

Journal of

MILK and FOOD TECHNOLOGY

50th ANNUAL MEETING

OCTOBER 22, 23, 24, 25, 1963

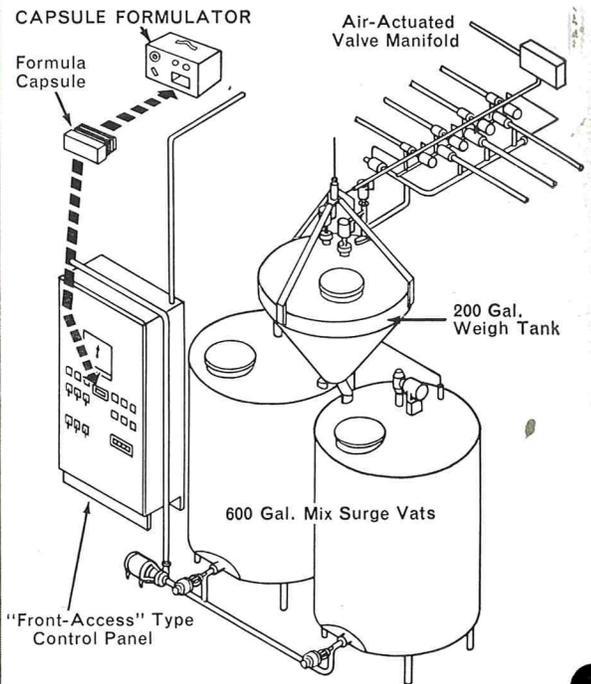
Royal York Hotel — Toronto, Ontario, Canada

Official Publication

International Association of Milk, Food and
Environmental Sanitarians, Inc.



S-163



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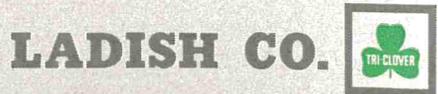
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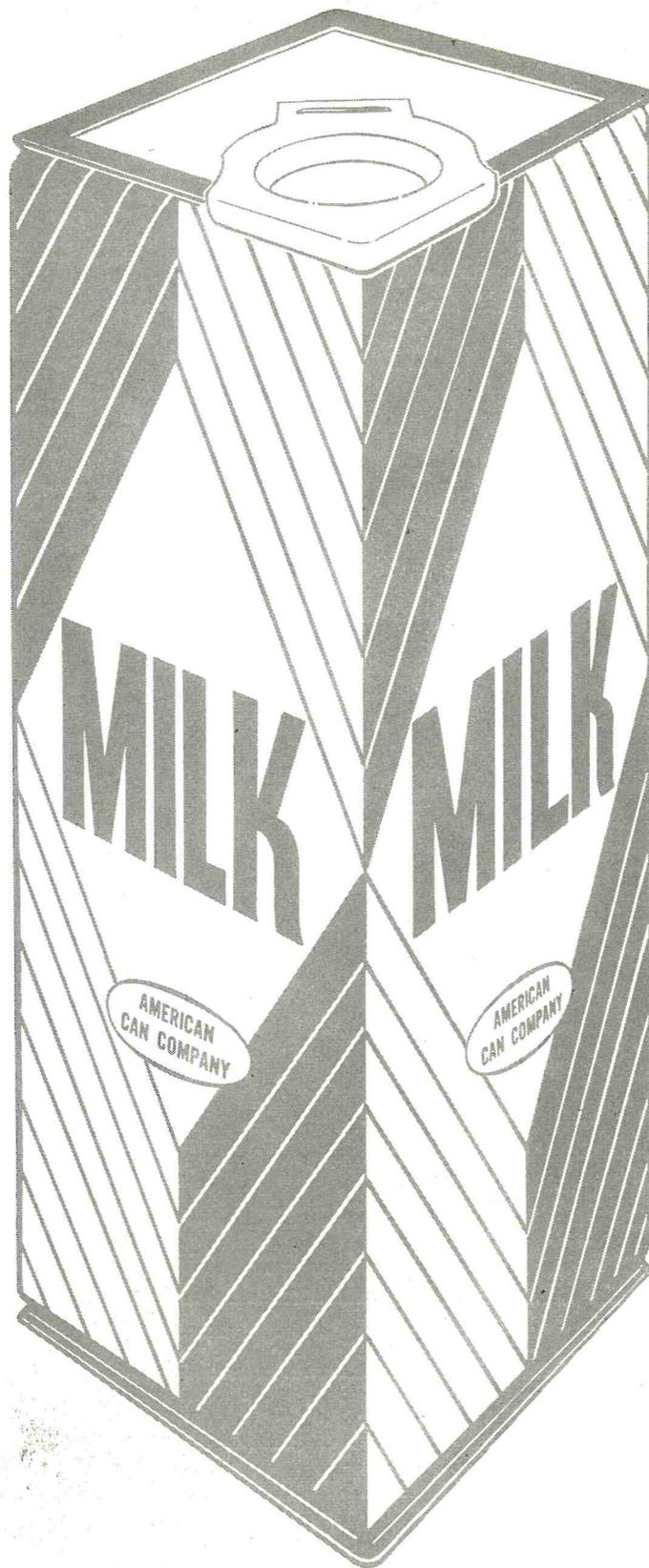
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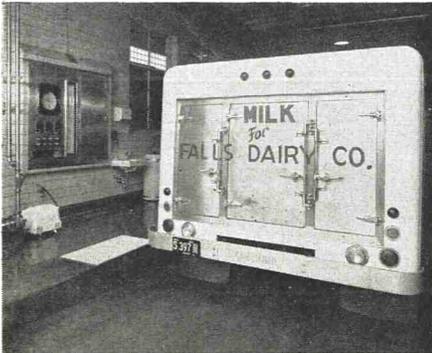
Sanitation Engineering

Automated Product Handling

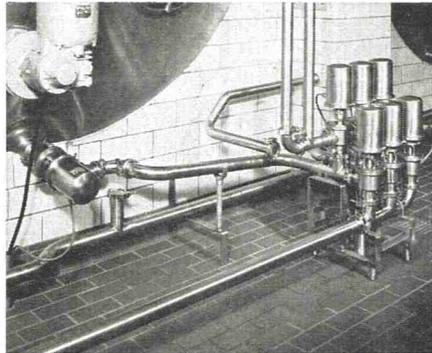
Klenzade performance of an automated product handling system or an automatic CIP cleaning system is based on a solid background of experience in engineering know-how, installation techniques, and proper chemical programs. Sanitation is *designed into the system* — not improvised after start-up.

Automatic CIP Cleaning

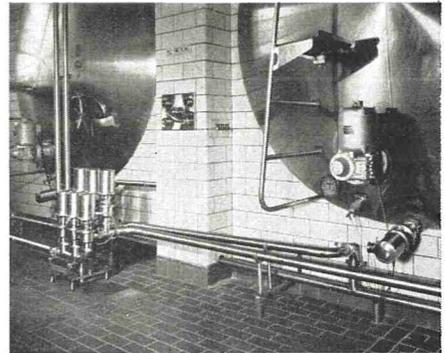
Klenzade provides "single organization responsibility" in setting up processing and CIP automation programs from concept to conclusion. Klenzade has the skills to produce, and the experience to accept complete responsibility for a smooth-working, efficient, and economical system.



All product flow and CIP operations involved in this receiving and load-out station are controlled from the panel in the background.



Proper orientation of product and CIP lines permit a single elbow to connect the tank to (1) the fill-discharge line, or (2) the tank cleaning return line. A permanently installed CIP circuit feed line connects to the product piping by simple re-positioning of an elbow in the double receiving line.



For final line and valve cleaning operations, elbows at the tank outlets connect the fill-discharge line to the tank cleaning return line used as a tie-line.

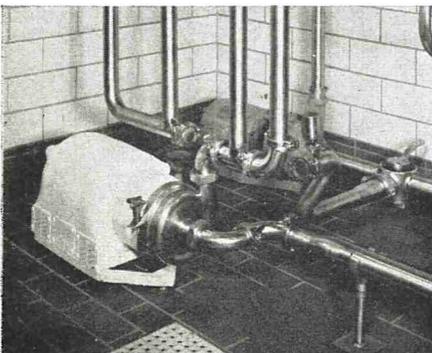


ORIENTATION OF LINES, VALVES, AND FITTINGS

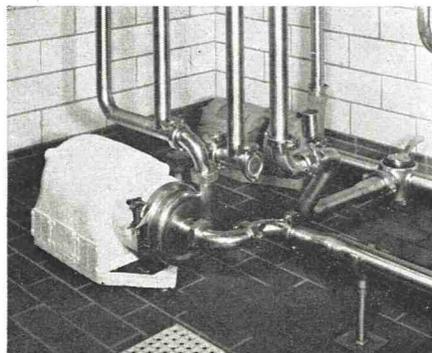
The greatest labor and product-saving advantages of CIP piping systems can be effected only when the piping system permits all production operations to be carried

on with a minimum of valve and line changes. The maximum amount of piping can then be cleaned in position with few CIP jumpers and return lines being neces-

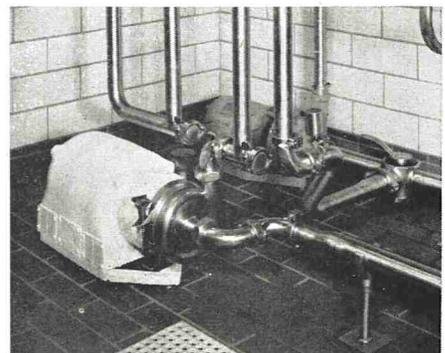
sary. This again points up the need for thorough knowledge of plant equipment, equipment layout, processing routines, and sanitation requirements.



A swing-elbow connects the load-out pump to the double load-out line, and . . .



Connects the same pump to a double transfer line supplying surplus milk to an associated manufacturing operation, and . . .



Proper positioning of the two elbows and two caps involved establish the circuit for the final CIP line cleaning process.

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Journal of

MILK and FOOD TECHNOLOGY

INCLUDING MILK AND FOOD SANITATION AND MILK TECHNOLOGY

Official Publication

International Association of Milk, Food and Environmental Sanitarians, Inc.

REG. U. S. PAT. OFF.

Vol. 26 June, 1963 No. 6

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A PROGRESSIVE STEP?

It was officially announced in the May issue of the Journal that the membership has voted in favor of changing the name of the Association to the INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC. This measure was approved by the Executive Board in Philadelphia last fall at the Annual Meeting and was unanimously supported by the members present at the business meeting held during that meeting. There are various and many reasons why your Executive Board felt and still feels, that the adoption of this proposal was a wise and progressive step for the Association as a whole.

There has been a great deal of controversy in the past about this change and many fine arguments supporting both sides. However, it was the the considered opinion of the Board that the points brought in favor of the change more than offset those against it. Among those considered vitally important were the following:

1. About 20 per cent of our membership at present are general sanitarians.
2. Many states have only general sanitarians (except for a few men who are specialists in milk or food in some of the larger cities) and affiliation of these groups with our Association is very important if we are to gain in strength and unity throughout the country. The cooperation of all the states through a single parent organization such as ours can lead to a more profound and firmly based philosophy of sanitation in all its aspects. By a better working relationship through cooperation and exchange of ideas, the Association can better cope with the growing problems of public health and sanitation.
3. State authorities object to two sanitarian organizations within the states and thus, there is created a needless amount of constant friction for the sanitarians.
4. The general sanitarian is increasing in number; the milk sanitarian is reducing and food should increase (however, the general sanitarian is and has been doing a great deal of the food and milk sanitation work).
5. Milk and food sanitarians should be as well versed in general sanitation principles as any general sanitarian. Many do not agree that such knowledge and material dilutes, as has been charged, the profession of the milk and food sanitarian as a specialist. Conversely, information pertaining to milk and food should be considered beneficial to the general sanitarian as well as the specialists working in this field.
6. There are many aspects of general or environmental sanitation which need extensive research and high level investigation. It is felt that our Association can do much to stimulate an increased interest in this area and, hopefully, provide insight and direction into the solution of the multitude of problems.

Many undoubtedly looked at the name change from a purely personal viewpoint and considered its bearing on their own vocations. However, it is necessary to look at this step through the eyes of the Association and what it means to the solidarity of the Association in terms of future growth and accomplishments.

Admittedly, the constitutional change was adopted on the basis of a very slim margin. The vote was quite small when the total number of eligible voters is considered. However, the amendment was passed in accordance with the constitutional requirements.

Now that the vote is history, the Board still feels that it made a wise decision and one in the best interest of the Association and its members. Therefore, we solicit the cooperation of *all* members in making this step a meaningful and fruitful one for the Association. The Journal is the official publication of the Association, and it too will strive to better serve the entire membership. However, this cannot be accomplished if an apathetic attitude prevails concerning material and information about the field of environmental health other than milk and food. We are all too quick to criticize and unwilling to make a conscious effort to provide the object of our criticism with a remedy or suggestions for a solution.

Speaking on behalf of the Executive Board, I wish to ask each of you to make a renewed effort to help us with the enormous task which confronts us. For, without your support, we certainly cannot accomplish the goals and objectives of this Association.

RAY A. BELKNAP
President
International Association of
Milk, Food and Environmental
Sanitarians, Inc.

ENVIRONMENTAL SANITATION SURVEYS¹

FRANCIS A. JACOBS

*Metropolitan Planning and Development Branch,
Division of Environmental Engineering and Food Protection,
U. S. Department of Health, Education, and Welfare, Washington, D. C.*

Some of you probably remember that in October, 1960, Mr. Art Neill gave a talk to your Annual Convention on the subject "Sanitation in Suburbia." This paper dealt with the effect our expanding suburban population was having on the sanitation programs. Mr. Neill stated that two big causative factors contributing to metropolitan problems were economic limitations and political differences. The paper closed with ". . . unless more public health agencies and advocates of better community health are willing to step forward and protect their interests and objectives as a full member of the comprehensive community development and planning team, we can look forward to the frustrations of putting out endless brush fires instead of preventing them through sound planning."

Possibly, it is advisable to touch on the causative factors contributing to metropolitan problems namely, economic limitations and political differences. Political differences are today still very much of a factor when dealing with metropolitan problems. There are even more governmental entities today than there were in 1960. There are more units in our metropolitan areas because more and more of these areas are now crossing county and State lines. Demographers tell us that normal migration plus a greater number of births in the metropolitan areas will result, by 1970, in almost two-thirds of all Americans living on only ten percent of the land area. These two facts would indicate an even worsened condition in years to come.

Economic limitations are also still quite evident. There is more and more pressure being brought to bear on how best to spend the tax dollar. Each and every group advocates the spending of more money in their interest areas. With limited moneys available we must recognize the need for planning so that these tax dollars will bring in the maximum return.

The need for planning is evident in many fields. It is necessary to assess the present situation as well as to foster the accumulation of data so that guides can be established for future activities. With this

in mind the Public Health Service has prepared an Environmental Health Planning Guide which deals with the following subjects.

- | | |
|------------------------------|------------------------------------|
| 1. Health Agency Operations. | 6. Refuse Collection and Disposal. |
| 2. Planning Agency. | 7. Sanitation Programs. |
| 3. Air Pollution Control. | 8. Sewerage Services. |
| 4. Housing Programs. | 9. Water Supply Services. |
| 5. Radiological Health. | |

The guide supplies forms on each of these subjects that can be used in compiling data and also criteria which can be used in determining adequacy. Reference material, suggested maps, and methods of using data are also included.

Most communities today recognize the value of a master plan which covers the entire field of civic responsibility and an area larger than the corporate limits. Planning of this magnitude is essential for the health and well being of its present and future citizens. The larger than present corporate limits area consideration is important in practically all fields, but it is most important in the field of public health. The fringe areas always seem to pose the greatest number and variety of problems. This is due often to an absence of codes that relate to building, zoning, plumbing, electrical, etc. A community, if it is in a growing stage, and most of them are growing, must extend into these fringe areas as soon as available land within the corporate limits is used up. It is by far more desirable to have these areas controlled or planned efficiently as they are developing than to wait and try to secure correction after the damage has been done. To accomplish orderly growth, the planning of the area should take place while it is still raw land.

The Public Health Service believes it to be essential that health needs be brought to the attention of the citizen. If the community has a planning agency then a close relationship should be established between planning and health officials. This relationship would insure that public health needs would be incorporated in the overall master plan. The Guide, as prepared by the Public Health Service, serves its most useful purpose in areas where there is no organized planning group. Its simplicity makes it possible for even a lay group to assess the adequacy of the public health activities in a given community. This statement is not made facetiously because the

¹Presented at Semi-Annual Meeting of Sanitary Engineers & Sanitarians, Georgia Health Department, Macon, Georgia, October 9, 1962, and the Annual Meeting of the International Association of Milk and Food Sanitarians, Inc., Philadelphia, Pennsylvania, October 25, 1962.

guide has been carried into the field, used, revised, used again, and further revised. We do not propose that the last revision (1962) is an instrument that gives all the answers. We merely say that it incorporates those changes which have been indicated to be desirable from the field experience and we believe it is the best of its kind available today.

Field experience has been gained through performing surveys at Omaha, Nebraska; Lake County, Illinois; Fort Wayne, Indiana, and other areas. Each of these areas have contributed substantially to methodology in conducting this type of survey. Each area has had a different reason for wanting the survey performed and each has had a different type of sponsoring group.

Two of these surveys were started in late 1960 in Fort Wayne, Indiana and Omaha, Nebraska. Each report required approximately six months field work and about four months to complete the finished report.

The Fort Wayne study was initiated by a Citizen's Civic Association. This Committee consisted of representatives from eighty neighborhood associations and service organizations. The study was needed because the metropolitan development around Fort Wayne had inadequate environmental sanitation controls and as there were two health departments in the area, city and county, it was felt that a single plan encompassing both city and county should be made. The Citizen's Civic Association further felt that the survey should be conducted through their auspices so that jurisdictional lines could be obliterated and also that the report would be unbiased. The Association through the Mayor of Fort Wayne requested, through the Indiana State Board of Health, the United States Public Health Service to assist in conducting an environmental health survey for Fort Wayne and Allen County. When agreement had been reached by all parties the association appointed a working committee to be responsible for assembling the data and writing the report. The composition of this working committee consisted of a representative from: Central Labor Council; Allen County Council; a large department store; and three ex-officio representatives.

After considerable publicity the survey was started with the committee contacting the various local officials and securing the data required by the survey forms. It might bear repeating that a citizens' group was responsible for initiating, conducting, and implementing this entire survey.

The Omaha survey took a different approach. It was the outgrowth of the recognition that there was a definite need for a housing program. The Douglas County-Omaha Health Department recognized this need and approached the Public Health Service to

determine what assistance would be available. When the possibility of conducting an environmental survey was discussed, the health department felt that this would be more desirable since it included all facets of environmental health including housing.

The health department accepted responsibility of gathering the data needed for the report, but requested that the Public Health Service give consultative service and assist in the writing of the report. The health department assigned specific personnel to the survey and the Region VI office of the Public Health Service made available, on a call basis, personnel to assist. About half way through the survey there was demonstrated a need to include a portion of Sarpy County since the southern boundary of Omaha and the northern boundary of Sarpy County were synonymous and part of the urban area projected into the County. The State of Nebraska Department of Health, in the absence of a county health department, assisted in assembling the data for Sarpy County. The survey extended over a twelve month period and it was felt since the report was primarily the work of the local health department that it should be reviewed by the governing bodies of the legal jurisdiction involved.

The Lake County study took still another approach. Lake County is a part of the Chicago Metropolitan area and population growth within this county has been phenomenal, being almost six times the rate of the core city. The health department is relatively new, about two years old. Adequate local financing was available and they wished to determine the problem areas. The planning department, also new, has just started work on a comprehensive plan and felt that an environmental survey would furnish the needed information for this activity as well as furnish background which would assist in the overall picture. Since both departments felt considerable benefits could be derived from such an undertaking, the project was completed under joint sponsorship of the Health and Planning Departments. The survey followed the same pattern as the other two.

I am sure the following question might be raised, "Surveys are nice because they do indicate the areas that need additional attention, but do these surveys result in concrete improvements?" Our answer to this is assuredly yes. Suppose we start with the Omaha survey.

Ten recommendations were incorporated in this report dealing with legislation, subdivision regulations, health regulations for unincorporated areas, the metropolitan sewerage problems, planning coordination, garbage and refuse collection and disposal, open dumps, and housing. In the past ten months since this report was formally adopted some progress as been made in all recommendations with seven of

them being adopted. The main purpose, housing, has resulted in two persons being trained in the APHA Method of Appraisal and a complete city wide survey started. As of July, 1962 a total of 1129 dwelling units have been surveyed and 428 dwelling units brought into complete compliance with ordinances or eliminated.

The Fort Wayne survey is now just a little over a year old but even here some action has been taken as the result of the report. The City of Fort Wayne has started a program of water main extensions in the Waynedale part of the city. This program was started when the survey revealed there were between one and five percent of the population not connected to the city water system. It is assumed that the city will maintain an extension program, based upon its economic ability, until city water is available in all parts of the city.

The City and County planning commissions have tightened requirements for subdivision approval. All new plats must include water supply plans. This has resulted in many subdivision water supply plans as well as creating interest in this subject in the City of Woodburn.

The sewer recommendations indicated that a tightening up of regulations should be instituted and, in cooperation with the health department, the city and county planning commissions have tightened their requirements for subdivision approval. New plats must include sewage disposal plans. This has resulted in an increase in the number of privately owned sewage treatment plants being constructed as well as creating active interest in the two satellite communities.

The City of Fort Wayne also has started a program of sewer extensions to the fringe areas. The county sanitary engineer is now acting as an advisor to the Allen County Planning Commission. He also must approve all new subdivision plats prior to County Plan Commission approval. His review includes water and sewage as well as other environmental health aspects. Refuse collection is also receiving consideration in that the Town of New Haven is negotiating with Terminal Service Company and is considering outlawing private scavengers if a suitable price can be obtained from Terminal Service. A contract, if signed, will correct the collection, storage, and disposal problem.

The basic problem, combining the Fort Wayne-Allen County Health Departments, has not yet been approved but progress can be reported in this area also.

The Lake County report has only been completed a very short time and as yet very few concrete results have been observed. There is a very active interest in this report and its findings, and we feel

confident that progress will be forthcoming in the very near future.

Now as to plans for the future. The Public Health Service believes that it can best fulfill its obligation in the field of environmental health planning by use of two-week resident courses, given approximately twice a year, short (usually two days) orientation courses, and by assistance in field demonstration courses. The first two-week resident course was given in Cincinnati during April of this year. When the course was announced there was an immediate response from all parts of the country but the class was limited to fifty students. Since field training is part of this course it was felt that this would be the maximum number that could be handled. During the April course in Cincinnati, a survey was performed for Hamilton, Ohio. Since this was considered a training period the survey was not performed in full depth but even here some implementation has been possible.

Boulder, Colorado was selected as the site of the last two weeks course and the City of Boulder was the survey area. Since this course was conducted early in September the final report is not yet available.

As to future two week courses it is my understanding that it might be possible for such courses to be given in any community that desires to have the course and who wishes to have a survey made. There is one limitation, however, since the present plans are to have only two such courses per year, if there are very many such requests there might be a considerable delay.

There have been quite a few requests for the short (two-day) course. This course consists of a series of talks explaining the use of the Planning Guide. At the present time such courses are being considered for Portland, Oregon; San Francisco and Los Angeles, California; Tucson, Arizona; Denver, Colorado; Hawaii; Harrisburg, Pennsylvania, and at the Universities of North Carolina, Georgia, and Texas. Courses of this type have only one limitation—time and personnel. The team that presents this two-day course are presently obligated until the middle of June, 1963.

One survey which was made does not follow any of the other patterns. Seattle, Washington requested the Public Health Service to make a survey of the health activities for the metropolitan area. The Public Health Service felt that performing such a survey could be used as a model for perfecting a technique of surveying other large metropolitan areas, consequently, an agreement was reached. It was also felt that this survey could be conducted by persons having no direct association with the local health agencies. A working committee was assem-

bled consisting of the Chief Engineer of the Public Health Service, a State Sanitary Engineer, the former director of sanitation in a large metropolitan health department, and the Chief of the Metropolitan Planning and Development Branch of the Public Health Service. To insure complete coverage, consultants were also used; a regional medical director of the Public Health Service, and a health officer of a large metropolitan area being the principal ones. The report is being prepared and preliminary findings were presented to the Seattle-King County group during August, 1962. Considerable interest within the of-

ficial (City and County) agencies and implementation should be evidenced in the near future.

In summation there are several methods that can be employed in making environmental sanitation surveys insofar as the content and personnel utilized. As to the best type and group, I do not know if there is a satisfactory answer. Much depends upon the nature of the variables encountered. May I conclude by assuring you that the Public Health Service has a real interest in this field and we hope that you will let us work with you in the problem areas.

AMENDMENT TO RESCIND

3-A SANITARY STANDARDS FOR ELECTRIC MOTORS AND MOTOR ATTACHMENTS, OCT. 19, 1949, SERIAL 0600.

Formulated by

International Association of Milk and Food Sanitarians

United States Public Health Service

The Dairy Industry Committee

In accordance with the action of the 3-A Sanitary Standards Committees, as recorded in Section V of the minutes of April 3, 4, 5, 1962, the 3-A "Sanitary Standards for Electric Motors and Motor Attachments," dated October 19, 1949, are hereby rescinded, effective one year following the date of the latest validating signature below.

Subsequent to this date the 3-A "Sanitary Standards for Electric Motors And Motor Attachments," Serial 0600, will become null and void.

Notice of this rescinding amendment is hereby published in the Journal of Milk and Food Technology in accordance with the provisions of the 3-A Standard Operating Procedure.

This amendment shall become effective June 10, 1964.

EFFECT OF A SCRAPER-LIFTER AGITATOR ON COOLING TIME OF FOOD¹

LENORA MORAGNE, KARLA LONGRÉE AND JAMES C. WHITE

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This investigation is concerned with the effect of a scraper-lifter attachment to a cold tube agitator on the cooling time of foods. The agitator was the same as that used in an earlier publication (1) except that scrapers were attached to one side and to the bottom of the tube, and a spiral was installed in the center of the tube. The aim of the study was to determine the effect of the scraper-lifter attachment on the cooling times and consistency changes of the mixtures cooled, by comparing the data of this study with data obtained in studies where the plain cold tube agitator was used (2). Variables were: (a) the rate of agitation of the cold tube (6 and 18 rev/min); (b) the level of egg in the mixture (13 and 16.5 oz/gal milk); (c) the level of cornstarch in the mixture (3 and 6 oz/gal milk) and (d) the level of sugar in the mixture (0 and 16 oz/gal milk).

EQUIPMENT, PROCEDURE AND MEASUREMENTS

A diagram of a plain cold-tube agitator, positioned in the stock pot, used in an earlier study (1) is presented in Figure 1. For use in the present study, this cold tube was modified by equipping it with two Teflon-lined scrapers 1/4 in. wide and 6 in. long to insure more thorough mixing. In addition, a spiral 2½ in. wide and 12 in. high, was installed in the center of the tube to provide a lifting action (Figure 2).

The mixtures used in this study were stirred custards and puddings² made with 3 and 6 oz of cornstarch to each gal of milk, respectively. Methodology for preparing and cooling the 4-gal batches of custards and puddings was the same as described earlier (2). The mixtures were cooled, under agitation, from 140F to 50F in heavy-duty cast aluminum stock pots³ of 25-qt capacity. Water of 35F was used as the coolant. Temperatures were recorded in the mixtures throughout the period of cooling. To determine consistency, radius of spread measurements were made before and after cooling (1). A total of sixteen experiments was carried out.

¹Supported in part by research grant No. EF00205-02 from the National Institutes of Health, Public Health Service, and in part by Hatch Project No. 264.

²Radius of spread, or consistency, measurements for the custards were similar to that of a cream soup; measurements for puddings were approximately one-half as great.

³Wearever, model 4252.

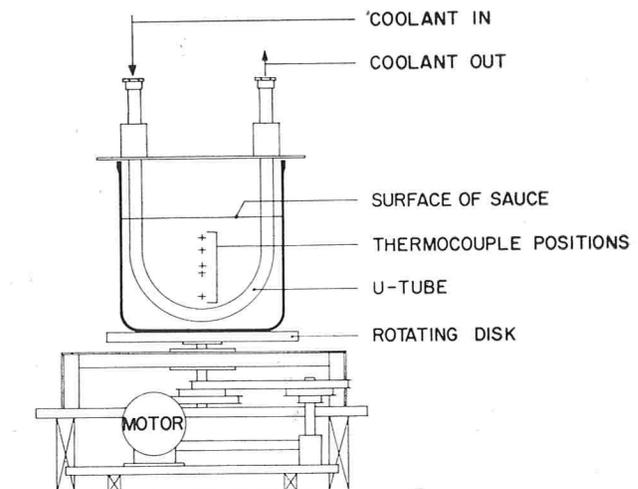


Figure 1. A diagram of the cold-tube agitator located in the stock pot.

RESULTS AND DISCUSSION

When the rate of agitation was increased from 6 to 18 rev/min, the total cooling times were reduced by approximately 1/4. The average cooling times from 140F to 50F were 151 min and 116 min, respectively (Table 1). The average cooling times to 60F were considerably shorter, 108 min and 86 min for the batches cooled at the slow and fast rates, respectively (Table 2). As the level of cornstarch decreased from 6 to 3 oz, cooling times decreased in every instance. The level of egg and sugar had no effect on total cooling time (Table 1).

After agitation the radius of spread was three times as great for the mixtures agitated at 18 rev/min as for the mixtures agitated at 6 rpm. Level of ingredients also influenced the change in the radius of spread caused by agitation in that the change in radius of spread of mixtures made with 6 oz of cornstarch was twice as great as the change in radius of spread of mixtures made with 3 oz of cornstarch. Consistency changes were similar in batches made with the two levels of egg, and were also similar in mixtures with and without sugar (Table 1).

To evaluate the performance of the scraper-lifter attachment, the cooling times of batches cooled with the plain cold-tube (Figure 1) and the cold-tube with scraper-lifter attachments (Figure 2) are combined in Table 2. When the scraper-lifter was used, cooling times were shortened by 63% at the slow rate

TABLE 1. TOTAL COOLING TIMES OF CUSTARDS AND PUDDINGS COOLED WITH SCRAPER-LIFTER AGITATOR.

Formula			Radius of spread (consistency)										
			Total cooling time from 140 to 50F ^b		at 6 rev/min						at 18 rev/min		
					6 rev/min	18	Before agitation	After agitation	Difference	Before agitation	After agitation	Difference	
Egg (oz)	Cornstarch ^a (oz)	Sugar (oz)	(min)	(min)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)			
13	3	0	145	110	23.3	25.1	1.8	22.8	29.0	6.2			
		16	140	110	25.3	27.1	1.8	24.5	29.5	5.0			
	6	0	160	115	13.3	16.5	3.2	10.0	16.7	6.7			
		16	175	130	12.2	15.3	3.1	14.2	22.8	8.6			
	16.5	3	0	130	100	20.6	22.3	1.7	22.2	26.7	4.5		
			16	145	120	23.3	25.2	1.9	22.7	27.7	5.0		
6		0	160	125	13.1	15.0	1.9	11.7	20.7	9.0			
		16	150	120	13.6	16.0	2.4	13.6	21.8	8.2			

^aBased on recordings of thermocouple centered 1½ in from surface of mixture.

^b3-oz level, custards; 6-oz level, puddings.

of agitation and by 32% at the fast rate of agitation regardless of level of ingredients. With the aid of the scraper lifter, relatively fast cooling could be achieved, even at the slow rate of agitation. A slow rate of agitation is advantageous from the stand-

an earlier study. The aim was to gain information on cooling time and change in consistency of the mixtures as affected by the variables which were rate of agitation and formula of mixture. Shorter cooling times were achieved by using the high rate

TABLE 2. COMPARATIVE COOLING TIMES OF CUSTARDS AND PUDDINGS AGITATED WITH PLAIN COLD-TUBE AND WITH SCRAPER-LIFTER MODIFICATION OF TUBE.

Formula			Total cooling time from 140F to 60F ^a				
			With plain cold tube ^c		With cold-tube plus scraper-lifter attachment		
			6 rev./min.	18	6 rev./min.	18	
Egg	Corn-starch ^b	Sugar	(min)	(min)	(min)	(min)	
13	3	0	320	110	95	80	
		16	340	170	100	85	
	6	0	300	115	115	80	
		16	210	180	130	95	
	16.5	3	0	250	135	100	75
			16	270	150	100	90
6		0	310	125	110	90	
		16	300	120	110	90	

^aBased on recordings on thermocouple centered 1½ in from surface of mixture.

^b3-oz level, custards; 6-oz level, puddings.

^cCited from reference 2.

point of consistency changes. This scraper-lifter agitator caused little thinning of the mixtures at a rate of 6 rev/min. The sanitary aspects of this agitator need further refinement.

SUMMARY

The investigation dealt with cooling of 4-gal batches of custards and puddings using a cold-tube agitator fitted with a scraper-lifter. This agitator was a modification of a plain cold-tube agitator used in

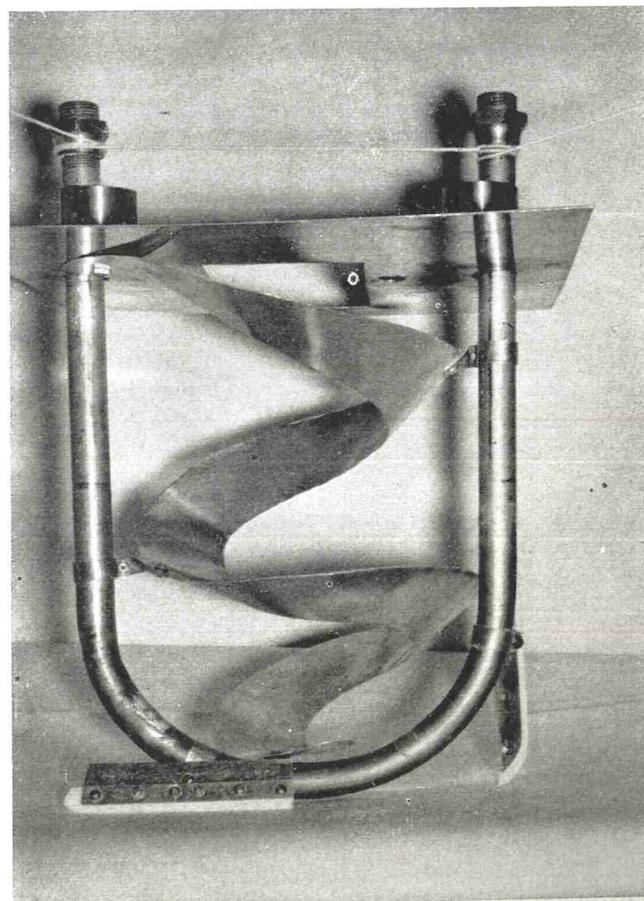


Figure 2. The cold-tube agitator with scraper-lifter attachment.

of agitation and the low level of cornstarch. Level of egg and sugar had no effect on cooling time. The use of the scraper-lifter gave fast cooling times at a slow rate of agitation and caused little thinning of the mixtures.

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CURRENT PROBLEMS AFFECTING CONSUMPTION OF MILK AND INDUSTRY'S RESPONSE TO THEM¹

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Situations having an adverse effect upon the dairy industry have probably occurred with greater frequency during the past five or six years than in any comparable period of time within our present recollection. In listing some of the causes leading to undesirable publicity, which have affected milk consumption, we might begin with reports concerning the presence of antibiotic residues in milk.

You may recall here that the stories pointed out the fact that some people were extremely sensitive to even trace amounts of penicillin, and there was also the fear that the continued ingestion of even trace amounts of antibiotic would cause infective organisms in the body to acquire a resistance to the drug and render the latter ineffective in case a real serious infection should occur.

This problem was effectively dealt with by prompt instituting of antibiotic testing programs by both regulatory agencies and dairy industry members so that the finding of positive results in milk samples became a relatively rare event.

Next came scares concerning pesticide residues which, by the way, are still being revived at irregular intervals. Here again testing programs, mostly by regulatory people, helped to place the problem in its proper perspective.

The next significant items, which are very much in evidence right now, concern cholesterol in its relation to heart disease and the radioactive isotopes situation, especially strontium 90 and Iodine 131, as they relate specifically to milk.

Without in any way trying to minimize the significance of the problems posed by these unpleasant situations it is interesting to note that milk, because of its status as a highly desirable food, especially for infants and children, lends itself easily to becoming the subject of highly emotional appeals to parents.

This enables the creation of a climate where milk can become the excuse or the whipping boy to produce a completely unrelated effect. The people who object to the use of insecticides because they claim it disturbs nature's biological balance have nothing against milk per se, but if they can point to milk as being contaminated by poison spray residues, they can get a great many more people behind their special interest. The groups who oppose nuclear testing are the first ones to tell you that they have nothing against milk, but they do know the value of milk as an emotion rouser and, if they can create the proper psychological effect upon parents by showing that milk becomes contaminated with radioactive material they hope to gain recruits and, more importantly, finances, to carry out their campaign to pressure the government to discontinue nuclear testing.

In addition to these people who may even have altruistic but sub-surface reasons for using milk as a decoy for achieving a specific effect, we have writers and other publicists whose stock in trade is the writing of articles with a highly emotional appeal, which can be sold to periodicals. It goes without saying that articles of this flavor can be sold more readily to certain media than can factual and unemotional articles. To illustrate this type of journalism, you may have seen a front page headline in a certain tabloid which features bizarre headlines to the effect that "Milk Killed My Babies." A reading of the article presents some lurid story to the effect that a woman in England had a number of children with an extremely rare disease called "galactosemia" which is defined as an inability to tolerate milk sugar. The headline tended to create an effect in which milk was pictured as a villainous killing agent potentially threatening the entire infant population, but actually, an inherited physiological defect is the cause of this type of illness. Incidentally, this disease occurs so infrequently that most of us never heard of it.

We did not consider it worthwhile to dignify this

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story with any type of response because this would only provide grist for the perpetrators. The paper is not one recognized for outstanding circulation or influence.

CHOLESTEROL AND HEART DISEASE

It might be well to try to put into proper perspective some of the things which have been causing us so much distress, so let us consider cholesterol as a starter.

1. Statistical studies by a number of investigators have shown without doubt that one of the leading causes of heart disease is a condition called atherosclerosis—which is a hardening of the arteries brought about by the accumulation of fatty plaques on the walls of the arteries.

2. Studies have also shown that people who have high levels of cholesterol, a fatty substance, in their blood are more likely to suffer heart attacks caused by atherosclerosis than other people. It is not known, however, whether the high levels of blood cholesterol cause the deposit on the artery walls.

3. It has also been shown that some people, but not all, can have their blood cholesterol levels lowered by replacing in their diet the so-called saturated fats (animal fats and hydrogenated oil) with unsaturated fats, (liquid corn oil and safflower oil). But there is absolutely no proof that lowering cholesterol levels reduces the incidence of atherosclerosis.

These scientific observations have been interpreted in different ways by different people. They have led to logical, as well as illogical deductions. Some physicians felt that it might prolong the life of some of their "high risk" heart disease patients if they changed their diets by substituting unsaturated fats for the saturated ones. We have no quarrel with this reasoning as long as it is fully realized that such dietary treatment is experimental and to be conducted under the direction of a physician. This is the attitude of the American Medical Association.

However, some commercial interests, eager to promote the sale of their products, were not content to keep the matter on a scientific plane and began to advertise how unsaturated their oleomargarines were. In spite of the effort of the medical and scientific groups to point out that there was no basis for the general public to change its dietary fat intake in the hope of preventing heart disease, these advertisers, either directly or indirectly have tried to convince the public that their products help to avoid heart attacks. As a matter of fact, some of the advertising became so deceptive that the Food and Drug Administration issued warnings indicating the possibility of legal action unless corrective steps were taken.

RADIOACTIVE MATERIALS

In the case of radiation, it should be remembered that this phenomenon has been a factor in man's environment since his creation. However, a new, critical situation has come about since man began testing nuclear devices. This testing releases into the atmosphere radioactive substances which have health implications. Scientists generally assume that there is no threshold level for radioactive substances; that is, there is no level which can be considered absolutely safe, or, put in another way, any exposure to radiation, no matter how minute, may be potentially harmful. In trying to measure the degree of contaminating radiation, it was reasoned that milk would be one of the best substances for testing because (a) it is easy to get samples all year round and in all parts of the country; (b) most of the radio-nuclides in which we are interested from a health point of view, Strontium 89 and 90, Cesium 137, and Iodine 131, may be found in milk; (c) milk is a significant item in the diet of many people, especially children; (d) the values found for milk can be used to estimate the radioactive content of the entire diet. Again and unfortunately, although other foods and beverages are also contaminated with radio-nuclides, milk receives the focus of attention because it is a good material for test evaluation and a general impression is created that milk is the only food which can cause concern because of radioactivity.

No normal person can be very happy over the fact that our environment is being contaminated by radio-active material and the dairy industry would be happy indeed to be rid of the Strontium 90 or Iodine 131 problem. However, the decision to test or not to test is a political one bound up with our international relations and national defense. Based upon the information made available to us through government sources, the levels of radioactive Strontium and Iodine which have been found in our milk supply are well within the acceptable limits established by the Federal Radiation Council.

The anti-testing advocates concentrate the attention of people on milk because they can obtain an interested audience by implying that the milk supply is contaminated to the point where it can affect the health of their children and cause deformities in generations yet unborn. The fact that there has not yet been a single proven case of thyroid cancer due to Iodine 131 or that the best presently available way of reducing the likelihood of absorption of Strontium 90 in the bone structure of the body is to ingest liberal amounts of available calcium which is contained in milk, seems to be of little consequence to the "ban-the-bomb" advocates. In other words, many of them have no qualms about encouraging people to follow a course where they may be adversely affecting their

health by depriving themselves of essential calcium, as long as the advocates can advance their own special objectives.

It is extremely difficult to measure accurately the effect of these attacks upon fluid milk consumption. If you speak to a distributor who has just received a cancellation from a customer, he will tell you that the business is going to the dogs and perhaps he had better give it up. On the other hand, surveys based upon actual interviews across the country show that the consumer still has a tremendous feeling of good will toward milk because of its nutritional values and confidence in the ability of the dairy industry to continue to give the public a safe and wholesome product. In the New York Metropolitan Market area which embraces the City and adjacent areas, including northern New Jersey, fluid milk sales increased 1.7% in 1962 over 1961 and this trend was similar on a national basis. However this is far from a satisfactory picture because the rate of population increase has been considerably higher and on a per capita basis, consumption of fluid milk has decreased. Concurrently, sales of low fat fluid milk products, fluid skim milk and especially powdered skim milk have risen significantly. Much of this increase is due to the cholesterol problem, some to the popular indoor sport of talking about dieting and some to the mistaken notion that radioactive materials are not found in milk powder.

On the question of dieting, a disconcerting tendency has been noted among teenage girls and others to discontinue the use of milk for fear of hurting their figures. There is a failure to realize that dieting, in order to be effective, must be a well planned project, giving proper consideration to balancing the entire food intake so as to assure sufficiency of all the necessary nutritional elements. One of the most misguided which can be taken is to haphazardly eliminate milk which can supply such a high percentage of the minerals, vitamins and high quality proteins without pushing the total calorie intake very high. There is a feeling among some nutritionists that considerable harm may result from this trend, especially in view of the fact that many girls now marry at a young age and start having their families early.

We now come to a consideration of the things which the industry is doing to meet the challenge caused by the events described above. Unlike the cosmetic, tobacco, or soft drink industries, the milk industry is a low profit one and cannot spend the huge sums of money on advertising and other forms of promotion which are characteristic of the former. This is particularly true when it comes to operating on a local level.

COUNTERACTION

There are, however, activities which can be undertaken on a national basis, which can best be performed by groups such as the American Dairy Association and the National Dairy Council with which we are affiliated. The National Dairy Council approach is to work on an ethical basis through nutrition professionals, constantly pointing up the positive side of the nutrition picture as it relates to milk. Educational work is done with dentists, showing the relationship between good teeth and good nutrition, and literature is made available to them for distribution to their young patients, if they care to use it. Advertisements are placed in medical and other scientific journals reminding the professions of the vital part that milk plays in the diet, and finally, the National Dairy Council actually sponsors a great deal of research by renowned scientists to learn more about the effect of milk on human physiology. Results of this research are published and widely distributed to the medical, dental and public health professionals.

The American Dairy Association which is financed by producers, has a fair sized national budget which is spent more for direct advertising of dairy products. They finance television programs and national magazine advertising, billboard posters, as well as direct promotion programs for chain supermarkets and other retail outlets. In addition, they make available to dealers literature for direct distribution to customers.

On a local level, our activities are varied and to a certain extent they become a matter of reacting to situations which arise. When the New York Times published an advertisement sponsored by the "Committee for a Sane Nuclear Policy," showing a milk bottle with a skull and crossbones, and implying that the milk supply might become poisoned as a result of nuclear testing, we immediately wrote the New York Times calling their attention to the fact that the advertisement libeled a product. We received an immediate reply in which the managing editor admitted a mistake in publishing the ad, offered to print an apology and undertook not to entertain similar ads in the future. We sent this letter for publication to Printers Ink, a newspaper trade association magazine, in the expectation that it might deter other papers from taking this type of advertising; and we have reason to believe that our hopes have been fulfilled to a considerable degree.

You may recall that the Herald Tribune ran a series of six articles last fall dealing with the "Diet and Heart Disease" subject. While trying to give the impression of dealing with the subject objectively, we were convinced that a needlessly slanted impression was being created. This impression was

bolstered by the fact that two of the six articles had ads about margarine, claimed to be made with polyunsaturated oils, placed immediately adjacent to the articles.

It so happened that the American Medical Association, shortly before this, had issued a release condemning self-imposed diets induced by the cholesterol scare, and pointing out that there might be a significant health risk in following diets which were not being medically supervised. We decided to take an ad in the Herald Tribune on the day the series was completed, reprinting the release by the American Medical Association which called the Heart Diet fad not only useless but possibly harmful if it was not carefully supervised. The release further advocated the use of four basic food groups in maintaining a healthy nutritional balance. One of the basic four is milk and other dairy products.

We also wrote to the Editor of the Herald Tribune questioning the propriety of placing an advertisement involving a product in juxtaposition to an editorial type of article relating to the same type of product. A reply from the editor admitted the impropriety of this practice, claiming an oversight or lack of coordination between the editorial and the advertising departments.

It is difficult to assess the value of our action in this situation in tangible terms but we at least afforded the readers an opportunity to get another side of the story which, if left unchallenged, could surely have done the dairy industry considerable harm.

The rather sudden and fairly large increase in the Iodine 131 content of fluid milk in several sections of the country last fall created a rather strong public anxiety. Even though our own supply was nowhere near as badly affected as were those throughout the middle west and southwest, concern was apparent and the cries of those who opposed nuclear testing did not help the situation. Since Iodine 131 gets into the milk as a result of cattle eating grass in pastures, one of the best ways of lowering the Iodine 131 level in milk is to put the herds on a program by which they would receive only those feeds that had been stored sufficiently long to reduce the Iodine values below the danger point. (Iodine 131 has a half-life of eight days; thus, feed that has been stored about 20 days should be quite low).

We thought it advisable to anticipate the possibility of a bad situation and decided to formulate a plan which could be followed in case of need.

We organized a meeting of all interested parties which included a wide segment of producer representatives, state and local milk dealers' organizations and regulatory people from Federal, State and Local levels. The problem was fully explored and

there was unanimous agreement that plans should be developed for imposing countermeasures if the Iodine 131 situation became critical in this area.

The first step called for the development of an information program for producers. If they were properly informed, it was felt that we could count on their cooperation.

The next step would involve the mechanics of determining when a critical situation would be declared to exist and who would make the determination. This would also involve a delineation of the areas involved in high-level contamination because it is conceivable that the fallout effect could be spotty rather than extensive.

Thereafter would come the mechanical task of notifying the producers in the affected areas about the need for going on a stored feed program and checking on the effectiveness of the producers' cooperation.

Consideration would also be given to a milk supply allocation program so as to be able to shift low level milk to areas in need and to divert highly contaminated supplies for manufacturing purposes, since storage brings about the disintegration of the Iodine 131.

Details of the plan are not as yet completed but we are reasonably confident that as an industry, we will be able to give assurance to the public that we are prepared to supply them with milk which comes within the limits of acceptability for Iodine 131 as established by the Federal Radiation Council.

I have presented an outline of some of the recent major problems that have faced us and indicated some of the measures which have been taken to meet them. It is perhaps unfortunate that in many cases we do not know when the attacks may come and what their causes may be.

While we react to these attacks as promptly and as forcefully as we can within our ability and resources, we realize that we must approach our problems with a patient but continuing program of public education. Through objective presentations of facts, we hope will in the long run counteract the fly-by-night fad appeals and alarmist promotions.

After all, the high regard for the nutritional value of milk didn't just happen. Over the years man learned about the vital quality of milk proteins, of the part played by milk in providing a ready available source of calcium and phosphorus for building bone tissue and regulating some bodily functions, and of the importance of some of the vitamins which are found in milk. It is well recognized that milk has played a significant part in the healthful development of our people. We have a strong conviction that the basic values of milk will continue to be recognized by the American public.

SANITARY MILK PRODUCTION IN SCANDINAVIA AND BRITAIN

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While there is general agreement that milk should be produced hygienically, different countries have different ideas as to methods, standards, tests, etc. In this article I shall attempt to indicate some of the differences noted during visits to Scandinavia and Britain following the International Dairy Congress last September.

In North America we have developed quite an elaborate set of standards and regulations concerning the production and control of fluid milk, but with rare exceptions milk for manufacturing purposes has been practically ignored. Not so in Scandinavia or Britain; there milk for manufacturing is expected to come up to a high standard, which is certainly reflected in the excellent butter, cheese and other dairy products they produce.

On this continent the Standard Plate Count is most commonly used to measure bacteriological quality. This is also true in Scotland, but other countries consider it too expensive and mainly rely on either the methylene blue (Scandinavia) or resazurin (England and Wales) test. With bulk cooling coming into the picture, however there is general acceptance of the idea that if any test is to be meaningful when applied to well-cooled milk, it is desirable to pre-incubate the sample in order to encourage contaminating bacteria to grow. Incidentally, in Scandinavia this same principle is widely employed with finished products, these being held at around 63°F for 24 hours before testing for coliforms, keeping quality, etc. This demands a very high standard of plant sanitation.

Veterinarians play a big part in sanitary milk control in Scandinavia. Usually they work under the health department (Copenhagen has about 40) although in Finland the Department of Agriculture oversees the program. In Denmark, Sweden and Norway I gained the impression that much was left to the industry itself. In these countries the producers and processors generally wear the same hat — they are in co-operatives. In Scotland control is exercised by sanitary inspectors from the Department of Health,

while in England and Wales it is the Ministry of Agriculture, Fisheries and Food that has the responsibility. In Scotland advisory work is carried out by bacteriologists from the three agricultural colleges, in England and Wales by bacteriologists employed by the Ministry. A high proportion are women, well-trained and fully capable of assisting producers who may be in trouble. I did not learn of any organization similar to the IAMFS wherein all those interested in milk sanitation could meet together regularly to discuss their problems, and with their own Journal to keep them informed of new developments in their field. Neither is there anything strictly comparable to the 3A Sanitary Standards Committee, although approval of new equipment by the National Institute for Research in Dairying serves a somewhat similar purpose. However, there does not seem to be the same close co-operation between regulatory authorities, research and advisory workers and equipment manufacturers as there is on this continent. There was also some criticism of lack of co-operation between the trade and the Milk Marketing Board, which acts as the agent for all milk producers in England and Wales.

While it is always dangerous to generalize, I would say that the farms I visited created a much more favorable impression on the visitor than do most of ours in North America. The buildings are substantial, often of brick or stone, well lighted and even with concrete ceilings in some countries. Even more impressive is the way the yards are paved. Milk houses were generally well-laid out and equipped; small stainless steel wash tanks are common in

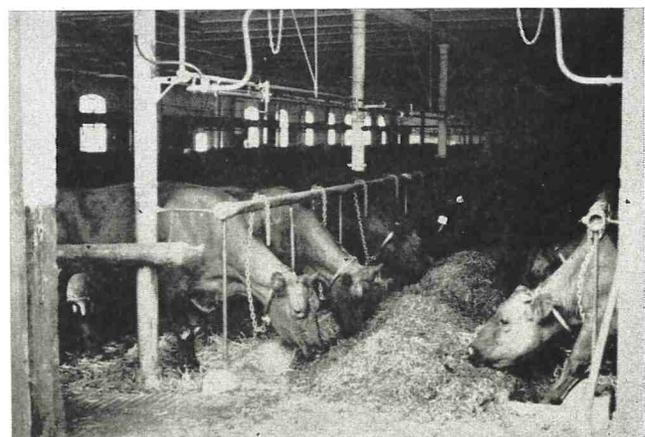


Fig. 1. Dairy farm shipping to Copenhagen. Note cow ties and wide radius bends in pipeline.

¹Dr. C. K. Johns, Past-President of the International Association of Milk and Food Sanitarians, Inc., and Head of the Dairy Section, Food Research Institute, Canada Department of Agriculture was one of Canada's delegates to the Fifteenth International Dairy Congress held last summer in Copenhagen. Prior to and after the Congress Dr. Johns traveled widely on the Continent and in Britain observing dairy farms and milk processing plants, and conferring with numerous people of the industry in various countries.

Scandinavia. Bulk tanks in Britain are bulky indeed! Cold wall tanks with very thick walls and often so tall as to be difficult to clean. Cows were always very clean, and with chain ties looked more comfortable than ours in stanchions. Many of the older stables, with thick stone walls, were not designed for labor-saving, and even demolishing them to convert to loose housing is quite a task. Slatted floors are coming into the picture, especially in Norway, as one answer to keeping cattle clean where bedding is at a premium. Wood chips were also seen in use in Wales.

The Simontorp Farm in South Sweden probably holds the world's record for producing milk with the lowest bacteria count, having run for long periods consistently below 1,000 per ml. Here the cows recline on rubber matting and are kept unbelievably clean. Unfortunately their market for a superior raw milk has diminished with compulsory pasteurization; now they make twice as much money out of dried cow manure as they do out of the milk. This farm, which had 15,000 visitors in 1961, milks 320 cows; it is owned by the man who developed the Tetra-Pak package. The ultimate in "cow heavens" was seen near Stirling, in Scotland, where 120 cows reclined on sponge rubber mattresses encased in tough plastic in a new stable with fluorescent lighting, flowers in pots, infra-red lamps, mechanized feeding, etc. Thrice a day the cows were moved to one of two milking parlors, then back to their stalls in the tile-walled stable.

While most farms are still small there is a definite trend toward larger herds in all countries. In England and Wales the herd size has increased from 15 cows in 1942 to 21 in 1960. In the main dairying areas of Scotland herds will average over 60 cows. In Denmark, a country of small farms, some 80% of the farms supplying Trifolium Dairy in Copenhagen have over 100 cows. At the other end of the scale, in Bergen, Norway, 6,500 producers are required to supply 130,000 people. One glance at the mountainous terrain surrounding the city is enough to explain why many herds are of two or three cows only. The fjord country is scenically most impressive but furnishes very limited pasture or arable land.

Milk handling equipment naturally varies with the size of herd. Farm bulk cooling tanks are slowly increasing in Britain, but not at anything like the rate they did in North America. Tanks are much more expensive because of the extraordinarily fast cooling specifications laid down. Also milk is collected every day, rather than every-other-day as in Scandinavia and North America. Stockholm is getting around 20% of its milk by bulk tanker direct from farms, although not all these farms have bulk tanks. On the smaller farms the milk is cooled by spraying

refrigerated water over the outside of the can, then at the next milking the can is placed under an insulated cover to keep it cold. Cans are then taken to the roadside every other day and the milk pumped from the cans and metered into the tank truck.

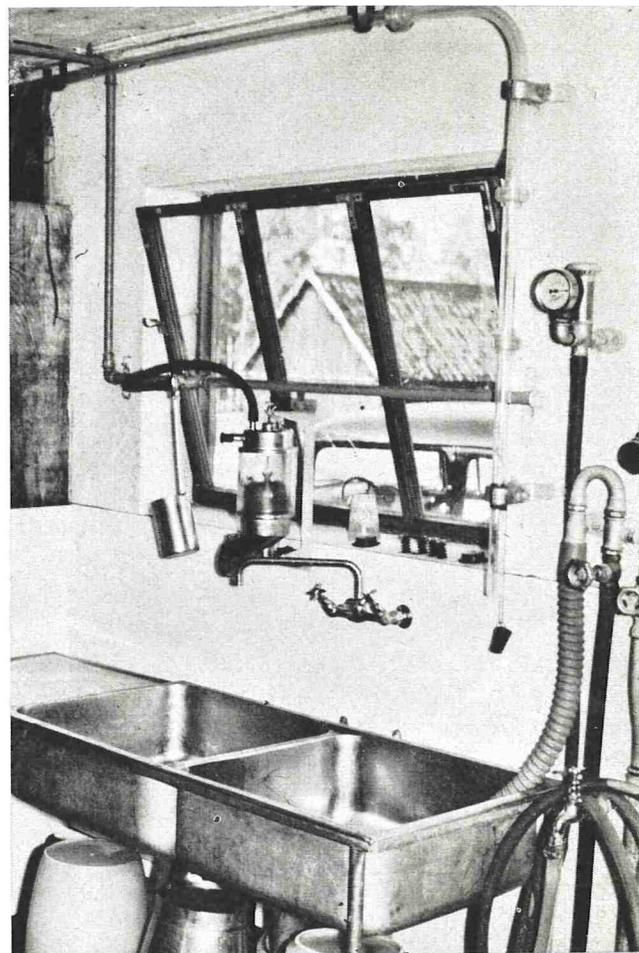


Fig. 2. Milkhouse interior, North of Stockholm.

Incidentally, 30% of the volume of milk received goes back to the farms as skimmilk; this is metered from the tank truck into the farmer's tank when the tank truck calls to pick up the milk from the last four milkings. Copenhagen and Malmo, across the Sound in Sweden, are also venturing into bulk handling, with the larger herds.

Presumably to keep down the cost, pipeline milkers in Scandinavia and in Britain use smaller piping—about 1 inch in diameter. This reduces the area to be cleaned and sterilized; nevertheless, with few exceptions counts on the milk are appreciably higher than they were with bucket milkers. This may be due to the need for improved design of fittings, better detergents or better washing procedures. Undoubtedly these points will be worked out as they have been on this continent. The wide radius elbows noted in pipelines in Scandinavia are a feature

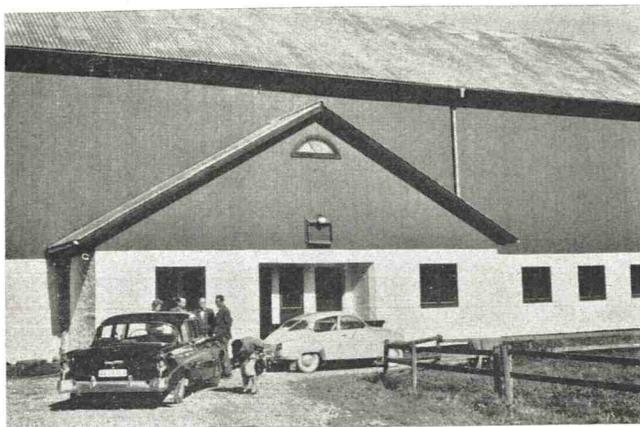


Fig. 3. Milkhouse and stable of 50 cow dairy farm near Sigtuna, Sweden. Note depth of windows and general attractiveness.

we could well adopt, making for less foaming and better cleaning. On the other hand, in Britain rubber slip joints are widely used; these are hard to keep clean without taking off and brushing. Even more astonishing was their use of galvanized return lines for in-place cleaning. This looks to be a dangerous practice.

On the credit side is the development by Dr. C. C. Thiel of the National Institute for Research in Dairying in England of two useful aids to in-place cleaning of pipeline milkers in parlors. One is a spreader disc inside the weigh jar which deflects the detergent solution down the sides of the jar; the other is a "jetter", a clawpiece to which are fitted four rubber cups into which the ends of the teatcups are inserted to permit them to be cleaned in place also. A rigidly mounted pinch valve is used to shut off the feed tube during milking. With this arrangement little time is spent preparing for either milking or cleaning.

Exposed copper on equipment is still common. Even on comparatively new pipeline installations, tinned copper-bearing fittings were seen, while older surface coolers and milker pailheads often showed bare copper or copper alloy. This must certainly contribute to oxidized flavors, particularly when bottled milk is exposed to light as freely as it is in Britain. (The Scandinavians have gone over to amber glass bottles or Tetra-Pak largely to avoid oxidized flavor). Aluminum milker buckets were seen in England which were cracked and badly pitted. Curiously enough, in England and Wales nothing can be done to make the farmer correct such faulty conditions unless his milk fails to meet the requirements of the statutory test, which since October 1, 1962 only requires a resazurin reduction time (to complete decolorization) of 2 hours in summer, or 3 hours in winter.

Each country has its own ideas with regard to

cleaning and sanitizing equipment. Britain resisted chemical "sterilization" until wartime fuel shortages forced its adoption. The authorities then recommended washing and sterilizing in one operation, using 250-300 ppm (available chlorine) of hypochlorite. Only products approved by the Ministry of Agriculture can be sold, and any sanitizer is tested as a combined cleaner-sterilizer. So far there is no provision for testing a hypochlorite, for example, purely as a bactericide. Milkstone causes little concern. However, they are ahead of us in the general recognition that *the bacteriological condition of the milk-handling equipment cannot be assessed by making counts on the milk itself*. Their advisory officers resort to swabs and rinses of the equipment, and get a much more adequate picture of its condition. Such a procedure, however, is much too time-consuming and expensive for routine testing; it is used only where a producer is in trouble.

Although experience in North America has shown that with properly designed fittings, and properly formulated detergents used according to directions, a properly installed pipeline milker can be kept in excellent sanitary condition without resort to heat sterilization, various authorities in Britain still insist that periodical heat sterilization is essential. They extend this also to bucket type milkers and other utensils, which suggests inadequacies in their cleaning procedure. On the other hand, extensive farm studies by workers at the West of Scotland Agricultural College have shown that their pipeline milkers *can* be kept in excellent sanitary condition without resort to heat; possibly the softer water there is a factor, as they were using the same proprietary detergents and equipment as are used in England.

The Scandinavian countries have varied ideas concerning cleaning and sanitizing. Denmark is promoting the use of a nitric acid sterilizing rinse for farm pipelines, much as they have used in dairy plants



Fig. 4. Plaques awarded annually to Helsinki "certified" milk shippers with perfect quality record.

for a number of years. Finland and Norway are still keen on hot water or steam, especially for milker rubberware. All of them shy away from lye solution for wet storage of milker clusters, and generally use chloramine for this purpose. The SMR, the big co-operative organization which supplies milk for Stockholm, has developed its own formulations for detergents for manual and circulation cleaning. They looked good, but some of the milker inflations seen were not too clean.

One useful practice was noted in Britain which is much commoner there than in North America. This is the "defatting" of inflations by soaking one set for a week in 5% lye solution while the alternate set is in use. There is ample evidence that this not only increases the useful lifetime of the rubber but also helps limit bacterial buildup, especially as the inflations become older and the rubber deteriorates.

One great advantage most British producers have is in obtaining water from a municipal water supply. Even in Wales, which is particularly rugged, with many small hill farms, over half of them enjoy this advantage.

While stanchion barns are still the most common, parlor milking is coming into the picture in all these countries, usually with loose housing but sometimes with stanchion barns. In all these countries, farmers are sharp men with a pencil, and they are out to cut production costs wherever they can.

It was a bit of a shock to find raw milk still being bottled in Finland and in Britain. Around Helsinki there are 50 "elite" farms producing what is in essence certified milk; farms are under close veterinary supervision and milk is shipped to the city for bottling in two of the most modern plants I have seen. In Britain, on the other hand, milk is still being bottled on the farm — in fact, in Scotland, one out of every four farms was doing this. This would seem a rather risky procedure even if all cattle were free from tuberculosis and brucellosis, but this is not the case. Although Scotland is now free of bovine tuberculosis, England and Wales have some distance to go before this goal is reached. As to brucellosis, no one there seemed greatly concerned over it. The veterinarians said the medical men refused to recognize any health hazard there; the medical men claimed the veterinarians refused to take it seriously. Although in England and Wales around 98% of milk is now pasteurized, the amount of raw milk sold still presents a public health problem. Incidentally, Finland was clear of bovine tuberculosis 20 years ago, and of brucellosis 10 years ago. Denmark is also clear of both diseases. Mastitis received keen attention, especially in Denmark, but in Britain interest is spotty.

Attitudes toward quality improvement also varied from one country to another. Denmark, Norway and

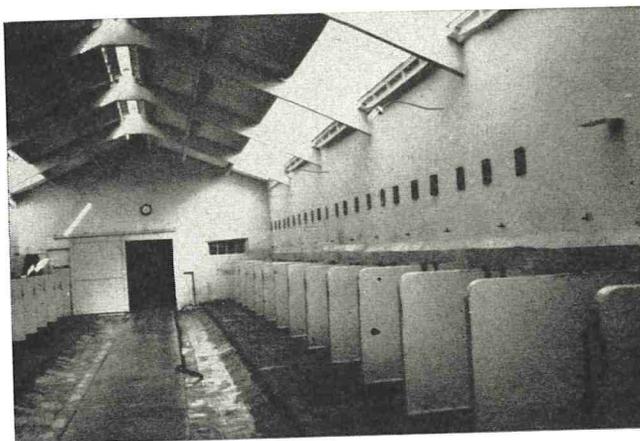


Fig. 5. Old-style "byre" in Ayrshire, Scotland. Note the good lighting and ventilation.

Finland are keen to get counts down as low as is reasonably possible. Sweden seemed less concerned, although SMR shippers received a progressively lower price as the bacterial content increased. Scotland, proud of the fact that their milk quality is superior to that south of the border, seeks stiffer standards, especially for bulk milk. (Aberdeen was considering limits of 10,000/ml total count, no coliforms in 1 ml.) In England and Wales, neither the trade nor the powerful Milk Marketing Board, which represents all milk producers, shows interest in stiffer standards, although a penalty for high count milk is to come into effect on October 1st, 1963. Several authorities intimated that so long as the cows and equipment were reasonably clean, and the pasteurized product had sufficient shelf life to satisfy the consumer, they could see no justification for asking the farmer to spend additional money on better equipment or more thorough cleaning. However, British authorities place much more emphasis on the non-bacterial aspects of milk production, while we perhaps tend to go too far in the opposite direction. Both might advant-



Fig. 6. New 100-cow stable near Stirling, Scotland. This is being equipped with plastic covered sponge rubber mattresses.

ageously move to occupy a common ground somewhere in between.

During the day spent visiting farms south of Copenhagen with Dr. S. J. Olsen, technical director of the famous Trifolium Dairy, I was quite disturbed at the evidence of discouragement among the producers. Because most of Denmark's milk goes into butter for export, and because prices have been low, the returns to the farmer, even when shipping to a pasteurizing plant, have been much lower than for other farm products, and farmers are going out of dairying. On one of the large estate farms, a fine barn built to hold 120 cows was half filled with bacon hogs. Farmers also find it very hard to get competent help. Denmark has no unemployment problem, and the lure of well-paid city jobs is causing many to desert the farms. The small farmer who cannot expand his operations enough to warrant going into bulk handling is, in many cases, selling off his cattle and devoting his efforts to other lines. The Trifolium Dairy has been the leader in milk quality improvement in Denmark, and does a great deal to help combat mastitis. Producers are paid on the basis of Standard Plate Count, (3 per month), thermiduric count (monthly), leucocyte count and sediment (weekly).

It must be remembered that these are one man's observations on a limited number of farms, nearly all of which were selected and the farmer notified of our impending visit. While this had its advantages in having the farmer there to talk with, to say nothing of the very tasty refreshments we enjoyed as a con-

sequence, I might have obtained a somewhat different impression on some of the farms had I been able to make surprise visits. On the few occasions where I was able to do this I saw more unclean equipment and other faults than I did on the "official" visits. However, apparently it is not the custom over there to make a farm inspection without warning, so we were merely following traditional practice.

In retrospect, I believe the biggest difference between the thinking in Northern Europe and on this continent regarding milk production is that we tend to emphasize the bacteriological quality of the milk and to place less emphasis on the esthetic aspects such as the general attractiveness of the farmstead, cleanliness of stable and cows, paving of yards, etc. Perhaps we have been remiss here from a public relations standpoint. There is no question in my mind that the consumer or casual visitor would get a much more favorable impression of dairy farming from the farms I visited than they would from an equivalent number in many parts of North America. With a heavy surplus of milk, we should be doing all we can to increase consumption of milk and its products. If we can encourage producers to make their farmsteads more attractive, this should help improve the consumer's image of dairy farming. As long as there are dairy farms, whether they are producing milk for fluid or manufacturing purposes, which create a bad impression, just so long will the dairy industry be in an unenviable position. Let's all do what we can to bring about the necessary improvements.

SPECIAL FEATURE

OUR HERITAGE — 50 YEARS IN RETROSPECT¹

The Fifth Decade

K. G. WECKEL²
DEPARTMENT OF DAIRY AND FOOD
INDUSTRY, UNIVERSITY OF WISCONSIN
MADISON, WISCONSIN

Dr. Kenneth G. Weckel was born in Canton, Ohio, where he attended public school and had his first experience with the dairy industry. He was "raised" in small milk business operations in Canton and Massillon during the period from 1911 to 1923. The following two years ended his ties with the Buckeye State after having worked in the southern portion around Portsmouth in the brick plants.

What has turned out to be a very satisfying relation-

ship with the University of Wisconsin began in 1926 when Dr. Weckel first entered as a student. He received his Bachelor of Science degree in dairy industry in 1931; his Master's of Science and Ph.D. degrees in 1932 and 1935 respectively from that same institution. Upon earning his Ph.D., Dr. Weckel became associated with the University of Wisconsin in another role — that of professor. He joined the staff of the Department of Dairy and Food Industries in 1936 and has remained with the school since that time.

Dr. Weckel has served as an officer of various organizations allied with the dairy industry and has worked very closely with them. He has been: President (1951), International Association of Milk and Food Sanitarians; President (1935-37), Wisconsin Milk and Food Sanitarians

¹The last of a series of reports covering each of the five decades of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC.

²President of IAMFS, 1951.

Association; Chairman of the Board (1953-55), National Conference on Interstate Milk Shipments and a member of that Board of Directors (1956-58). He has been secretary, since 1939, of the Wisconsin Dairy Technology Society and a member of the subcommittee on food technology of the Food Protection Committee of the National Research Council. He is also active in various other professional organizations and is a member of Alpha Zeta, Phi Sigma, Sigma Xi and Phi Tau Sigma.

The delineation of the achievements of the Association in the period 1951-1961 requires a recognition of a new philosophy of team work by its elected officers and members. In this period, Executive Board members were given individual responsibilities to be assumed in turn by their successors. Developments often covered several years study and deliberation, and involved the work of several officers. Programs conceived in any one year often were instituted in succeeding years.

In the fall of 1951 the assignment given the incoming officers looked tough, and the situation appeared dismal indeed. The net worth of the Association had declined to a debtor's situation, and there was every prospect it would become worse. The then editor of the Journal resided in Wollaston, Massachusetts, the Secretary-Treasurer in Rochester, New York, and the business manager of the Journal resided in Orange, New Jersey. The printing of the Journal was done in Albany, New York. There was considerable delay and confusion in Association and Journal work because of lack of consolidation of the work. The income of the Association by the then normal levies was inadequate. Further, a considerable amount of Journal subscription was made to group memberships at below cost basis. The format of the Journal was not conducive to advertising because it required special costly plates.

The organization in 1951 was \$600 in debt, but had a membership of 2,500 and the support of 11 affiliate sections. At this time the Executive Board took the bold step of employing a full time Executive Secretary, and of consolidating its office activities in one office in Shelbyville, Indiana, where the printing of the Journal also was transferred. Mr. H. L. Thomasson, who then was engaged on the staff of the Indiana State Board of Health as a sanitarian, was encouraged with the principles and potentials of the Association, and was induced to become the full time Executive Secretary. Even though the Association was poverty poor, Mr. Thomasson took possession, at great difficulty, the addressing plates of the membership, invested in modern addressing and office facilities, and instituted much needed controlled office management procedure. It is forever to his credit that he had the vision, the judgment, and courage to assume and plan for the future po-

tentials of the Association. He undertook, at the direction of the Executive Board, modernization of the format of the Journal, and expanded its advertising program. By extensive travel and correspondence, he brought a close relationship between the Association and its affiliate organization memberships and participated in the increase in number of affiliate groups from 11 in 1951, to 25 in 1953, thereby increasing the membership of the Association and its affiliates from 2,500 to 3,540 in two years. The increase in membership which has continued since, was important to the operation of the Journal. In the two years to 1953 the net worth of the Association increased from the deficit to \$9,000. In this time modern accounting procedures subject to legal audit and certification were established.

Shortly after this time Dr. J. A. Shrader, long-time editor of the Journal, retired and was succeeded by Dr. J. C. Olson, Jr., the present editor. The sanitarian's award of \$1,000 with sponsorship of 5 detergent manufacturers was instituted in 1951 and has continued since. It has helped focus attention nationally on the professional sanitarian, and of his function and services. Interestingly, a Sanitarian's Award procedure has been adopted by several affiliate organizations, bringing attention to the work of the professional sanitarian in the state areas.

The year 1951 saw the introduction of the now well known "White S," the central symbol of the lapel pin, decal, and citations of the Association which has fostered recognition of persons in the professional service, everywhere. The institution of the Citation, for meritorious service to the Association by a member, was made in 1951.

Before 1951 the Association's annual program was developed through divided responsibilities. Subsequently, this was assigned to the President-Elect as chairman, with successive officers as committee members. The permanent organization and responsibility for the program by the elected and delegated officers has been very important to the continuing success of its annual meetings, two of which have been held in the mountain states for the convenience of western states members. Concurrently there was reactivation of the work and of the membership of committees with the object of directing their assignments and the better presenting their findings through the medium of the Journal.

In 1951 there was included for the first time in the annual meeting a section on food as well as dairy sanitation. The *Journal* had been modified in title from *Journal of Milk Technology* to *Journal of Milk and Food Technology*. In 1954 the Executive Board directed an increase in issues from the bimonthly schedule of six per year to a monthly schedule, with no increase in cost to the membership, and with an

increased work load on the business manager. The business load became such the Board increased the contingent reserve fund to \$6,000.

In the early period of the decade, the Constitution and By-Laws of the Association were reviewed by a study committee and revised for consideration of the membership. The membership requirements were liberalized to provide industry persons with the same status as non-industry personnel. Revision of the Constitution and By-Laws was made to clarify the responsibilities and authority of the Executive Board to redefine the membership functions and objectives of the relatively newly created Council in order to give it a more positive role in shaping Association affairs and policy. The extensive revision of the Constitution and By-Laws became effective January, 1954.

By mid-decade it became a decision of the officers of the Association that much greater attention needed to be given to having the Association do things that would enhance the academic and professional training and qualifications of professional sanitarians. The Association had, it seemed, been too concerned with technical facts and procedures and not enough with the general welfare of its members.

At this time the work of the Committee on Education and Professional Development was greatly stimulated. For a period of years the Association took an indifferent position on the matter of Professional Registration of Sanitarians, actively supported in various states by the National Association of Sanitarians. This matter was, of course, of concern particularly to affiliate sections in states where a Registration Act was in being, or under consideration. The Association did study this problem and developed a Model Registration Act it could and did support under its concept of improving the status of the professional sanitarians.

In the light of need of bringing recognition to the professional status of the sanitarian, the Committee on Education and Development undertook the developing of interest in the support of an undergraduate scholarship for a student majoring in Sanitary Science. An effort was made to have such support originate from the affiliate organizations; because this support was irregular, it was eventually absorbed by the Association. Four such scholarships of \$300 each have been awarded through 1960. At least one affiliate organization has sponsored scholarships of this type on its own enterprise.

By 1958 the business affairs of the Association developed to such scope that the individual actions required of the Executive Board were very numerous, and frequently had far-reaching potential effects. The Executive Board appointed an Advisory Committee of 9 members on Association Activities,

Programs and Administrative Practices, to study diligently the variables of purpose, procedure, and results of various functions and activities, either designated to or absorbed by it. This Committee has been in very active session over a period of two years, in analysis of first and second priority problems, and the recommendations of which should most certainly be of benefit to the Executive Board and to the Association.

The more current activities of the Association include the initiation of a special Mastitis Action Conference held in conjunction with the 1960 annual meeting in Chicago to develop collative action on the large scale, costly problem of Mastitis. This Council in which the Association is now represented through its Farm Methods Committee. A major problem of constantly enlarging nature is the overlap of labels and labeling terms in jurisdictional areas. A National Committee on Uniform labeling has been organized to investigate the problem and develop recommendations concerning it.

During the entire decade one committee has been especially active on a continuing basis; that of the Committee on Sanitary Procedures. It helped initiate in 1951 the copyright ownership and use of the 3A Symbol, and has worked actively on a number of adopted and tentative 3A Sanitary Standards. The Journal has become the official publication of the 3A Standards. The Association is represented on the 3A Symbol Council which administers use of the 3A Symbol.

Over the decade the Journal has been modified in various ways in an effort to make it of greater use, help, and service to the professional sanitarian. Not the least of the problems of the Journal has been the necessity of meeting rising costs of publication, and the preparation of edited material. Consolidation of editorial activity with an eye to increased service to the individual members and affiliate organizations is in the projected program. A Journal Management Committee was established to assist in these decisions. In 1957 the Journal celebrated its 20th birthday as the *Journal of Milk and Food Technology* and was honored by an anniversary issue.

The Association has become increasingly active in the area of Committee work. In the past decade a sincere effort has been made to stimulate the Committees by members who are qualified, active, and diligent. Committee work is necessarily a labor of love, and demands willingness and interest of its members to seek the truth, and to prepare the sermon for the benefit of other persons. The Association also has encouraged the publication of the research work of its Committees; among those that may be cited are: (a) 3A Sanitary Standards of the Sanitary Standards Committees; (b) Committee on Communicable

Diseases Affecting Man and its manual on Procedures for Investigation of Food Borne Outbreaks, and (c) the Mastitis Action Committee and its proceedings of the Mastitis Action Conference.

The Association has distinguished itself by the company it keeps. Among its activities are participation in the following:

Food Law Institute-1953
 American Association for the Advancement of Science-1954
 National Food and Beverage Council
 National Sanitation Foundation
 Sanitarians Joint Council 1957
 Baking Industry Standards Committee-1952
 3-A Standards Committees
 3-A Symbol Administrative Council
 Keep America Beautiful-1957
 National Mastitis Council-1960
 National Committee on Uniform Labeling-1960

National Automatic Merchandising Association
 Crumline Award Committee
 American Public Health Association Advisory Committee
 School Food Service Association Sanitation Committee
 United States Public Health Service Advisory Board

IAMFS STATISTICS

	1951	1953	1960	1961
Net worth	\$600	\$9,043	\$16,487.73	\$19,601.11
Members	2500	3542	4,042	4,118
Affiliates	11	25	29	29

PRESIDENTS

1951 - K. G. Weckel; 1952 - H. L. Thomasson; 1953 - H. J. Barnum; 1954 - John D. Faulkner; 1955 - I. E. Parkin; 1956 - H. S. Adams; 1957 - Paul Corash; 1958 - H. B. Robinson; 1959 - Franklin Barber; 1960 - W. V. Hickey; 1961 - John Sheuring.

PLANT ID SYSTEM PROPOSED BY LABELING COMMITTEE

HAROLD J. BARNUM, EXECUTIVE SECRETARY

*National Committee on Coordination of Definitions,
 Standards and Labeling Requirements for Dairy Products
 Ithaca, New York*

A uniform coding system for the identification of plants processing fluid milk, fresh milk products and frozen desserts has been proposed by the National Labeling Committee. The proposal, adopted by the committee at its April 15, 1963 meeting in Memphis, Tennessee, has been endorsed by the National Conference on Interstate Milk Shipments.

Hailed as a signal accomplishment and a brilliant example of industry—regulatory agency cooperation, the proposal seeks to stimulate a needed uniformity in labeling requirements of fresh milk and related dairy products.

The proposed system involves a method for identifying the plants at which fresh milk products and frozen desserts are packaged through the use of nationally recognized code numbers put on the package at the time of filling. Each plant within a given state is assigned a number. Each state is also assigned a number. The combination of the two numbers, the state number preceding and separated from the plant number by a dash, constitutes the identification. An example would be a plant in Virginia—state number 45, plant number 156—code number 45-156.

The system, the Committee points out, would make it possible to bring uniformity to the plant identification portion of existing labeling requirements. The method is applicable to all sizes of operations. It covers single and multi-branch plants

as well as private labels regardless of whether they are operating in interstate or intrastate commerce.

The source of products processed in some plant other than that shown under the trade name or label could be readily identified by the code number which would show numerically the state and the plant where the products originated.

Application of the coding system, according to the committee, would be:

For a single plant processor packaging all products under his own name the code number would be unnecessary. Name and address of the processor on the package would be required according to current practice.

For a processor packaging for others under other names the packages with the processor's label must bear the distributor's name and address in addition to the processor's plant code number.

For a multiple plant operator, the general office name and address plus the processing plant code number are required on the package unless the company chooses to print the name and address of the processing plant on the package.

The committee lists six principal advantages to the system. They are:

1. Rapid identification. The enforcement agency is interested in being able to identify rapidly and easily the source of any package that may appear in its jurisdiction. If adopted, the uniform system

would provide only one code number for each plant processing fresh milk and related products in the United State. This would make it possible to identify the source of any product with one phone call.

2. Eliminates multiplicity of codes and thereby simplifies code interpretation for both state and local regulatory officials and industry representatives.

3. Code can appear on permit to operate and distribute, thus tying in plant identification with the right to sell.

4. Large run purchases of containers and cartons become possible because special plant identification requirements demanding specially labeled packages are eliminated.

5. Flexibility of inventory enhanced because non-coded cartons and containers can be transferred between plants of multi-plant companies for purposes of inventory control.

6. Custom packaging made easier. The system permits a dairy to purchase packaged products from another processor with only his own name on the package plus the code identification of the processing plant.

The proposed system, along with a model ordinance, is being sent to public health officials in all states for action at that level. The proposal has no legal force until it is accepted by the states. In some cases legislation will be required. In other states the method can be adopted by administrative action.

Responses to a survey of public health officials, conducted prior to the adoption of the proposal, showed 30 states in favor of the system, five noncommittal and five opposed.

The National Labeling Committee is known officially as the *National Committee on Coordination of Definitions, Standards and Labeling Requirements for Dairy Products*. Purpose of the Committee is to "promote the voluntary adoption and implementation of uniform definitions, standards, and required labeling information for dairy products by local, state and federal regulatory agencies and to aid in resolving conflicting opinions thereof." Membership is comprised of dairy industry associations, public health groups, and other agencies of government. Originally, the committee was promoted and sponsored under the auspices of the International Association of Milk and Food Sanitarians.

The effort on the part of government and the dairy industry to bring about some uniformity in regulations and the interpretation of the regulations began about four years ago. The International Association of Milk and Food Sanitarians, through its Committee on Ordinances and Regulations, made an exhaustive study of the problem. This committee recommended the formation of a committee similar to the success-

ful 3A *Sanitary Standards Committee*. A working committee with Dr. A. C. Dahlberg, advisor to the Dairy Products Improvement Institute as temporary chairman and Ernest B. Kellogg of the Milk Industry Foundation as temporary secretary was formed. The committee's job was to formulate by-laws for a national committee and to develop membership in such a committee. Organizations interested in the creation of such a national committee sent representatives to a meeting in Atlanta, Georgia held on June 15, 1962. At that meeting, by-laws were adopted and the National Labeling Committee was officially brought into being. Harold Barnum, on leave from the Denver City Health Department and Executive Secretary of the Dairy Products Improvement Institute was named as Secretary of the Committee. Headquarters are located in Ithaca, New York.

Officers elected were: *Chairman*, M. W. Jefferson, Chief, Dairy Products Inspection Section, Division of Animal and Dairy Industries, Virginia Department of Agriculture, representing National Association of State Departments of Agriculture; *Vice-Chairman*, Shelby Johnson, Director, Division of Food and Drugs, Kentucky Department of Health, representing International Association of Milk and Food Sanitarians; *Secretary*, Harold J. Barnum, Executive Secretary, Dairy Products Improvement Institute, on leave from Denver Health Department; *Treasurer*, Ernest B. Kellogg, Milk Industry Foundation.

Members of the Executive Committee are: Harold J. Barnum; William V. Hickey; Morton S. Hilbert; M. W. Jefferson; Shelby Johnson; Ernest Kellogg; William H. E. Reid.

Member organizations of the National Labeling Committee are:

- American Dairy Science Association
- American Public Health Association
- Association of Food and Drug Officials of the United States
- Association of State and Territorial Health Officers
- Dairy Products Improvement Institute
- International Association of Ice Cream Manufacturers
- International Association of Milk and Food Sanitarians, Inc.
- Milk Industry Foundation
- National Association of Sanitary Milk Bottle Closure Manufacturers
- National Association of State Departments of Agriculture — Dairy Division
- National Conference on Interstate Milk Shipments
- National Society of Professional Sanitarians
- Northeast Dairy Labeling Council
- Paper Cup and Container Institute
- Suppliers of Single Service Milk Containers and Milk Flavoring Materials
- U. S. Department of Agriculture (*Advisory*)
- U. S. Food and Drug Administration (*Advisory*)
- U. S. Public Health Service (*Advisory*)

IBM NUMERICAL CODE FOR STATES			
State	Code Number	State	Code Number
Alabama	01	Nebraska	26
Arizona	02	Nevada	27
Arkansas	03	New Hampshire	28
California	04	New Jersey	29
Colorado	05	New Mexico	30
Connecticut	06	New York	31
Delaware	07	North Carolina	32
District of Columbia	08	North Dakota	33
Florida	09	Ohio	34
Georgia	10	Oklahoma	35
Idaho	11	Oregon	36
Illinois	12	Pennsylvania	37
Indiana	13	Rhode Island	38
Iowa	14	South Carolina	39
Kansas	15	South Dakota	40
		Kentucky	16
		Louisiana	17
		Maine	18
		Maryland	19
		Massachusetts	20
		Michigan	21
		Minnesota	22
		Mississippi	23
		Missouri	24
		Montana	25
		Tennessee	41
		Texas	42
		Utah	43
		Vermont	44
		Virginia	45
		Washington	46
		West Virginia	47
		Wisconsin	48
		Wyoming	49
		Alaska	50
		Hawaii	51

Example: 06-139

06- indicates Connecticut

139 indicates the processing plant in Connecticut

As an added indication of the purpose of this code, it is recommended that the part of the code indicating the state of origin always consist of two digits followed by a hyphen. For example, 08- or 41-

News and Events

Revised Pump Standards To Be Effective November 20

Revised 3-A Sanitary Standards for Pumps were signed May 20 in Washington, D. C., consolidating in one set of standards four major amendments made over the years to the 3-A Pump Standards which were first issued in 1947.

In brief, the amendments: (1) provide a specific limitation for a sanitary type thread in the milk zone; (2) provide for a rubber rotor; (3) provide for rubber stators; and (4) provide cross-references, wherever rubber is mentioned, to the relatively new 3-A Sanitary Standards for Rubber, which were concluded in March of this year.

The newly-revised pump standards will be published in the August 1963 issue of the *Journal of Milk and Food Technology*, following which reprints of the standards will be available from International Association of Milk and Food Sanitarians, as well as from the offices of most national dairy trade organizations.

The consolidated standards will become effective November 20, 1963. Authorization to affix the 3-A Symbol to pumps complying with the new provisions of the revised standards may be granted on or after

the effective date. Application for this authorization should be made to: The 3-A Sanitary Standards Symbol Administration Council, 2617 Hartzell Street, Evanston, Illinois.

Three-A Standards for dairy equipment are the result of cooperation between three groups: (1) dairy processors, the users of dairy equipment; (2) dairy industrial suppliers and equippers, the manufacturers and sellers of dairy equipment; and (3) public health officials and sanitarians, the regulatory officials under whose jurisdiction the equipment is installed and used.

The 3-A program, which is supported by every national dairy trade association, is an entirely voluntary undertaking which has resulted in standards' being issued for 19 items of dairy industrial supplies or equipment. Equipment which complies with the standards may carry the 3-A Symbol, provided its manufacturer receives authorization to do so from the 3-A Symbol Council.

Generally speaking, equipment carrying the 3-A Symbol is acceptable in public health jurisdictions in nearly every town, city, or state in the United States. The 3-A Sanitary Standards are cited in the model Milk Ordinance and Code of the U. S. Public Health Service.

CERTIFIED MILK

Essex County's Montclair, and a section of Caldwell Township (New Jersey) know as Fairfield, between them claim joint honors in giving "certified" milk to America. Back in 1893 the Fairfield Dairy started bacteria-count control, with a laboratory in Montclair. The *Montclair Times* commented at the time that things in Fairfield were so spic-and-span that "all crows alighting on the dairy barn roof are required to wash their feet first at near-by streams."

NEWS FEATURE

Training Dairy Personnel In Denmark, Britain, Germany And Holland

ALEC BRADFIELD
PROFESSOR, DAIRY SCIENCE
THE UNIVERSITY OF VERMONT

One of the outstanding features of education in these countries is the existence of technical colleges giving two years training. These should not be confused with our Junior Colleges. They perform a different function. The instruction is basic and highly technical, but is not vocational in the usual sense. *Perhaps it would be better to say that the curriculums are occupationally oriented in order to develop enlightened technicians. This system provides opportunity for training of young people who do not go to a university when they finish secondary school.*

An interesting feature in dairy training is the participation of the dairy industry itself. This is particularly true in Britain, where the industry supplies external examiners, part-time instructors, on the job training and financial assistance for students.

Denmark

The men employed in the dairy industry in Denmark who have the highest education are the field men. There are two groups of these "advisors," as they are called. One group advises plant managers and the other group advises farmers. The training for these men is quite complete. A boy, after leaving school, applies to the Dairy Federation for an apprenticeship. If accepted, he works in a plant for six months on probation. If his work is acceptable, he then works in plants for three years. During this time, money is set aside by the company and the apprentice to pay for later schooling.

Next he goes to a dairy school for nine months, which involves entirely theoretical instruction. He then works in a plant or plants for two to five years, after which time he goes to the Royal Veterinary and Agricultural College in Copenhagen for three and a half years where tuition is free.

Those who are going to be plant advisors specialize in Dairy Technology. Those who are to be advisors to farmers take a combined degree in Dairy Technology and Agriculture. One of these advisors reports that he started his training at 16 and got his degree at 27 years of age. Some of these men, after graduation, procure executive positions in milk processing plants and ice cream plants. This is also the source of the food industry's top men. All official milk inspectors are veterinarians and veterinarians are frequently in charge of quality control for a dairy company.

Training for plant personnel follows the same line

up to the end of the nine months course in dairy school. They then become foremen in plants and after four or five years may come back for a 12-month course. Many of these men become sectional managers and eventually plant managers.

Denmark also has technical institutes that teach a variety of courses, including courses for laboratory technicians. Students study chemistry and biology for three months full time. This is followed by working in a laboratory for a full year. They then return to the school for three and a half months and at this time, take specific courses in chemistry, bacteriology and microbiology. Upon completion of this program they are qualified to work in a laboratory in any phase of the food industry.

It will be noticed that the best trained people are those who deal with milk and milk products at the source. Most of the men in the dairy industry have had some training in the dairy schools. A visit was made to one plant that employed 30 men, and all of these men had been to dairy school for at least nine months.

Britain

In England and Wales what we call field work is done mainly by women. The training consists of two years at an agricultural college. One of the requirements for entrance is one year's work on an approved farm. They must also have had a good secondary education. The courses are quite heavy in dairy bacteriology and dairy chemistry. They are taught how to make butter and various kinds of cheese. In addition, there are various agricultural subjects. These colleges also supply most of the laboratory workers. For this reason all the different tests are taught very thoroughly. Every laboratory worker is capable of going out to a farm or into a plant and finding the trouble areas. These girls get a National Diploma in Dairying.

For plant personnel, the universities have been giving two-year diploma courses. However, these are being dropped and a two-year "sandwich" course has been started in Cheshire. Under this plan, a plant sends employees to the school for six months and they return to the plant for six months. For the most part the company where a student works pays his salary while he is at school. The student is selected by the plant manager with the aid of a committee of educators and industry people. The

content of this course is very good and covers all the dairy products. There are actually 24 weeks of instruction in each six-month period. (The two six-month periods are equal to a little more than three of our semesters.) The people at this school feel they could do a better job if they had these students for two nine-month periods, which would be equal to two of our college years. The course is definitely planned for people who are already employed in the dairy industry and new plant managers are coming from this "sandwich" course.

One of the most interesting training schemes is the "City and Guilds" courses given at technical colleges. This system has been going since 1890, but was applied to the dairy industry only about ten years ago. Some classes are run in the evening but most successful are day release classes. The employer gives an employee a day off each week, with pay, to attend these classes. This is for 32 to 40 weeks each year, depending on the school. They are given a certificate after one year and a diploma after two years. In some fields they can continue for five years, eventually getting the equivalent of a college degree. There is talk about changing to block release. This would be one month at college and two months in the plant where they are employed, offering the advantages of residential instruction as compared with meeting students only once a week.

The City and Guilds do not operate any of these technical colleges. They do however, set the examinations. Many industry people serve as part-time instructors and on examining committees. These colleges have no dairy equipment to work with but have good bacteriological and chemical laboratories. Full-time instructors are good theoretical teachers, but generally lack first-hand knowledge of the dairy industry. This is offset by having industry people give some of the lectures. Microbiologists and chemists are from the laboratories, plant operators teach equipment and processes and executives teach management. Industry people like to do this as it adds prestige to a job that is seemingly otherwise a "rat-race."

In addition to giving the people time off with pay, most companies give a 10 per cent increase in wages upon completion of the course. Others give a lump sum reward of about \$100. The students usually do well enough to move up into higher wage earning positions, and any problem with the unions is solved by setting up new work and wage categories for these people.

Scotland

There is a two-year diploma course in dairy technology offered in Scotland, but the most popular

is a two-year dairy husbandry course plus some dairy technology. Dairy husbandry, available at Aberdeen, Edinburgh or Glasgow Universities, is one full year and two terms of the second year. In April of the second year, students go to the West of Scotland College of Agriculture for a practical course that runs until nearly the end of August. They get instruction in butter making, cheese making, starter propagation, pasteurizing and bottling, and control testing. Girls go into laboratories and field work, men go into plants, become county agents, go back to farms or into work connected with dairy farming.

Students entering this program have had, in secondary school, chemistry, physics, English, mathematics and one other subject. The universities' curricula is scientific and fundamental and consists of zoology, botany, chemistry, bacteriology, mechanics and hydraulics, and theoretical dairy husbandry. All of the practical dairy instruction is given during the four-month period when the students are attending the West of Scotland College of Agriculture.

Northern Ireland

The dairy industry persuaded the Ministry of Agriculture to start a training program for plant supervisors, laboratory personnel and fieldmen. A dairy school has been set up at Loughry Agricultural College near Cookstown. The group who planned the program took a good look at the curriculums in England, Scotland and Wales. They, therefore, have at this school the most up-to-date plan in use anywhere.

The program will be of three year's duration, the first year being general agriculture. The students will have to make the equivalent of a B grade before being allowed to enter the second year. Students must work in a plant at least three months which will be in a summer between college years. They will also work one day a week in a plant during the college year. The plants, and the managers of them, will be hand-picked by the head of the dairy department. This is so that students will get proper in-plant training.

A fully equipped plant is being installed at this college which the students will run. It is believed that doing set-up and clean-up operations is more important than watching a plant run.

In the final year, students will undertake the following activities: take charge of first-year students for practical work, give a few lectures to first-year students, conduct debates and meetings, and give technical reports. The course in dairy engineering will include instrumentation and one room will be devoted entirely to this. Instrumentation service men will demonstrate faults in systems.

Germany

Germany has a long training system. First, apprenticeship in a plant for three years, during which time they go to dairy school five weeks each year. After this they become assistants in plants for two years. They then go to school for four months. This is followed by two more years in plants. Finally they attend a five-month course to become master dairymen. By law, only a master dairyman can be manager of a plant; however, many of these men go into other branches of the food industry.

Fieldmen are trained under a separate system. After leaving school they go to a young farmers school for two winters, October to March. They then become milk control assistants for the Dairy Farmers Society. After ten years they become assistant control superintendents. They can then attend a five-week course at a dairy school and are expected to do this every few years in order to learn new methods.

The Germans also have a concentrated two-week course in milking, for farmers' sons and daughters and cowmen. One week is spent on hand milking and one on machine milking. They practice on the herd at milking time, morning and night, and attend classes all day. They study construction of the udder, physiology of milk production and milking techniques. There is one of these schools in each province. They

claim to have reduced mastitis considerably by better milk practices learned at these schools.

Holland

Dairy students at the University do not stop with a bachelor of science degree. They continue until they earn a master of science degree. These are the men who become managers of the food plants, including dairy.

Technical training for the position below the managerial level is given at two-year dairy schools. Students are selected when they finish secondary school and are sent to work in dairy plants for one year. They spend three months in each of four plants. Plants are selected where the management is willing to spend some effort in training the boys. After this, they attend dairy school for two years. The schools do not have any dairy equipment at present; however, they are planning to install equipment soon. They feel that better instruction can be given at a school with a dairy plant, then having the students work in commercial plants while getting only theoretical instruction at college.

The writer was greatly impressed with the kind of personnel these two-year colleges are turning out. They seemingly are able to run plants efficiently and turn out quality dairy products. Their training has been such that they are able to do the job without the frustration that goes with lack of knowledge.

DAROLD TAYLOR ASSIGNED TO LIAISON POST WITH PHS



Recently announced by the Surgeon General's Office is the appointment of Darold W. Taylor to the newly created post of Sanitarian Liaison Officer, which he will hold in addition to his duties as Chief, Milk Sanitation Section for the Public Health Service.

Taylor will be primarily concerned with coordinating "service assistance to national sanitarian organizations in the establishment and maintenance of comprehensive professional development programs," according to the report from the Public Health Service.

Earning his Bachelor of Science degree from Kent State University in Ohio, Taylor continued his formal

education at the University of Michigan where he received his Masters of Public Health degree. During the period 1941 to 1943, he was the chief milk and food sanitarian for the Portage County Health Department, Ohio Department of Health. In 1944, he was commissioned in the U. S. Public Health Service and assigned to the Denver Regional Office. Later that same year, he was transferred, by the PHS, to U.N.R.R.A. with duty assignments in North Africa and Greece.

After returning to the States in April, 1946, he was sent to the Public Health Service Region III Office in Richmond, Virginia. Two years later, he was reassigned to the Headquarters Office of the PHS in Washington, D. C. to work with the Interstate Milk Shipper Program. May, 1962, he assumed his present position as Chief, Milk Sanitation Section, Milk and Food Branch, Division of Environmental Engineering and Food Protection, U. S. Public Health Service.

Taylor has been an active member of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, and other professional organizations.

Pesticides In Food Viewed By Presidential Committee

While noting the benefits derived from the use of pesticides in food production, a report to President Kennedy by his Science Advisory Committee raised considerable doubt about the safety of pesticides as now used in this country.

The scientists pointed out that there is not enough evidence in many cases to assess exactly what the results might be from the accumulation of pesticides over a period of time.

Noting the advantages to be derived from use of pesticides, the report stated, "Our material standard of living has been greatly elevated during the 20th century by increased control over the environment. Few recent developments have been so effective or have had application in such a wide range of human endeavor as the pesticide chemicals. Although pesticides have been used for centuries as adjuncts in pest control, the great advances of the last 20 years resulting from the discovery, manufacture, and application of new compounds have changed their role in many instances to that of the principal and frequently sole control measure.

"Pesticides have made a great impact by facilitating the production and protection of food, feed, and fiber in greater quantity and quality; by improving health; and by keeping in check many kinds of nuisance insects and unwanted plants . . . While reducing food losses, pest control has also resulted in foodstuffs of the highest quality . . ."

In the discussion of the hazards involved in use of pesticides, the advisory group suggested that the public is protected more thoroughly by the checks on interstate shipments of food than by state controls alone. "When measured in foods entering interstate or foreign commerce, and in total diet studies, residue levels have been very low and rarely above the legal tolerance limits. If illegal residues are found, the foods containing them are removed from the market.

"Residues are not so consistently low for food items marketed within their state of origin. Some state authorities sample food for pesticide residues. Data from certain states have shown residues well above the Federal tolerance on three per cent of the fresh fruit and vegetables offered for sale in wholesale markets. Many states do not perform systematic sampling for residues in the produce and dairy products intended for consumption within the state. . ."

Among recommendations made by the committee were the review of all present tolerance levels and the experimental data on which they are based; a



DAIRY SCHOLARSHIP WINNER, William King of North Kingston (second from right), a junior in the College of Agriculture at the University of Rhode Island, is shown here receiving the Scotty Ross Scholarship, awarded by the R. I. Milk and Food Sanitarians. John J. Cipolla of the State Health Department and president of the Association is making the presentation.

Looking on are Clifford Cosgrove (left), assistant professor of Dairy Science at URI, and Sidney Shephard of Warwick (right), secretary-treasurer of the Association.

network to monitor the levels of chemicals in air, water, soil, man, wildlife, and fish; review of such federal eradication programs as those directed at the gypsy moth, fire ant and Japanese beetle, to see if such programs should be modified or terminated; more research to determine the effect on people and animals of ingestion of small amounts of chemical residues over a long period.

Dr. Jerome Wiesner, chairman of the President's Scientific Advisory Committee, told a Senate subcommittee opening a study of the pesticides situation that uncontrolled use of pesticides and other poisonous chemicals was "potentially a much greater hazard" than fallout of radioactive materials. He told the subcommittee the administration intends to ask for legislation making possible a broad research program in this area.

Reaction to the report in the mass media has been fairly calm, with most stories giving some prominence to the benefits derived from the use of pesticides. In a special CBS Reports show the evening the report was released, Rachel Carson was interviewed and interpreted the report of the Science Advisory Committee as a strong endorsement of the point of view she expressed in her book, *Silent Spring*. A spokesman for the agricultural chemicals industry pointed out the benefits mentioned by the committee and disagreed with the committee's assessment of the hazards.

¹Reprinted from *For Your Information*, May 22, 1963.

Four Affiliates Hold Pre-Summer Meetings

Four Association Affiliates held their annual meetings during this pre-summer season. As summer finds many persons on vacation, few meetings are scheduled at this time. Those having just held meetings are: Florida, Illinois, Indiana and Washington.

FLORIDA

A joint educational conference held May 8, 9 and 10 at the University of Florida in Gainesville was sponsored by the Florida Association of Milk and Food Sanitarians and the Florida Association of Sanitarians.

Addressing the Wednesday morning general session of the FAMFS, in conjunction with the Laboratory Section, was Mr. E. L. Fouts, chairman of the Department of Dairy Science at the University of Florida. He was followed on the agenda by a group discussion concerning "Collection and Care of Samples" in the three areas of water, foods and dairy products sanitation. The joint session was succeeded by the sanitarians meeting singly to listen to Mr. George McCall, health physicist, Pinellas County Health Department, speak about "Radiologicals in Milk and Food Surveillance."

The afternoon portion of the first day was devoted to presentations of papers of interest to all of the sanitarians. The first evening's activity ended with a joint social and supper of the FAMFS and FAS. On Thursday, the Affiliate members heard from many of the local officials of both the University and the city of Gainesville. Mr. Calvin Page, president, Science Associates, presented the pre-luncheon address on "A World Without Bacteria." Highlighting the afternoon meetings on Thursday were panel discussions on "Dairy Barn, Milk and Ice Cream Plant Construction." Mr. Raymond E. Hamilton, FDA Inspector, discussed "Pesticides in Milk," in consideration of recent concern for pesticide contamination and governmental investigations of the current practices in the use of pesticides.

On May 8, the Board of Directors of the Florida Association of Milk and Food Sanitarians unanimously adopted a resolution granting H. L. "Red" Thomasson, who was a guest speaker at the meeting, an honorary membership in their Association for "his contributions to improvement of milk and food sanitation in general, and for his efforts toward strengthening of the sanitarians' profession."

ILLINOIS

The Associated Illinois Milk Sanitarians convened at Aurora, Illinois on May 6 for their Twenty-first Annual Spring Conference with Mr. John Dean, president, presiding.

A major portion of the morning session was devoted to viewing a movie provided by the Diverséy Corporation entitled "The Invaders." Richard E. Vaughn, divisional manager, Johnson and Johnson Filters Products Division, presented "Finger Printing Quality by Sediment Tests," and "The American Dairy Association Program" was reviewed by Mr. Milton G. Guether, manager of ADA of Illinois, Inc. The final morning speaker was Dr. Karl Gardner, University of Illinois, who spoke on "Our Changing Times."

A special treat for the conferees was given at the luncheon when Mr. George Cashman, curator, Lincoln Memorial, spoke on "This Man Lincoln." Talks of this nature are not commonly scheduled, but this one was reported well received.

The afternoon session, chaired by Mr. Joseph Peterson, first vice-president of AIMS, featured two speakers, Dr. George Decker, Illinois Natural History Survey, and Mr. John H. Guill, FDA, Chicago District, who presented "Results of Recent Studies of Some Pesticides" and "The Food and Drug Administration Milk and Food Sampling Program," respectively.

The officers serving the 1963 term for the Illinois group are: Mr. John Dean, *president*; Mr. Henry Ellsworth, *president-elect*; Mr. Joseph Peterson, *first vice-president*; Mr. Harold Jensen, *second vice-presi-*



Pictured here are the new members of the Board of the Florida Association of Milk and Food Sanitarians who were elected at the Annual Meeting. Front row, left to right—Mr. Dave Fry, chairman of the laboratory section; Mr. Richard Jolley; Mr. Lewis Willis, president; Mr. B. C. Pafford, president-elect; Mr. Hugh Butner, past-president; second row, Mr. Howard Young; Mr. Laird Minear; Mr. K. L. Smith, secretary; Mr. T. H. Delaney; Mr. H. L. Thomasson, Exec.-Sec'y., IAMFES; and Mr. Robert Pryor.



Dr. F. R. Murdock (jacket and overshoes) is shown here as he conducts the tour of the Experiment Station Dairy Farm and explains its facilities. This was held as part of the Washington Affiliate's meeting.

dent; Mr. James A. Meany, *secretary-treasurer*. The *auditors* are Mr. Don Coduto and Mr. William Waterman with Mr. Howard Daily serving as *sergeant-at-arms*.

INDIANA

In spite of an early-morning threat from the weather man, the Indiana Association of Sanitarians went ahead with pre-arranged plans for its spring outing the first day of their Thirteenth Annual Meeting.

The three-day event began June 4 when Dr. A. C. Offutt, State Health Commissioner, Indiana State Board of Health, gave the welcome address at the morning meeting held in the State Board of Health Building in Indianapolis. The program for the first day was, for the most part, devoted to Association business and committee reports. Mr. Thomas P. Snider, president, delivered his Presidential Address following Dr. Offutt. All meetings ended after the noon business meeting and most of the members and guests headed for the scene of the outing for an afternoon of recreation and relaxation which was followed by the Annual Banquet. (After the outdoor activity was over, there were some complaints about having to play golf in the rain, but many of the games went on uninterrupted.)

Wednesday, the second day, saw a full slate of sessions for each of the three areas of sanitation-milk, food and environmental. Topics such as "Eradication of Pests," "Pesticide Residue in Milk" and "Misbranding Foods at Retail Level," were covered. Each paper was presented twice so all would have the opportunity to hear papers concerning all segments of the sanitation field.

Included on the guest speaker list were W. M. Decker, D.V.M., PHS; Robert M. Lewis, Lewis Pest Control; R. M. North, R. M. North Co.; and H. L. Thomasson, executive secretary, IAMFS.

The final day's schedule was restricted to a morning session of officer elections, awarding of door

prizes for session attendance the day before and a report from H. L. Thomasson on the current status of IAMFS. The committee report from the Professional Development Committee was also presented.

WASHINGTON

An early spring annual meeting of the Washington Milk Sanitarians featured emphasis on current developments in the milk industry and a field trip to the Experiment Station Dairy Farm Facilities, which was the final program event.

The sessions on April 3 were held in the Winter School Building at the Western Washington Experiment Station, Puyallup, Washington.

The topics discussed during the one-day meeting included: "Recent Research Developments in Dairying of Interest to Sanitarians," "Interstate Milk Shipper Program," "Preliminary Incubation and Keeping Quality Tests as an Index to Milk Quality" (panel discussion), and "The Future Trends of Milk Drive-Ins and Producer-Distributor Operations." Presenting, respectively, these papers which deal with important aspects of milk sanitation not only in Washington, but throughout the country, were: Dr. T. H. Blosser, chairman, Department of Dairy Science, Washington State University; Milton Held, chief, Milk and Food Section, Public Health Service; Wilbur Oldenburg, C. O. Johnson, Ron Mock, and Bert Giberson; and Floyd McKennon.

Lyall D. Searing, immediate past-president of the Washington Affiliate, presided over the morning session and Cameron Adams, president, conducted the mid-afternoon meeting. All committee reports were

(Continued on page 204)

Floyd McKennon (standing) is pictured here addressing the Washington Sanitarians at their Annual Banquet. He spoke on "The Future Trends of Milk Drive-Ins and Producer-Distributor Operations."



WVU Site of Joint July Meeting

The Eastern Division of the American Dairy Science Association and the North Atlantic Section of the American Society of Animal Science will hold a joint meeting July 15, 16 and 17 at West Virginia University.

The meeting will begin at 7 p.m., July 15 with a panel discussion on extension techniques and problems. *The Role of Animal Products in Human Health* and *The Statistical Approach to Biological Research* will be the feature topics on July 16. On July 17, the meeting will be divided into three sections: (1) *Animal Science*, (2) *Dairy Production*, and (3) *Dairy Manufacturing*. These sectional meetings will consist of invited and contributed papers from each of the three fields. The Dairy Manufacturing Section will feature a symposium on the *Dynamic State of Milk*. This symposium will deal with the physical, enzymatic and flavor changes occurring in milk.

All members from both the Animal and Dairy Science groups are cordially invited to attend. Additional information may be obtained from Professor Myron Lacy, Morrison Hall, or Professor Frank Shipe, Stocking Hall, Cornell University, Ithaca, New York.

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Dr. Fabian, Noted MSU Professor, IAMFS Past-President, Dies At 75

At age 75, Dr. Frederick W. Fabian, professor emeritus of the Department of Microbiology and Public Health at Michigan State University, died April 13. Dr. Fabian served as president of the International Association of Milk and Food Sanitarians in 1941.

Considered an international authority in the field of food technology, Dr. Fabian gave much of his time to work in the professional organizations aligned with his great scope of interest. He founded and was chairman of the Great Lakes Section of the Institute of Food Technology (1944-1946) and has served as a consultant to various other organizations. He was greatly respected by those working with him for his unflinching interest and capabilities in his profession.

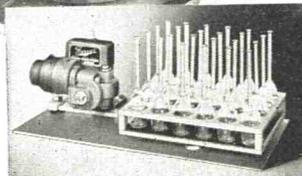
Dr. Fabian received his B.S. degree from Allegheny College in 1914, his M.S. degree ten years later at Michigan State University and in 1929, he earned his Ph.D. at Yale University. He had been a bacteriologist at Michigan State College from 1916 until his retirement in 1953.

He is survived by his wife, Mrs. Martha Fabian, two sons, and a daughter.

AFFILIATE MEETINGS

presented at the business meeting and new officers were elected. Heading the 1963 slate of officers is Howard Copenhaver. Others are: C. O. Johnson, *president-elect*; Cameron Adams, *past-president*; Ben Luce, *secretary-treasurer*. Clayton Gustafson and Sid Suckling were named *auditors*.

Mr. Don Marshall of Johnson and Johnson emceed the Annual Banquet held in the evening and Floyd McKennon was the guest speaker at the dinner.



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TOULMIN AUTHORS GUIDE FOR FOOD AND DRUG LAWS

The publication of an important and timely new treatise on the Law of Foods, Drugs and Cosmetics of the United States authored by Harry A. Toulmin, Jr., noted lawyer and chairman of the board of the Central Pharmacal Company, has just been announced. Published as a four-volume set, these books should be of vital interest to all food, drug and cosmetic manufacturers, their legal staffs and representatives, and to all those providing related services to these industries.

Probably no other law in recent years has been the subject of as much controversy in Congress, in the professional field of medicine, and in the commercial field of production, as the Law of Foods, Drugs and Cosmetics. Therefore, it becomes imperative for the protection of those dealing in these fields to have an exhaustive and highly professional interpretation and guide in operating under this far-reaching law.

Regarded as the most up-to-date, complete and authoritative work yet assembled on this very important subject, the new Toulmin volumes bring together in one place and put in concrete form the Federal Laws and Regulations, state statutes, court decisions, and typical FDA rulings pertaining to the manufacture, distribution, advertising, labeling, packaging and sale of foods, drugs, cosmetics, pesticides, and related products in the United States. The text includes the highly important Drug Control Act of 1962. All of this material is carefully analyzed and annotated, and is supplemented by valuable illustrations such as FDA administrative charts, flow sheets of enforcement procedures, and forms of practice.

Unlike other publications dealing with a complicated legal subject, *these new volumes can be used by laymen as well as lawyers.* This is because the author presents technical and involved problems in clear, understandable language. Thus, the books become a practical working manual for company managements, advertising and marketing men, and others in the conduct of their business in relation to the Federal Government, the various states and the public.

A feature of the four-volume set is a text arrangement which treats the relation of the Federal Food, Drug and Cosmetic Act of 1938 to the former Pure Food and Drug Act of 1906, along with typical Food, Drug, and Cosmetic Acts of the various states and the applicable Federal anti-trust laws. The text follows the plan of the Federal acts and statutes themselves.

Inquiries concerning the new Toulmin books

should be directed to the publisher, The Wm. H. Anderson Company, 524 Main Street, Cincinnati, Ohio.

NADEM Elects Officers And Directors

Elected as directors of the National Association of Dairy Equipment Manufacturers at its Eighteenth Annual Meeting held at the Kenwood Golf and Country Club, Bethesda, Maryland, May 21 to serve for a three-year term were James L. Brazee, vice-president, Creamery Package Manufacturing Company, and Peter L. Miller, vice-president, Chester-Jensen Company, Inc.

Robert Walker, president, Walker Stainless Equipment Company, was elected president of the Association at the Board of Directors meeting immediately following the Annual Membership Meeting on May 21. Mr. Peter L. Miller was elected vice-president and Mr. Olaf Lee, vice-president, Stoelting Brothers Company, was elected treasurer.

At the Board of Directors meeting, John Marshall was reappointed as executive vice-president and the firm of Fistere and Habberton were again retained as general counsel for the ensuing year.

COUGH
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COUGH
COUGH TOO MUCH?
SHORT OF BREATH?
BREATH?
BREATH?
BREATH?
BREATH?
BREATH?
BREATH?

Don't take chances: see your doctor.
You may have a Respiratory Disease. Chronic RD afflicts at least 12 million Americans. Don't take chances with its most common symptoms. Your local Christmas Seal organization and National Tuberculosis Association say: **See Your Doctor.**



HELPFUL INFORMATION

Planning: Key to successful C.I.P., G.A. Smith, Wyandotte Chemical Corp., Wyandotte, Michigan. *Food Engineering* 35, No. 4, April, page 69, 1963.

Low cost steam cleaning, W. O. Merritt, Clayton Mfg. Co., El Monte, California, *Food Engineering* 35, No. 4, April, page 77, 1963.

How to select today's floorcleaning units. J. M. Sassano, General Floorcraft, Inc., New York City, *Food Engineering* 35, No. 4, April, page 81, 1963.

"*Air Pollution Topics*," Hemeon Associates, 1211 Meyran Avenue, Pittsburgh 13, Pennsylvania.

"*Respiratory Protective Devices Manual*." Braun-Brumfield, Inc., P. O. Box 1203, Ann Arbor, Michigan. Price, \$8.50 plus .20 mailing charge.

"*Hygienic Guide Series*," (six new volumes), American Industrial Hygiene Association, 14125 Prevost, Detroit 27, Michigan. Price, \$.25 each.

"*Dust Control*," Institute of Industrial Launderers, 1025 Connecticut Avenue, N.W., Washington 6, D. C.

"*Waste Treatment Formulation*," (SAN-505-2), Rohm & Haas Co., Sanitary Chemicals, Philadelphia 5, Pa.

Filter Catalog, (Catalogue C-7) Filterite Corp., Timonium, Maryland. Information on construction, charts, housings, design, etc. Free.

AVMA To Hold Centennial In July

The Centennial Annual Meeting of the American Veterinary Medical Association will be held in New York City, July 28 through August 1. More than 6000 doctors of veterinary medicine and their guests are expected to attend the meeting in the Americana Hotel.

Returning to the city where it was founded on June 9, 1863, in the no-longer-existing Astor House, the AVMA has scheduled a well-rounded program of scientific sessions and social events in celebration of its one-hundredth anniversary.

Features of the centennial convention include:

Presentation of 117 scientific papers in six section meetings (small animals, large animals, public health, research, regulatory veterinary medicine, and poultry);

Nineteen demonstrations of veterinary medical techniques on live animals over closed-circuit color television;

A continuously operating motion picture clinic; Special symposia on subjects such as nutrition and public health programs;

The installation of Dr. Jack O. Knowles of Miami, Florida, as President of the 17,000-member AVMA. He will succeed Dr. Dan J. Anderson of Fort Worth, Texas.

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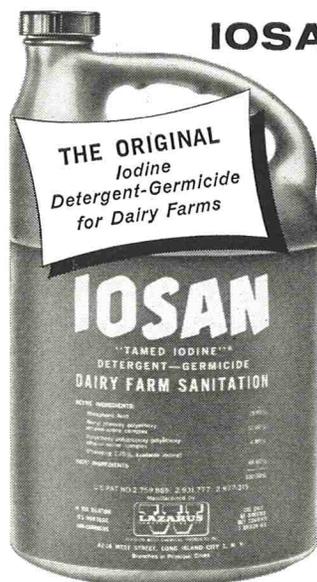
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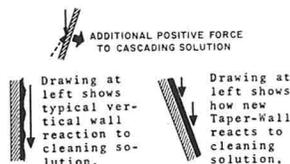
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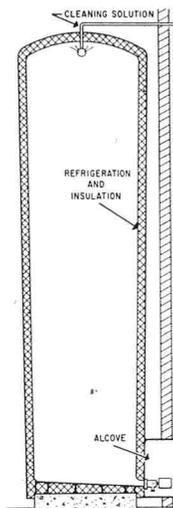
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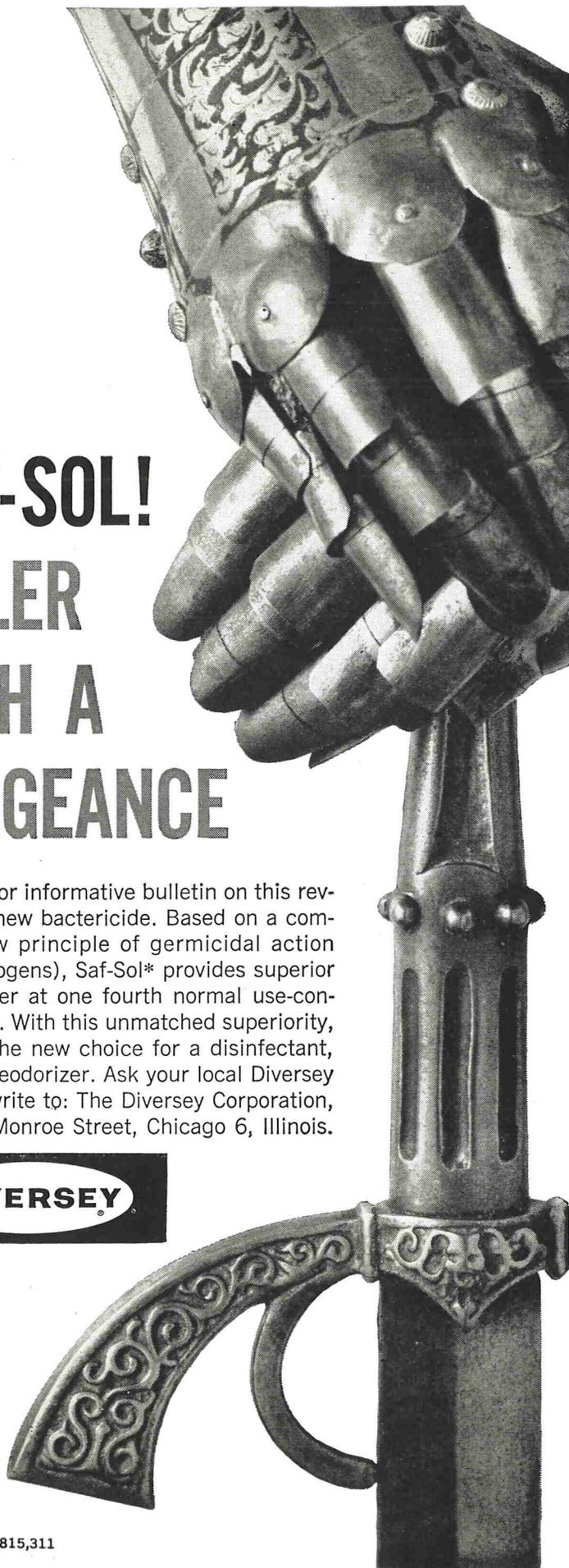


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July 10—Ohio Dairy Products Association, Annual Dairy Outing, Westbrook Country Club, Mansfield, Ohio. Write: E. A. Graber, 1429 King Avenue, Columbus 12, Ohio.

July 10, 11, 12—South Dakota Association of Sanitarians, Annual Meeting, Aberdeen, South Dakota. Write: A. R. Zulk, City Health Department, City Hall, Sioux Falls, South Dakota.

July 10-12—North Carolina Dairy Products Association, Summer Meeting, Morehead Biltmore Motor Hotel, Morehead City, North Carolina. Write: J. E. Johnson, Box 10506, Raleigh, North Carolina.

July 15, 16, 17—Eastern Division, American Dairy Science Association and North Atlantic Section, American Society of Animal Science, West Virginia University. Write: Professor Myron Lacy, Morrison Hall, or Professor Frank Shipe, Stocking Hall, Cornell University, Ithaca, New York.

July 17-23—Fifth International Pesticides Congress, London. Write: Honorary Secretary, 14 Belgrave Square, London SW 1, England.

July 22-24—Annual Convention National Food Distributors Association, Pick-Congress Hotel, Chicago, Illinois. Write: Executive Director of NFDA.

September 3-5—National Association of Dairy Equipment Manufacturers, (Members only), O'Hare Inn, Chicago, Illinois. Write: John Marshall, 1012 14th St., N. W. Washington 5, D. C.

September 9, 10—Wisconsin Association of Milk and Food Sanitarians, Annual Meeting, Dell View Hotel, Lake Delton, Wisconsin. Write: L. Wayne Brown, 421 Chemistry Bldg., University of Wisconsin, Madison, Wisconsin.

September 10-11—National Dairy Council, Board of Directors Meeting, Drake Hotel, Chicago, Illinois. Write: Milton Hult, 111 North Canal Street, Chicago, Illinois.

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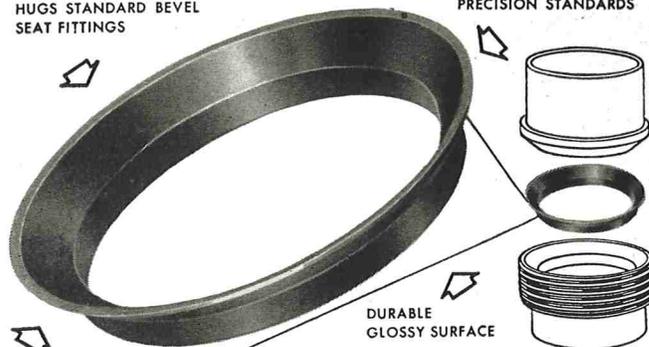
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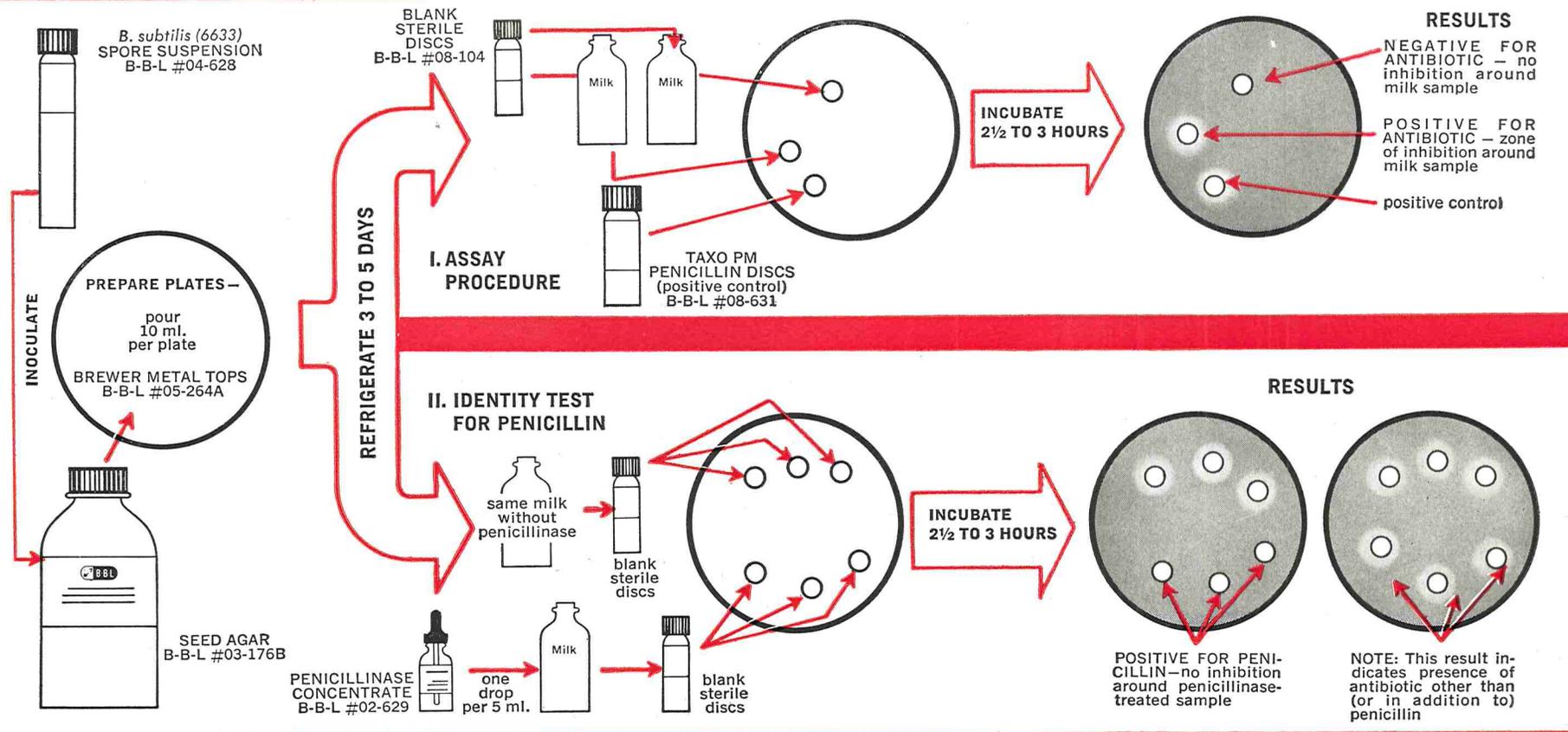
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necessary—all of which are available from B-B-L. A complete brochure with detailed technique and product listing is available upon request.

*Arret, B., and Kirshbaum, A.: *J. Milk and Food Technol.* 22:329, 1959.

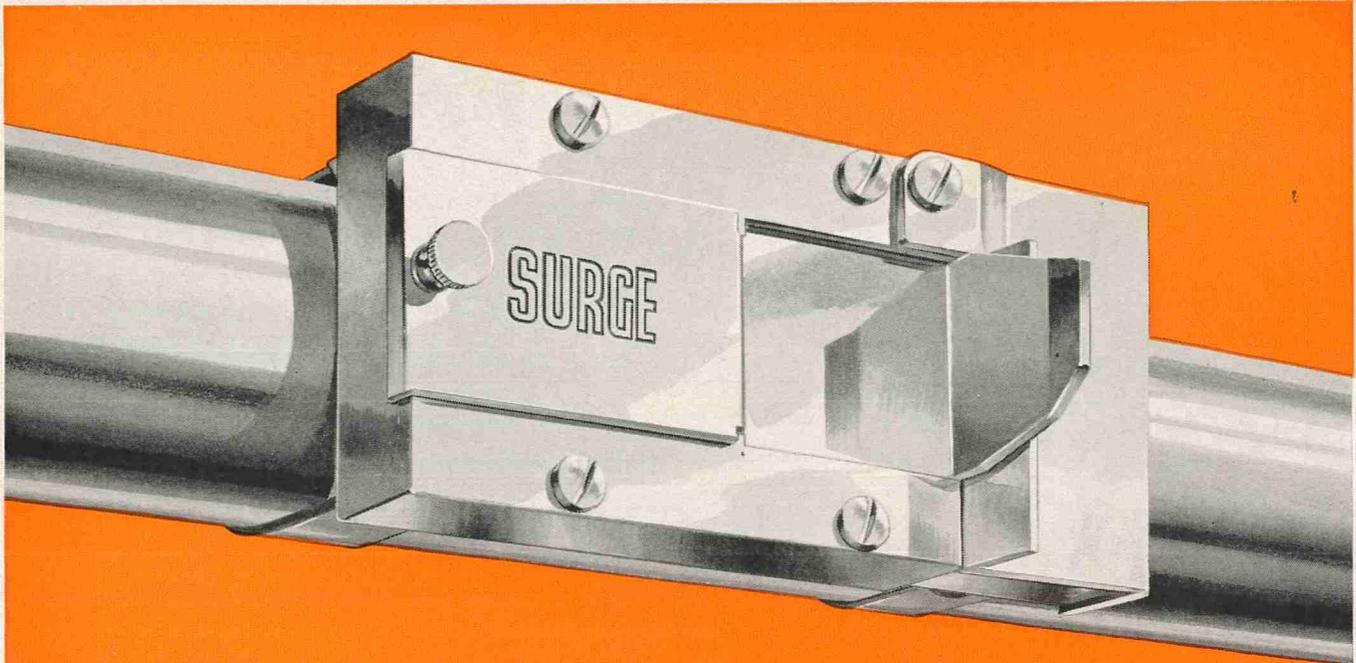
BALTIMORE BIOLOGICAL LABORATORY, INC.
BALTIMORE 18, MARYLAND



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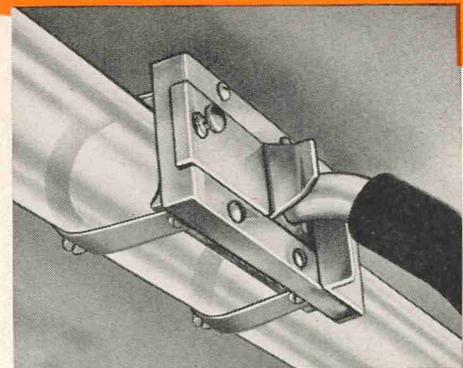
This **CLEANED-IN-PLACE** Milk Valve solves **4** problems that are important areas in pipeline milking

- 1.** Cleans-in-place without the need for hand brushing.
- 2.** Clamps onto pipeline. Eliminates two joints that many valves require. All joints with crevices should be eliminated.
- 3.** Removes the nipple from the valve and puts it on the end of milk hose. Here it is washed with the milk hose rather than being left on milk line, exposed to dust and flies.

With some valves this filth is "wiped" off the nipple by the milk hose each time the milker is attached.

- 4.** Prevents loss of vacuum caused each time a unit is attached or removed. (CONSTANT VACUUM IS IMPORTANT IN MASTITIS CONTROL.)

SURGE Milk Valves are available for stainless steel or glass tubing.



Above illustration shows SURGE Milk Valve with nipple inserted.

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