dairy Exposition where hundreds of dairymen from 41 states enrolled in the program. Dairymen, who often stood in line for the signing up ceremony with Federal Civil Defense officials in the Pure-Pak booth, ranged from the very largest "chain" operators to small independents. Here John M. Powell, Manager of Muller's Dairy of Rockford, Illinois, is seen receiving his official "CD for CD" lapel pin from Henry Brown, representing Region 1 of the FCDA.

MICHIGAN STATE UNIVERSITY DAIRY SHORT COURSES

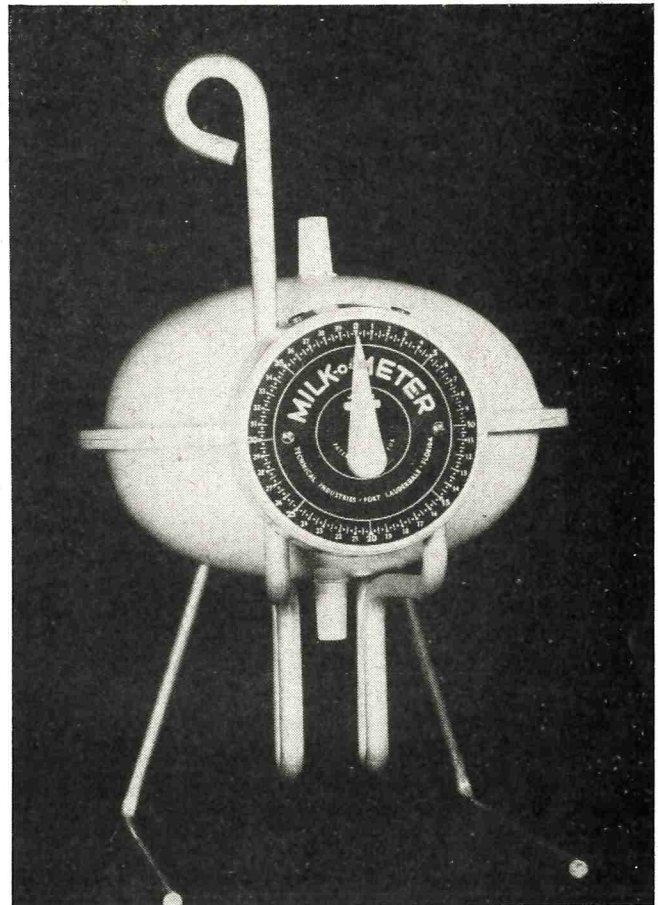
Michigan State University Dairy Department announces four dairy manufacturing short courses for 1957:

Market Milk	Jan. 7-18
Laboratory Methods	Jan. 20-Feb. 1
Ice Cream	Feb. 4-15
Cottage Cheese, Cultures, and Fermented Milks	Feb. 18-Mar. 1

These two-week courses are offered but once each year. Classes must be somewhat limited in size to provide adequate laboratory space for each student. Therefore, application for enrollment should be made as early as possible, sending the application to Di-

rector of Short Courses, Michigan State University, East Lansing, Michigan.

For full information, description of courses, costs, and answers to similar questions, request Dairy Manufacturer's Short Course bulletin from the director mentioned in the preceding paragraph. All classes will be held in the new superbly equipped Dairy Industries Building.



MILK-o-METER and SAMPLER

After three and a half years research, Technical Industries of 2717 S. W. Second Avenue, Fort Lauderdale, Florida has brought out the MILK-o-METER which automatically weighs milk in a continuous flow. The MILK-o-METER is easily attached to any hose connected type of vacuum milking machine, from pot to pipeline.

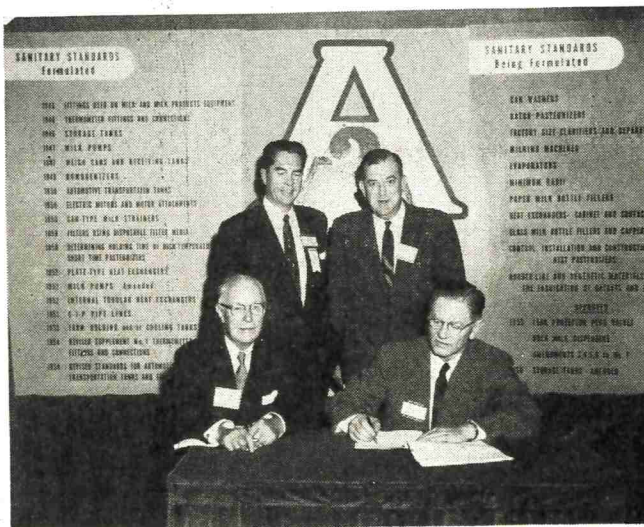
The MILK-o-METER is light weight, approximately five pounds, portable, convenient, sanitary and accurate. Tests at the Florida Agricultural Experimental Station show it to be accurate to 98.3% with a factory guarantee of 96%.

The MILK-o-METER Sampler. As the milk flows into the pipeline a true proportionate sample is retained by the Sampler to be tested for butterfat content.



TASK COMMITTEE CHAIRMAN PRESENTS HTST STANDARD

G. S. Bixby, Cherry-Burrell Corporation, presents a final draft of a tentative 3-A Sanitary Standard for high-temperature, short-time pasteurizing practices to D. G. Colony, Manton-Gaulin Mfg. Co., Inc., chairman of the Technical Committee of Dairy Industries Supply Association. Mr. Bixby served as chairman of the Task Committee that prepared the standard. Picture was taken during the 20th Dairy Industries Exposition in Atlantic City, N. J., October 29-November 3.



3-A APPROVAL FOR HTST PRACTICES APPROACHED AT EXPOSITION

Present for consideration of signing of the 3-A Accepted Practices for the Sanitary Construction, Installation, Testing and Operation of HTST Pasteurizers in Atlantic City, N. J., on November 1, are: (seated,

left to right) C. A. Abele, Chairman of the Committee on Sanitary Procedures of International Association of Milk and Food Sanitarians; Dr. E. H. Parfitt, Chairman of the Sanitary Standards Subcommittee of Dairy Industry Committee; (standing, left to right) D. G. Colony, Chairman of the Technical Committee of Dairy Industries Supply Association; and John D. Faulkner, Chief of the Milk and Food Section, U. S. Public Health Service. Event took place in the 3-A booth at the 20th Dairy Industries Exposition, held in Atlantic City's Convention Hall, October 29-November 3.

3A SANITARY STANDARDS COMMITTEE MEMORIAL RESOLUTION FOR GEORGE GRIM

Since George Grim was a potent force in his initiative, drive and far sightedness in the field of milk sanitation with especial reference to dairy equipment. The 3A Sanitary Standards Committees composed of members of the Dairy Industry Committee on Sanitary Standards. The International Association of Milk & Food Sanitarian's Committee on Sanitary Procedures of which he was a pioneer member and the United States Public Health Service at their meeting at Excelsior Springs, Missouri, December 12, 1956 wish to propose this testimonial in his memory.

The entire dairy industry as well as the 3A committees acknowledge Dr. Grims tremendous contributions that he made to provide not only the territory he served but because of his impact on the industry, the nation with the worlds finest and safest food.

As a group we wish to express our condolences to Mrs Grim with the sincere wish that she will find comfort in the knowledge that George Grims professional life was a highlight to those of us who are left to carry on his high ideals and ambitions.

In order that a fitting record of this testimonial be kept. it is hereby resolved that this data be placed on the minutes of this meeting and that a copy of this expression be sent to the family of George Grim.

3A SANITARY STANDARDS COMMITTEE MEMORIAL RESOLUTION FOR JOHN R. PERRY

The 3A Sanitary Standards Committees, of which John R. Perry was an honored member are meeting this year with a deep sense of loss because of his untimely passing.

John's long association with our group, through his membership on the Sanitary Standards Subcommittee of the Dairy Industry Committee, has earned him great respect as a sanitarian and as a fine human being.

His knowledge of plant sanitation and operation

was of tremendous value in the deliberations of this group in the job of developing practical equipment standards for the dairy industry. In addition, his inventiveness in creating devices and techniques for plant sanitation practices made him a national authority in this field.

It is hoped that his family and friends can find consolation in the knowledge that his work was not for self alone but represented the idealistic thought that man must make a worthwhile contribution to society in order to fulfill his highest destiny.

In order that a fitting record of these facts be kept, it is hereby resolved that this statement be placed on the minutes of this meeting and that a copy of this expression be sent to the family of John R. Perry.

CLARENCE W. WEBER RETIRES

December 12, 1956

Mr. C. A. Abele, Chairman
Committee on Sanitary Procedures
International Association of
Milk & Food Sanitarians
Dear Mr. Abele:

I sincerely hope that in this communication I can convey to you and the other members of the Committee a clear and honest expression of my feelings of my past and present relations with my fellow associates.

I am retiring from the New York State Department of Health on January 4, 1957, and thereafter will be associated with several companies which manufacture dairy equipment. The equipment manufactured by these companies will be within the scope of the 3-A Sanitary Standards. Therefore, because of this change in my status, I respectfully suggest that you evaluate my acceptability as a member of your Committee. If you and the appointing officers decide that it is to the best interest of the association, I will have no regrets in being relieved of my appointment to the Committee on Sanitary Procedures. If it is decided that I can be of service, I will be proud to serve to the best of my ability.

The Committee on Sanitary Procedures and the 3-A Sanitary Standards Committees have rendered invaluable services to this Country, and there is an opportunity and a challenge for far greater services. I am humbly proud that I had an opportunity to be a part of this truly democratic activity. I will always cherish the fellowship acquired through association with a grand group of men.

Sincerely,
Clarence W. Weber

COMMITTEE ON SANITARY PROCEDURES

Announcements of the retirement of Clarence W. Weber from the position of Associate Sanitarian (Equipment) in the Division of Milk Control of the New York State Department of Health, and his entry into a professional consultant career, has been made elsewhere in this number of *The JOURNAL*. Because of the drastic alteration in the nature of his activities, Mr. Weber tendered his resignation as a member of the Committee on Sanitary Procedure at the recent meeting of 3-A Sanitary Standard Committees at Excelsior Springs, Missouri.

The contributions of Clarence Weber to the sanitation of milk production and processing equipment are widely known among members of this Association, and are especially recognized by those who have participated in meetings of the Committee on Sanitary Procedure since he became a member in 1942-3. His knowledge of the details of fabrication of dairy equipment, his recognition of the principles of physics and mechanics involved in design, and his insight into the resultant consequences of proposals offered during discussions, have been invaluable to Committee deliberations. Members of the Committee are agreed that much of the credit for the acceptability which 3-A Sanitary Standards enjoy is attributable to the thoroughness with which he considered every proposed provision.

He has been the Committee's sole representative on the sub-committee which has drafted the 3-A Accepted Practices for the Sanitary Construction, Installation, Testing, and Operation of High-Temperature Short-Time Pasteurizers, to be published in the near future.

Realizing, from the text of his resignation, that severance of his connection with activities of the Committee on Sanitary Procedure has been decided upon in order to spare the Committee any embarrassment which might result from his consultant relations, his resignation has been accepted, after consultation with members of the Executive Board of the Association, with deep regret. He carries into his new career the highest respect for his capability and integrity, and the good wishes for success, of all members of the Committee on Sanitary Procedure.

C. A. Abele,
Chairman

UNIVERSITY OF KENTUCKY HOLDS 4TH ANNUAL DAIRY MANUFACTURING SHORT COURSE

Flavor, automation and sanitation were the features stressed at the University of Kentucky's Fourth Annual Dairy Manufacturing Short Course held November 27, 28, and 29.



Some of the 90 Kentucky dairymen who attended the Fourth Annual Dairy Manufacturing Short Course held in Lexington, November 27, 28, and 29.

Professor B. E. Goodale, Clemson College, emphasized the importance of flavor by stating, "Flavor influences the acceptability of nearly everything that passes the lips . . .". He went on to admonish those attending the short course, "In this great scientific age, we dairymen are not as progressive in controlling flavors as are our competitors in other food industries." Professor Goodale explained the importance of training personnel in flavor control.

A panel discussion on vacuum treatment of milk further accentuated the importance of flavor control. Professor Goodale served as moderator of this panel. Members, representing the different types of vacuum treatment units, were M. L. Beere, Walnut Grove Dairy, Louisville; Bernard Willinger, Cream Top Creamery, Louisville; and Philip Wilson, Ball and Company, Lexington.

"Automation will help in providing more efficient plant operations, whether it be for ice cream, fluid milk or milk products", Donald Merlin, Olson Publishing Company, Milwaukee, Wisconsin, said in a discussion on the subject the first day of the three day meeting. He pointed out that in many operations automatic processes are already available and more are developing every day.

In commenting on efficiency of operations, Dr. W. M. Roberts, Head of Dairy Manufacturing at North

Carolina State College, stressed the importance of production planning. He sited ways and means of implementing such planning in ice cream plants in particular. Dr. Roberts discussed high-temperature short-time operations in ice cream plants, and also was the leader of the ice cream clinic.

M. F. Hales, Chr. Hansen's Laboratory, Inc., Milwaukee, Wisconsin, served as judge of the buttermilk and cottage cheese clinic. He also spoke on methods of making cottage cheese, and new developments in lactic acid starters.

For the cheese clinic, H. E. Meister, Acting Chief of Inspection and Grading Branch, Dairy Division, A. M.S., conducted a cheddar cheese grading school. Prior to the school Mr. Meister discussed defects found in cheddar cheese and methods that could be used for correction.

Over 90 people attended the three day meet which was sponsored jointly by the Dairy Section of the University of Kentucky and the Kentucky Dairy Products Association. Those attending were served coffee and donuts each morning under the direction of Professor J. O. Barkman, Dairy Section, University of Kentucky. During each morning session there was a milk break sponsored by the American Dairy Association. A banquet was held with Professor Goodale as principal speaker.

Other speakers on the program were: James J. Carroll, C. J. Van Houten and Zoon Inc., New York; Earl Cooper, Kraft Foods, Co., Columbia, Tennessee; Bob Davis, Oscar Ewing, Inc., Louisville, Ky.; Mrs. F. C. Dugan, Director, Division of Food and Drug Control, Kentucky Department of Health; O. A. Traver, The Borden Company, Columbus, Ohio; and Drs. W. E. Glenn and T. R. Freeman of the Dairy Section, University of Kentucky. A limited number of abstracts of the talks given are available and can be obtained from Dr. A. W. Rudnick, Dairy Section, University of Kentucky, Lexington.



SANITATION WORKSHOP

A Sanitation Workshop was held at the Southwestern District Health Unit in Dickinson, North Dakota, October 22, 23 and 24, 1956. It was appropriately called the "First Annual Sanitation Workshop" in the hope that it would become an annual affair. From the response of those present, it will be just that.

Purpose of the Workshop was to give training in several phases of sanitation, namely, milk and food inspection, installation of emergency hypochlorinators, institutional inspection and rodent control. Many of the Sanitarians in our State have felt the need for completely discussing these topics together. Consequently, every Local Health Unit and City Health Department was represented.

Although we found that at least one of our own men had an answer for nearly every question, two outstanding consultants contributed much to the open discussions. These men were Milton Held, Regional Milk & Food Consultant, Public Health Service, Kansas City 6, Missouri, and H. L. "Red" Thomasson, Executive Secretary of the International Association of Milk and Food Sanitarians, Shelbyville, Indiana. Mr. Thomasson also told of the organization and

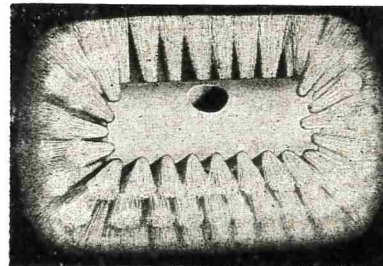
functions of the IAMFS at the banquet held in the Dickinson Elks Lodge, Tuesday evening.

Another result of the Workshop was a rejuvenation of the North Dakota Association of Sanitarians. An efficient, well organized Association is needed to set up the annual workshops as well as to promote all aspects of sanitation in our State.

MICHIGAN STATE TO HOLD DAIRY ENGINEERING CONFERENCE

The Fiftieth Annual National Dairy Engineering Conference will be held at Michigan State University, February 26 and 27, 1957. Major subjects which will be given thorough coverage include; (1) New Developments in Pasteurization, (2) Use of Vacuum in Pasteurization, (3) Packaging, Filling and Distribution Problems, (4) Stop the Experts - A panel discussion, and (5) Plant Design and Maintenance. The printed program will be available about January 15.

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OREGON MILK SANITARIANS SHORT COURSE

The fifth annual Milk Sanitarians' Short Course for all official Oregon milk inspectors was held November 26 and 27 at Corvallis under the sponsorship of the Oregon department of agriculture and Oregon state college.

The Short Course at Corvallis is required by the Oregon fluid milk act and informs all city and state milk inspectors of uniform techniques of dairy and milk plant inspections. Discussion highlights at the Short Course included farm milk tank sampling, bulk milk handling and problems involved in the installation, operation and maintenance of pipeline milker systems.

Upon completion of the Short Course, the OSDA division of foods and dairies, weights and measures held its annual fall meeting in Salem. The two-day conference emphasized weights and measures work of the department.

Demonstrations were given of bread, ice cream, milk, cream, meat, fruit and vegetable weighing for state tests of accuracy in weight. This was a refresher course for all men doing work in this field.

Food labeling, egg candling, legal and fiscal matters were also up for discussion during the division conference. As a special feature, F. L. Ballard, assistant director of the Oregon extension service at Corvallis, addressed the group on "Oregon Agriculture".

BULK MILK TANK COLLECTOR SHORT COURSE

A new short course to train pick-up drivers of milk from farm bulk milk tanks will be given by the College of Agriculture, The Pennsylvania State University, from March 25 to 29, 1957.

Instruction will be on milk sampling and sediment tests, causes of off-flavors in milk, types of bulk milk tanks and their calibration, bacterial counts in milk, and the like.

A half day will be spent with a collector of milk from farm bulk milk tanks observing his techniques and the milk equipment on the farms visited.

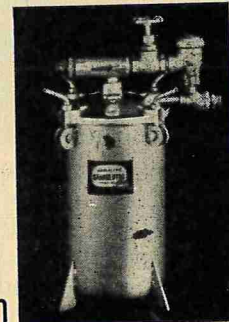
An examination for the Pennsylvania weighers and samplers license will be scheduled for the last day of the course.

Persons 16 years of age or older who wish to enroll may secure more information and application blanks from the Director of Short Courses, the College of Agriculture, The Pennsylvania State University, University Park, Pennsylvania.

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DR. H. H. ROTHE RETIRES

Dr. H. H. Rothe has announced his retirement after 20 years of distinguished service as State Dairy Supervisor for the Dairy Division of the Florida Department of Agriculture. In announcing his retirement Dr. Rothe stated that his greatest personal satisfaction came from helping the small struggling dairymen who found it difficult to stay in business and still meet the rather stringent regulations which are necessary in the production and distribution of milk. Through his efforts, as well as others, the quality of Florida-produced milk is as good as any in the nation.

Dr. Rothe had early in his career received advanced degrees in Veterinary Medicine and with this educational background made outstanding success in contributing to a healthier dairy cattle population in Florida. Recently Governor Collins appointed him to the Brucellosis Eradication Committee. He also has recently served on the committee of the International Association of Milk and Food Sanitarians which prepared a soon to be released bulletin on the Procedures for Investigations of Foodborne Disease Outbreaks. It was through his efforts that the Florida Association of Milk and Food Sanitarians, of which he was President in 1955-56, formed a statewide Sanitarians Council which deals with standards, methods, procedures and equipment related to the safe production, processing and distribution of milk in Florida.

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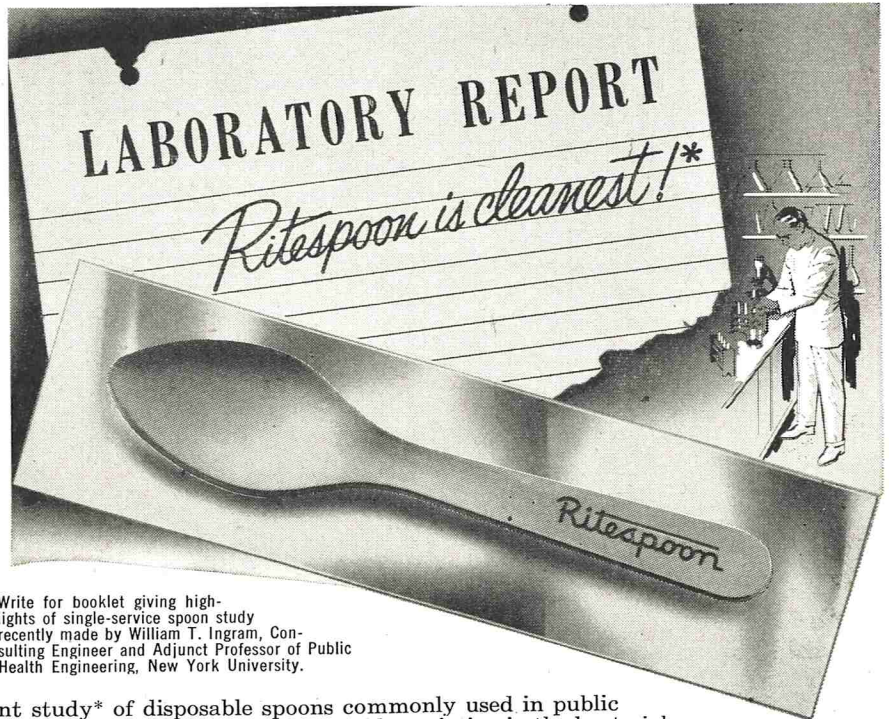
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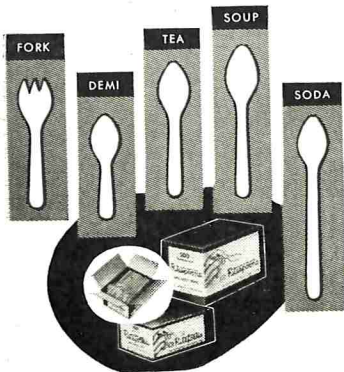


*Write for booklet giving highlights of single-service spoon study recently made by William T. Ingram, Consulting Engineer and Adjunct Professor of Public Health Engineering, New York University.

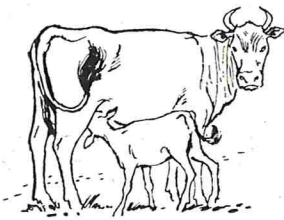
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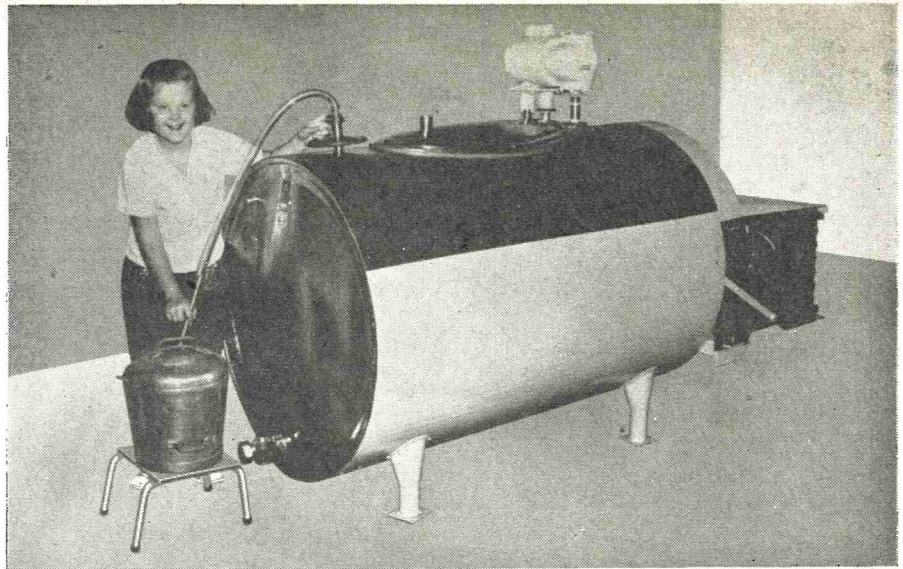
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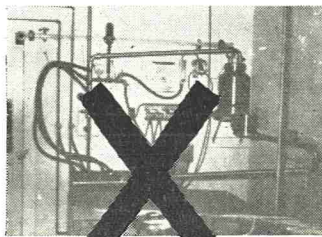
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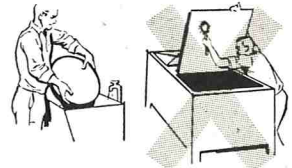
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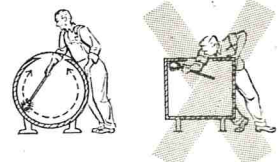
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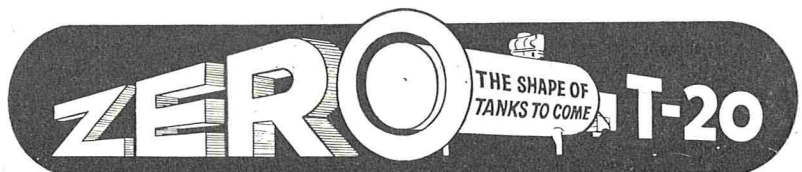


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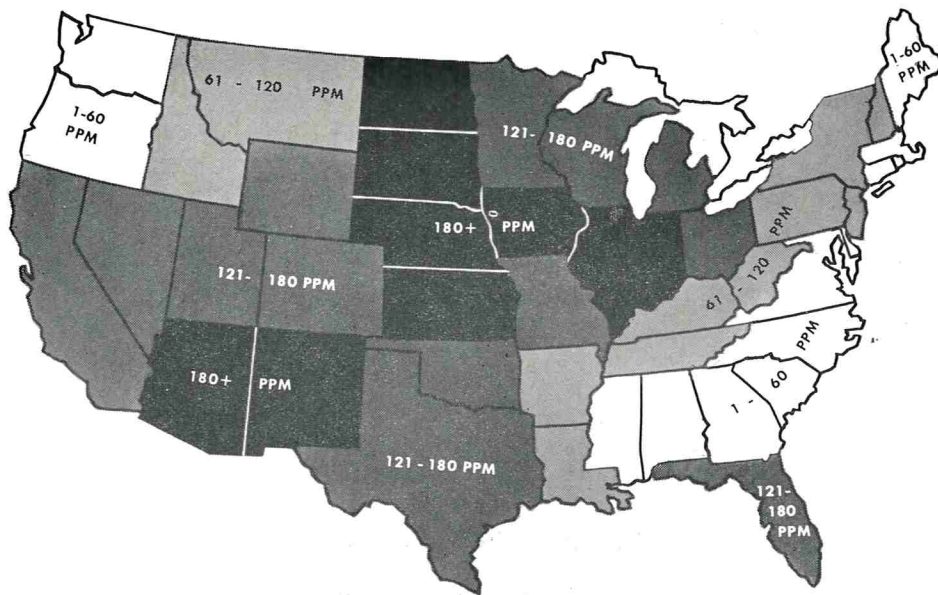
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