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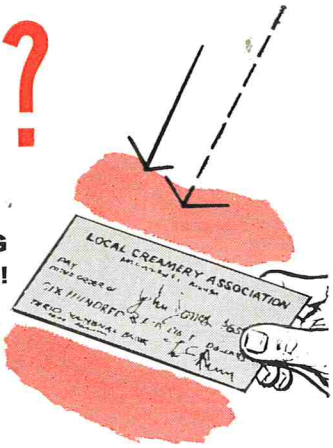

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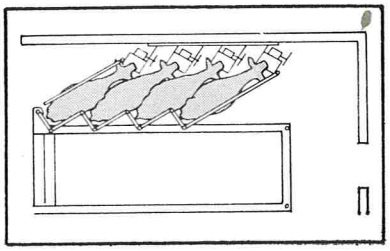

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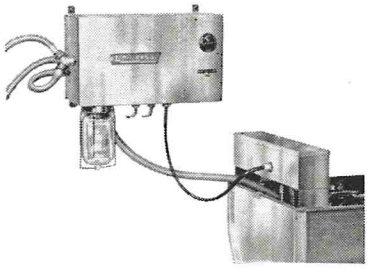

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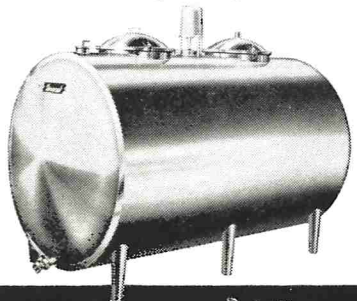

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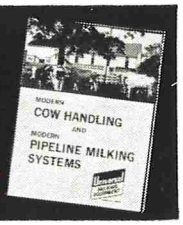

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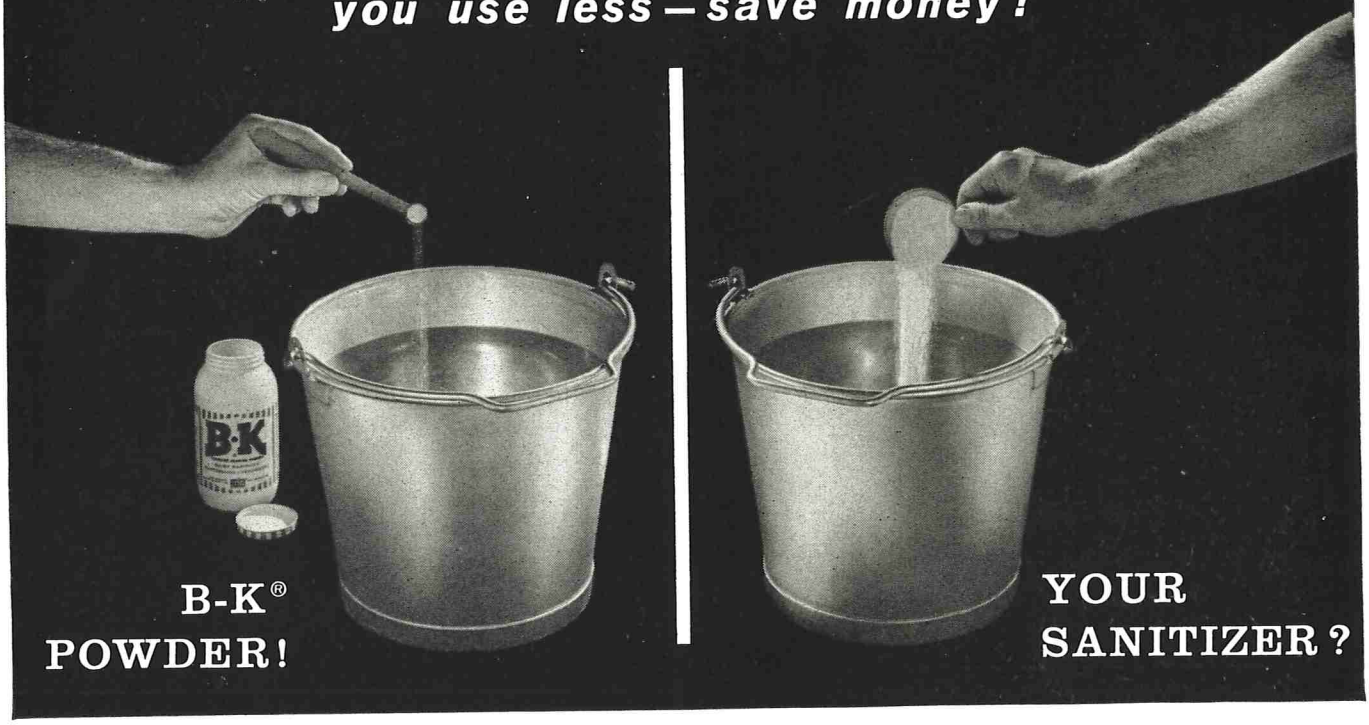

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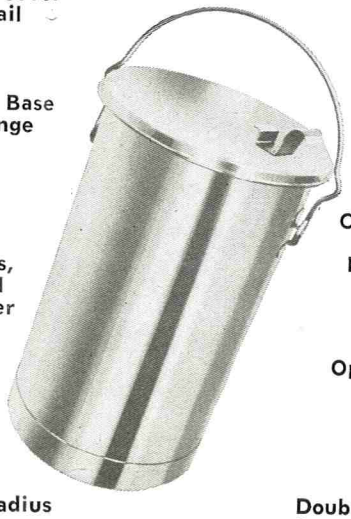

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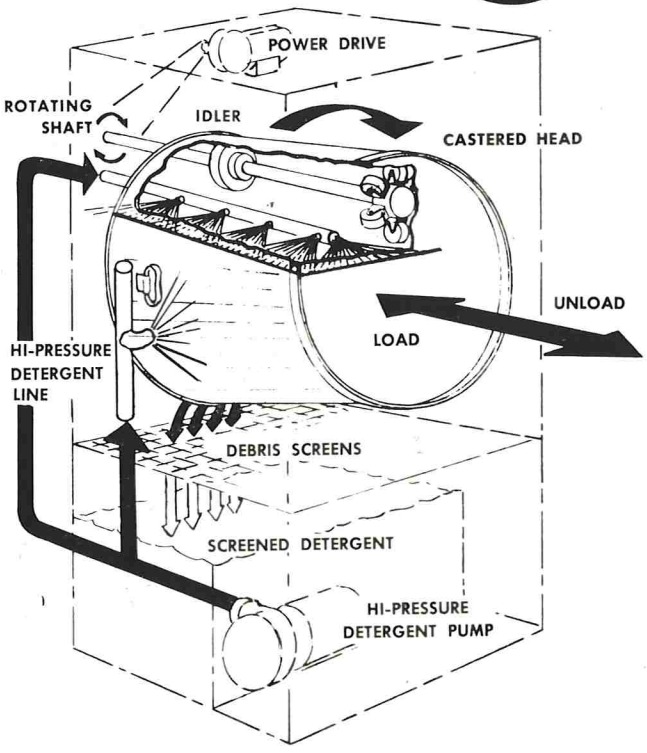

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EDITORIAL

Our Nutritional Environment

In the December 2, 1961 issue of the *Journal of the American Medical Association,* Dr. Frederick Stare, Professor of Nutrition at the Harvard School of Public Health has an article on, *Nutritional Challenge for Physicians.* It is interesting to note the scope of the term *environment.* For example, Dr. Stare says, ". . . *nutrition is the science of food and the nutrients in food in relation to health. The food we eat and do not eat has much to do with health. In fact, in these days with the advances in control of many of the infectious diseases, NUTRITION IS PROBABLY THE SINGLE MOST IMPORTANT ENVIRONMENTAL FACTOR AFFECTING OUR HEALTH.*"

In support of this concept one has merely to recall various patterns of eating which have made nutritional diseases prevalent. Typical examples are found in the story of pellagra in the southern part of the U. S., the beriberi of the Orient, and the scurvy of earlier times abroad ship. Water of course, is the primary essential dietary element, and the elimination of environmental disease by means of its proper protection, treatment and distribution is such a basic part of public health as to be taken almost for granted. These days the nutritional environment is in the public mind because of concern with calories - the fork having been called a mass suicide weapon; - saturated versus unsaturated fats, so called natural foods, food supplements, dentrifices and vitamins.

Dr. Stare makes sense as he points out areas in which nutrition plays an important role. Some conditions which present challenges include cardiovascular disease, tooth decay, kidney and bladder stones, control of diabetes, and improvement in fitness and general health. He points out that eating is largely a matter of habit, and that we should cultivate the singular - egg instead of eggs, slice instead of slices, and ounce instead of ounces. Walk more than you do. Motorized golf carts are for the feeble. After a summary on fats and serum cholesterol he summarizes with the statement that his suggestions are empirical with little supporting evidence, and emphasizes that the procedures relating to fats and serum cholesterol are made only for selected patients and are not for the public.

In order to determine the effects of heredity on heart conditions his laboratory is doing a study of blood brothers who have lived in markedly different environments, including that of diet. The group consists of Irish males who are between the ages of 30 and 60, who have lived in the Boston area for 10 or more years, and, who have brothers in Ireland and who have never left the country. Preliminary results indicate that the men in Ireland consume on an average of 300 calories more per day and yet weigh less. This may be due to more physical activity - walking and bicycling in Ireland. They also consume more animal fats including an average of a pound of butter per week, and yet have lower levels of cholesterol than their brothers in Boston. High blood pressure is less than half as prevalent in the group in the old country than with their brothers in the land of the bean and cod.

The research continues in this and many other areas. "Good nutrition", Dr. Stare says, *is far more than the cure and prevention of some diseases. It offers the possibility of improved health. It requires the preservation of the nutrient values of food by good processing, storage, and proper cooking methods.* He concludes with the idea that the way to achieve a balanced diet is by eating a variety of wholesome food, including fruits, vegetables, cereals, meats, fish, milk and its products - and not eating too much.

These good wholesome foods are available in any grocery store and are not filled with poisons, as some food quacks and faddists would have you believe. Here is an example of a scientist whose work is outstanding and who has a very sensible viewpoint. He has singled out nutrition as a most important factor in our environment effecting our health. As we consider the newer challenges in control of the environment, varying from cancer producing hydrocarbons to radioactive fallout, let us not forget that we must continue to interpret *environment* in its broadest sense, and wholesome food, or our nutritional environment must remain of real concern to us all.

Samuel H. Hopper, Ph.D.
Indiana University School Of Medicine
Indianapolis, Indiana

A TECHNIQUE FOR LABORATORY PASTEURIZATION USING DISPOSABLE CONTAINERS

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Department of Microbiology and Public Health
Michigan State University
East Lansing, Michigan

and

R. P. Lyons
Dairy Section, Ingham County Health Department
Lansing, Michigan

The laboratory pasteurized test as described in Standard Methods *(1)* is only used to a limited extent because it is too time-consuming and requires too much additional equipment. Attempts to reduce the time required in setting up the test and to eliminate the need for additional glassware by using the glass collection vial as the heating container have not proven satisfactory. One of the major difficulties arises from the fact that droplets of milk remain on the under surface of the closure after shaking and proper thermal processing is impossible since the container cannot be immersed because of leakage. Flaming the upper region of the tube to "burn off" droplets of raw milk increases the likelihood of leakage as the teflon or rubber seal in the closure becomes misshapen upon contact with the hot glass.

The advent of a sterile plastic tube[1] with a leakproof closure has made it possible to utilize a single tube to collect the raw milk sample on the farm and to carry out the laboratory pasteurization test; the need for additional sterile glassware is eliminated and the time required for the test is considerably reduced. The certainty of the seal makes it possible to completely submerge the tube during laboratory pasteurization and complete heating of every particle of milk is assured.

This work was undertaken to study the utilization of a plastic tube for the collection of raw milk for a standard plate count and to determine the feasibility of using this same container and sample for the laboratory pasteurization test. In the first phase of this study the come-up times of milk in glass and plastic tubes were compared. In the second phase pure cultures of heat-resistant and heat-sensitive bacteria were subjected to pasteurization in glass and plastic tubes. In the third phase producer samples were collected and the results obtained following laboratory pasteurization were analyzed statistically for comparative purposes.

[1]Manufactured by Falcon Plastics Division of B-D Laboratories.

Materials and Methods

Come-Up Studies

Since the volume of milk in the tube as well as the number of tubes under test at one time markedly influences the come-up time, control over these variables is mandatory. To control the quantity of raw milk in each tube a 10 ±1-ml volume was selected since this represents a practical volume if the hauler or sanitarian uses a standard dipper. To control the number of samples under pasteurization at one time, a group of 40 samples was selected as a working unit. The results reported in the come-up trials and in the comparative laboratory pasteurization tests are based on a working unit of 40 tubes each containing 10 ±1-ml of milk. In all cases, the plastic tubes (17 x 100 mm) were completely submerged in a covered wire basket weighted to prevent floating. The screw cap glass tubes (20 x 150 mm) containing a similar volume of milk were immersed so that the water level was approximately 7.5 cm above the level of the milk.

Come-up time studies were undertaken using a 5.2-gal Unitherm water bath containing 4.7 gal of water. The temperature was adjusted to 143°F using a 300-watt heater. In the come-up trials the temperature of the milk in the tube in the center of the cluster was taken at minute intervals using a thermocouple. The results are shown in Figure 1.

Pure Culture Studies

Corynebacterium filamentous, Micrococcus sp. and *Micrococcus* strain MS102 were used in this study. One ml of a 24-hr nutrient broth culture of each organism was added to 9 ml of sterile milk in plastic and glass tubes. The initial levels of inoculum in the milk with *C. filamentous* and *Micrococcus* strain MS102 were 100,000 and 990,000 per ml, respectively. With *Micrococcus* sp. studies were made using average initial inoculations of 52,000, 164,000, and 299,000 per ml. These levels were selected as they are representative of the range which might be encountered

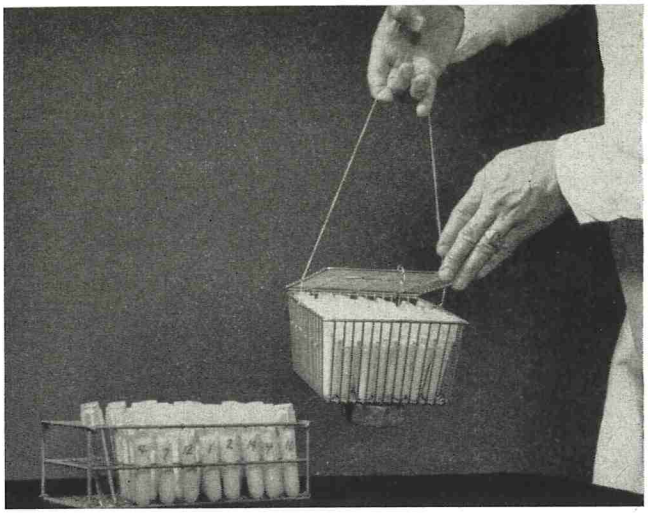

Figure 2.—Apparatus used in making laboratory pasteurization tests showing raw milk samples in plastic tubes and weighted covered wire basket.

TABLE 1—COMPARISON OF LABORATORY PASTEURIZATION IN PLASTIC AND GLASS TUBES USING *Micrococcus* SP.

Sample		Initial count	Lab. past count		% Destruction	
			Plastic	Glass	Plastic	Glass
		(No/ml)	(No/ml)	(No/ml)		
1	Repl. A	160,000	250	190	99.84	99.88
	Repl. B	170,000	400	370	99.75	99.86
2	Repl. A	63,000	110	140	99.83	99.78
	Repl. B	41,000	120	100	99.71	99.76
3	Repl. A	320,000	430	380	99.87	99.88
	Repl. B	280,000	470	410	99.83	99.85

in actual practice. Laboratory pasteurization was carried out as described above using a 40-tube working unit. Heating during come-up and exposure for the 30-min holding period was undertaken in a water bath at 143°F. On the basis of the findings in the come-up trials, the samples in plastic tubes were held in the bath for 40 min; samples in glass tubes were held for 36 min; timing commenced at the moment of immersion. After laboratory pasteurization the samples were cooled rapidly by placing them in a water bath to cover the milk level and plated in duplicate. Counts were made after incubation at 35°C for 48 hours. The results obtained with *Micrococcus* sp. are given in Table 1.

Comparative Studies on Producer Samples

Twenty duplicate producer samples were tested to ascertain whether there was a significant difference in bacterial count following laboratory pasteurization in plastic and in glass tubes. Blank tubes containing 10 ±1 ml of water were used to adjust the unit to 40 tubes. Laboratory pasteurization was carried out as described previously. Standard plate counts were made in duplicate and the results compared statistically. The apparatus used in this study is shown in Fig. 2.

RESULTS AND DISCUSSION

The data presented in Figure 1 show the come-up rate when 40 glass tubes each containing 10 ±1 ml of milk at 45°F were placed in a water bath at 143°F. The time required to reach 143°F was 6 min with glass tubes. Under similar conditions using plastic tubes and complete immersion, the come-up time was 10 min. Although the come-up times in plastic in both instances the samples were held at temperatures between 139-143°F for approximately four min. Because of the similarity of the curves throughout this temperature range, the bacterial kill in this phase of heating is quite similar in plastic and glass. Exposure periods below 105°F (0.5 min in glass and 1.5 min in plastic tubes) would not contribute materially to the lethal process. The exposure period required to raise the temperature from 105°F to 139°F (4 min and 1.5 min in plastic and glass, respectively) represents the area of greatest diversity between these two come-up curves. Because of differences in the thermal destruction rates of various

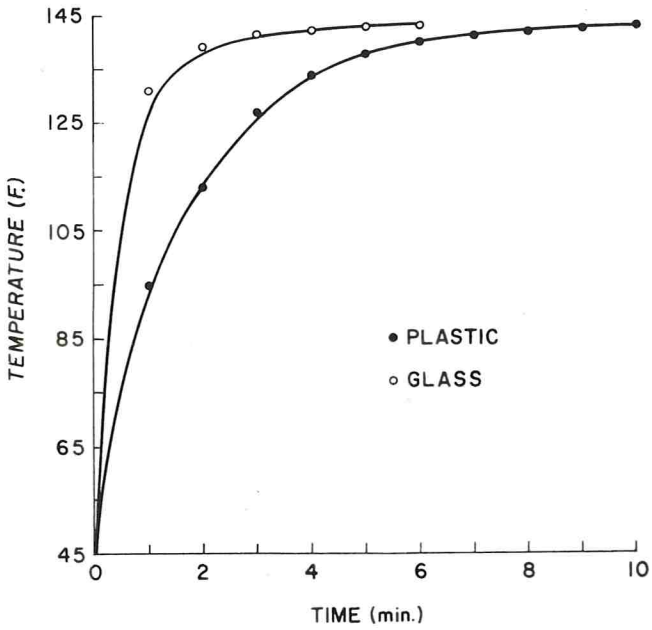

Figure 1.—Come-Up Curves For Milk In Glass and Plastic Tubes In A Water Bath at 143°F.

and glass differ somewhat it is interesting to note that organisms an interpolation as to the significance of this come-up difference is impossible.

In an attempt to obtain some information relative to the importance of this difference in come-up time with respect to the laboratory pasteurization test, *C. filamentous, Micrococcus strain* MS 102 and *Micrococcus* sp. were carefully laboratory pasteurized in milk using plastic and glass containers. In the absence of definite endpoints with *C. filamentous* it was impossible to determine the effect of the different come-up curves on bacterial destruction. The bacterial destruction in either instance appeared to be similar to the extent that neither glass nor plastic showed any survivors after heating when samples were plated at the one ml level. With the extremely heat resistant *Micrococcus* strain MS102, at an initial average concentration of 990,000 cells per ml, average survivor levels of 930,000 and 855,000 per ml. were obtained in glass and plastic containers, respectively. The close agreement between these values indicate that the come-up rate did not appreciably influence the total destructive effect of the complete heat treatment. The results obtained with *Micrococcus* sp. are given in Table 1. After heating at 143°F for 36 min in glass and 40 min in plastic tubes, the per cent destruction, based on the grand average, was 99.84% and 99.81%, respectively. The range of the actual count observed between replicates within a single sample indicated that the difference in per cent reduction based on the grand average value is insignificant.

To study a more heterogenous bacterial spectrum and to gain some information as to the practical application of this technique under field conditions, twenty producer samples were collected by a commercial hauler and tested in plastic and glass containers. An analysis of variance of the data presented in Table 2 indicated no significant difference at the 99% level between the counts obtained on samples in glass and plastic tubes. In comparing the data, the correlation coefficient was 0.9936. It is apparent from this that the laboratory pasteurization test as carried out in plastic tubes as described gives results comparable to that obtained with glass tubes when the milk samples are exposed at 143°F for 40 and 36 min respectively.

The use of a plastic tube as a container for collecting raw milk as well as a vial for carrying out the laboratory pasteurization test saves considerable time as no transfer of milk to a clean sterile tube is necessary. This also eliminates the need for additional screw-caps tubes and transfer pipettes, both of which require cleaning and sterilizing. Plastic tubes have been used as sampling tubes in our laboratory for approximately one year. The haulers using these tubes have registered no complaints. Haulers are instructed to replace the plastic cap so as to close the tube but not to seat the cap completely; removal of the cap for making a raw milk count is thus facilitated. For laboratory pasteurization the cap is seated completely to prevent leakage during immersion.

TABLE 2—COMPARISON OF COUNTS ON MILK SAMPLES PASTEURIZED IN PLASTIC AND GLASS TUBES

Producer Sample	Raw milk SPC at 35°C	Lab. past. count	
		Plastic	Glass
	(No/ml x 1000)	(No/ml)	(No/ml)
1	43	620	790
2	100	120	130
3	280	50	30
4	66	230	160
5	2,700	900	880
6	87	240	130
7	50	30	90
8	250	40	20
9	380	2,200	2,300
10	80	40	60
11	41	5,500	5,200
12	16	1,600	1,100
13	9	560	380
14	25	110	120
15	8	220	190
16	4	40	25
17	17	960	690
18	5	150	110
19	4	180	140
20	23	6,000	6,500

CONCLUSIONS

A plastic container has been found to be satisfactory for the collection of raw milk samples for bacterial counts and for the laboratory pasteurization test.

A procedure is described for making a laboratory pasteurized test using the same tube in which the milk sample was collected; the method saves time and requires less equipment.

ACKNOWLEDGMENT

The authors wish to express their thanks for the financial assistance given by the Ingham County Health Department, Dairy Section, in support of this study.

REFERENCES

1. American Public Health Association. Standard methods for the examination of dairy products. 10th ed. Am. Public Health Assoc., Inc., New York. 1953.

AGITATION OF MILK SAMPLES FOR COLONY COUNTS OF RAW MILK[1]

B. E. Wanser[2] and Paul A. Hartman

Department of Bacteriology
Iowa State University, Ames, Iowa

(Received for publication December 30, 1960)

Standard methods of examining milk rely on easily reproducible techniques which are subject to as little variation as is possible. This has resulted in a uniformity in standardized techniques and productivity of media, but usually does not result in effecting the highest attainable bacterial count from a representative sample of the product. As stated in "Standard Methods" *(1)*, in the bacterial colony count method for milk, "Customary shaking of sample and dilutions tends to distribute clumps of bacteria more uniformly, but does not break them up appreciably. Consequently, under optimal conditions, Standard Plate Counts represent the number of visible colonies developing from the clumps and the isolated bacteria in the test portions plated under specific growth conditions. Thus, colony counts are always lower than the number of viable cells actually introduced into plates."

Use of a mechanical blender in preparation of the initial dilution of solid or particulate foods has been found to be advantageous because it affects dispersion of the sample and facilitates pipetting *(2, 5, 7)*. It would seem that mechanical dispersion of clumps of bacteria in raw milk would result in higher colony counts than when the milk was shaken in the recommended manner. A comparison was made, therefore, of bacterial counts obtained when raw milk was agitated by two different methods prior to or during mixing of the first dilution.

Materials and Methods

Samples of commercial raw milk were obtained from the Iowa State University Dairy Bacteriology Laboratory through the countesy of Dr. F. E. Nelson and Mr. R. W. Baughman. Each sample was plated according to "Standard Methods" *(1)*, except that the peptone diluent of Straka and Stokes *(6)* was used for all dilutions. Each sample was also plated as above, after 100 ml of the raw milk was mixed for 30 sec to 1 min in a Waring[3] semi-micro blendor container. Since only 4 blendor containers were available, several preliminary experiments were made to determine treatments which would result in negligible carry-over of bacteria from one sample to another. The most convenient method (several rinses in tap water at 70°C) was used for subsequent studies.

Table 1—Plate Counts of Raw Milk as Effected by Mixing Procedure

Sample number	Plate count per ml.		
	Standard procedure	Blender procedure	% Increase or decrease
1	11,000	8,200	-25
2	16,000	38,000	138
3	31,000	46,000	48
4	12,000	12,000	0
5	11,000	9,000	-18
6	81,000	130,000	60
7	12,000	12,000	0
8	28,000	89,000	218
9	3,200	4,200	31
10	51,000	35,000	-31
11	12,000	19,000	58
12	33,000	46,000	39
13	19,000	40,000	111
14	34,000	43,000	26
15	230,000	250,000	9
		Average	44

Results and Discussion

Some typical results are shown in Table 1. Plate counts averaged 44% higher when the milk was mixed with a blendor prior to making the first dilution than when procedures in "Standard Methods" *(1)* were rigidly adhered to. If samples were stored at 5C for 3 to 4 days after receipt, increases in recovery by use of the blender method were even more pronounced (Table 2). Similar results were obtained when the initial dilution, rather than the raw milk, was agitated in the blender container. The increases in count were highly significant ($P = .01$); however, in certain instances higher counts were obtained with the standard procedure than with the blender procedure (Table 1, samples 1, 5, and 10). This discrepancy is

[1]Journal paper no. J-3951 of the Iowa Agricultural and Home Economics Experiment Station, Ames, Iowa. Project no. 1379. This investigation was supported (in part) by research grant no. E-1141 from the Institute of Allergy and Infectious Diseases of the National Institutes of Health, U. S. Public Health Service.

[2]Present address: Holly Springs-Hornick High School, Hornick, Iowa. Most of these studies were conducted by the senior author as a Summer Research Participant for Teacher Training on a grant from the National Science Foundation.

[3]Waring Blendor, Model 700A. Waring Products Corp., N. Y., N. Y. On the basis of studies of frozen foods (4), other types of mechanical blenders probably could be used.

probably due to variation encountered in comparing the two different procedures, since increases in the counts obtained (Tables 1 and 2) also varied considerably between samples. On the other hand, two processes may be occurring simultaneously during blending: the dispersion of clumps of bacteria, as well as the disruption of certain more labile cells. If this were the case, the samples varied greatly in size of clumps, ease of clump dispersion, and cell susceptibility to mechanical disruption.

The blender container could be rinsed several times with tap water of satisfactory sanitary quality and low-chlorine content before re-use, if the sample which had been tested contained less than 10^6 bacteria per ml. When extremely high count milks (over 10^6 per ml) were present in a series of samples, several hot (70 C) rinses were satisfactory. An alternative was to rinse the container 3 times with cold water, then to operate the blender for 30 sec with 100 ml of sterile water as a final rinse; a procedure which is similar to that used with membrane filter funnels *(1)*. Sterilization of containers is advisable if they are to be held for extended periods between samples.

Use of mechanical blenders adds to the initial investment and subsequent labor necessary to make plate counts; however, the higher counts obtained by the blender method may justify these expenditures. In addition, intralaboratory deviations in preplating agitation of milk samples *(3)* should be reduced when the blender method is used.

SUMMARY

Bacterial plate counts of raw milk made using a blender procedure were significantly higher than when standard shaking procedures were used.

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TABLE 2—PLATE COUNTS OF RAW MILK[a] AS EFFECTED BY MIXING PROCEDURE

Sample number	Plate count per ml. Standard procedure	Blender procedure	% Increase
1	170,000	330,000	94
2	980,000	1,300,000	33
3	570,000	700,000	23
4	7,000	11,000	57
5	2,700,000	6,300,000	133
6	67,000	75,000	12
7	7,100,000	13,000,000	83
8	71,000	440,000	520
9	3,700,000	22,000,000	495
10	43,000	160,000	272
		Average	172

[a]The milk was stored at 5C for 3 to 4 days prior to analysis.

COMPOSITION, PHYSICAL PROPERTIES AND MICROBIOLOGICAL QUALITY OF CHIP-DIPS[1]

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Chip-dips are a relatively new dairy product on the market. Basically they are flavored cultured creams. Their manufacture in the form of dehydrated base for home preparation and ready-to-serve dips has increased tremendously since their introduction.

To date no federal standards have been established for chip-dips. Regulatory officials in 50 states were queried concerning effective or proposed standards governing the composition and microbiological quality of dips. Officials from 48 states responded. Twenty-six stated that they had no regulations in effect or proposed, but several were planning to implement standards. Fifteen states regulate chip-dips under general food and labeling laws. Four states had rudimentary standards for composition or quality. Two of them limited the coliform count on ready-to-serve dips to 10 per g, one permitted no coliforms and another limited the total bacteria count of dehydrated bases to 50,000 per g.

Since there was no published information concerning the gross composition, microbiological quality or physical properties of chip-dips, examination of those products presently available in the market seemed desirable.

Three classes of dips were analyzed; namely dehydrated base, ready-to-serve, and dehydrated base reconstituted according to the manufacturer's recommendations.

Methods and Materials

Source and description of samples

Twenty-six samples of dehydrated chip-dip base representing four brands and 14 flavors, were secured from local markets. Eight additional samples, representing two brands and eight flavors, were obtained directly from the manufacturers. The latter eight samples were of bases manufactured for use by commercial dairy plants in the preparation of ready-to-serve chip-dips.

Fifty-nine samples of ready-to-serve chip-dips, representing six brands and ten flavors were purchased in local markets. Also, 56 samples of dehydrated chip-dips, representing four manufacturers and including 14 flavors, were secured from local markets. These were reconstituted according to directions using the specific products suggested; i. e. water, milk, sour cream, cream cheese, and creamed cottage cheese. In addition to the products recommended for reconstitution, half-and-half and whipping cream were used also. All of the dairy products were purchased from local markets at the same time as the dehydrated bases so as to simulate as closely as possible the actual quality the consumer would encounter.

The net weight of dehydrated base in each package of chip-dip varied from 8 to 71 g or approximately from 0.28 to 2.50 oz. The recommended amount of dairy products to be added varied with each brand also, but was always the same for each flavor within the brand.

Analyses

Appropriate examinations were made on each class of chip-dip for microbiological quality, physical and chemical characteristics and organoleptic score.

Microbiological determinations for total, coliform, psychrophile, yeast and mold counts were made according to Standard Methods *(1)*. The plates for total and coliform count were incubated at 32° and 35°C., respectively, and the psychrophile plates were incubated at 7°C for 7 days.

The dehydrated samples were examined for fat by the Roese-Gottlieb method. Both the reconstituted and the ready-to-serve samples were tested for fat by a modified Babcock procedure employing a quaternary ammonium compound in concentrated sulfuric acid *(7)*. The moisture content of the dehydrated samples was determined with an infra-red moisture balance. The reconstituted and the ready-to-serve samples were dried to constant weight in a 100°C vacuum oven. Total nitrogen was determined by a macro Kjeldahl procedure. pH measurements were made with a glass electrode pH meter. Penetrometer measurements were made with a Universal model Precision Penetrometer at approximately 72°F with the standard petroleum cone. Values are

[1]Michigan Agricultural Experiment Station Journal Article No. 2872.

TABLE 1— MICROBIOLOGICAL POPULATIONS IN DEHYDRATED CHIP-DIP BASES AND IN READY-TO-SERVE CHIP-DIPS

	34 commercial dehydrated chip-dip bases		59 commercial ready-to-serve chip-dips	
Type of count	Range of counts per gram	Number of samples	Range of counts per gram	Number of samples
Standard plate	<1,000 to 10,000	8		
	>10,000 to 50,000	7		
	>50,000 to 100,000	6		
	>100,000 to 1,000,000	11		
	>1,000,000	2		
Psychrophile			<10 to 10	55
			>10 to 100	3
			>1,000	1
Coliform	<10 to 10	13	<10 to 10	59
	>10 to 100	4		
	>100 to 1,000	11		
	>1,000	6		
Yeast[a]	<10 to 10	27	<10 to 10	18
	>10 to 100	3	>10 to 100	0
	>100 to 1,000	2	>100 to 1,000	3
	>1,000	2	>100,000	4
Mold[a]	<10 to 10	7	<10 to 10	23
	>10 to 100	11	>10 to 100	0
	>100 to 1,000	10	>100 to 1,000	1
	>1,000	6	>100,000	1

[a]Only 25 ready-to-serve samples examined

expressed as the penetration in tenths of a millimeter in five seconds or $\frac{mm}{10}$. Flavor, body, texture and color were rated according to a hedonic scale *(4)* ranging from nine (like extremely) to one (dislike extremely).

RESULTS AND DISCUSSION

Microbiological analyses

The results of the microbiological examination of dehydrated bases and ready-to-serve dips are summarized in Table 1. Eight of the 34 samples of dehydrated base examined had counts of <10,000 organisms per g, 15 of the 34 samples had counts of <50,000 per g (the U.S.D.A. standard for Extra Grade non-fat-dry-milk) and six samples contained between 50,000 and 100,000 organisms per g which corresponds to the requirements for U.S.D.A. Standard Grade non-fat dry milk. Thirteen samples yielded plate counts in excess of 100,000 per g and two of these exceeded 1,000,000 per g.

In general, the lowest counts found, regardless of the type of organism, were associated with those dips containing cheese as the main flavoring ingredient. The highest counts were associated with dips flavored with onion, garlic or barbecue. The maximum standard plate count encountered in a base flavored with cheese was 100,000 per g, whereas the counts of those flavored with vegetables were frequently of much greater magnitude.

Eight of the 12 dehydrated bases flavored with cheese had coliform counts of <10 per g while the counts of those flavored with vegetables were usually much higher. Dehydrated vegetable bases probably contribute coliform organisms to the chip-dip. Slocum and Boyles *(6)* found *Escherichia coli* present on 31.5 per cent, and miscellaneous coliform organisms present on 78.3 per cent of 92 samples of fresh vegetables. They found a greater incidence of coliform organisms on vegetables grown below ground than those grown above ground. Clague *(2)* found more *E. coli* on carrots after dehydration than on the raw vegetable. He reported that the drying procedure alone was not enough to destroy *E. coli*, but that blanching before drying was effective in minimizing viable cells. The coliform counts of the ready-to-serve dips were all <10 per g. This is probably a function of the relatively low pH of these samples. In the sense that coliforms may indirectly represent a public health hazard, the populations encountered in some of the dehydrated bases are objectionable.

Long shelf-life is required in ready-to-serve dips because the rate of purchase and utilization by consumers is less predictable than for most dairy products. If high populations of psychrophiles are present, an undesirable combination of pH, temperature and time may result in spoilage; however, only four of the 59 samples examined contained >10 psychrophiles per g.

TABLE 2—FAT, MOISTURE, pH, PENETROMETER AND NITROGEN MEASUREMENTS ON DEHYDRATED, READY-TO-SERVE AND RECONSTITUTED CHIP-DIPS

	Product examined					
	34 samples of dehydrated bases		59 samples of ready-to-serve dips		56 samples of reconstituted dips	
Characteristic	Range	Number of samples	Range	Number of samples	Range	Number of samples
Fat (%)	0.4 to 10	13	13 to 20	34	3.0 to 10	12
	>10 to 20	8	>20 to 30	11	>10 to 20	33
	>20 to 30	7	>30 to 40	3	>20 to 29.5	11
	>30 to 34.3	6	40 to 54	11		
Moisture (%)	1.3 to 3.0	11	34.7 to 50	12	41.6 to 50	8
	>3.0 to 5.0	20	>50 to 60	3	>50 to 60	14
	>5.0 to 8.2	3	>60 to 70	14	>60 to 70	28
			>70 to 74.4	30	>70 to 78.9	6
pH			4.05 to 4.60	19	4.85 to 5.25	9
			>4.60 to 5.00	29	>5.25 to 5.75	32
			>5.00 to 5.65	11	>5.75 to 6.30	15
Body[a]			320 to 610	59	250 to 520	59
Nitrogen[b] (%)	1.31 to 7.25					

[a]Penetrometer reading $(\frac{mm}{10})$

[b]In the non-fat dry matter

As indicated in Table 1, the majority of the dehydrated bases and the ready-to-serve samples contained <10 yeasts per g. Two of the 34 dehydrated bases had yeast counts of 14,000 and 22,000, respectively. Four of the ready-to-serve dips had yeast counts in excess of 300,000 per g. The high yeast counts occurred in dips flavored with vegetables. This may have been due to contamination during processing rather than to the vegetables. Prescott (5) reported that mold spores were commonly present on dehydrated vegetables but yeasts were invariably absent.

Molds were more prevalent than yeasts in the dehydrated chip-dips. They occurred in greater numbers in the dips flavored with vegetables than in those flavored with cheese even including those flavored with blue cheese.

Chemical and physical analyses

The summarized data in Tables 2 and 3 show the extremes of values obtained with the various chemical and physical measurements on the three classes of chip-dips.

Fat content. Six of the dehydrated samples contained more than 30% fat and 13 contained less than 10%, of which three had less than 1% fat. The gross composition was known for 26 of the 34 samples of dehydrated base. Nine contained milk fat only, eight vegetable fat only and nine contained both milk fat and vegetable fat.

The ready-to-serve dips also contained both milk fat and vegetable fat. In general, the samples with the highest fat content were those containing vegetable fat. Ten samples contained vegetable fat as the sole fat source and in this group the amount of

TABLE 3—RANGE IN FAT, MOISTURE, pH AND PENETROMETER MEASUREMENTS ON CHIP-DIP BASES RECONSTITUTED WITH VARIOUS DILUENTS

	Diluent						
Characteristic	Milk	Sour cream	Cream cheese	Creamed cottage cheese	Half and half	Whipping cream	Water
Fat (%)	6.7 -17.0	13.4 -19.6	13.0 -28.0	3.0 - 6.9	16.2	29.3 -29.5	7.3 -18.2
Moisture (%)	41.6 -67.7	59.1 -74.3	54.5 -67.7	58.0 -78.9	57.0 -58.3	45.5 -47.0	44.2 -48.0
pH	5.45- 6.30	4.84- 5.85	5.30- 6.05	5.35- 5.85	6.20- 6.25	5.15- 6.15	5.40- 5.80
Body[b]	250-406	291-453	290-420	330-520	326-346	286-300	255-385

[a]Two samples only

[b]Penetrometer reading $(\frac{mm}{10})$

fat ranged from 38.4 to 53.4%. Forty samples contained milk fat only with the amount ranging from 13.0 to 36.5%. Nine samples contained both types of fat with the total amounts ranging from 16.6 to 54.0%.

Moisture. The moisture content of the majority of the dehydrated samples was between 3.0 and 5.0%; however, 11 samples contained <3% and 3 samples contained >5% moisture. There was no apparant correlation between moisture content and microbial population. The range of per cent moisture in both the reconstituted and the ready-to-serve dips was about the same for both groups as indicated in Table 2. A greater difference was noted between groups reconstituted with the various diluents as indicated by the data summarized in Table 3. Obviously the composition of the reconstituted dips depended upon the composition of the diluent, the dehydrated base and the diluent-base ratio.

Rheology. The penetrometer values indicate the softness or plasticity of the dips. The ready-to-serve dips appeared to be softer than the reconstituted dips. Olson *et al (3)* observed that penetrometer values were closely related to scores on the body and spreadability of cheese spread. In the work reported herein little, if any, correlation existed between the penetrometer values and the body and texture scores which were determined subjectively. No significant relationship existed between the diluent used to reconstitute the dehydrated base and the penetrometer values obtained. This lack of correlation was attributed to differences in the nature of the components, particularly the stabilizers. Also, no correlation between penetrometer values and body and texture score could be demonstrated. This was attributed particularly to the fact that the body and texture score was subjective and reflected not only the plasticity of the dips, but also the visual observations and the physical and tactual effects of the product in the mouth.

pH. The pH of the reconstituted samples (Table 2) varied from 4.85 to 6.30 (average 5.54) whereas the ready-to-serve samples ranged from 4.05 to 5.65 (average 4.82). The latter group usually contained some food-grade organic acid.

Nitrogen. The total nitrogen in the non-fat dry matter, indicating the amount of protein and nitrogenous material in the dehydrated bases, varied from 1.31 to 7.35% (Table 2).

Table 4—Components of "Ready-to-Serve" Chip-Dips and Dehydrated Chip-Dip Bases

	Ready-to-Serve	Dehydrated
Dairy Products		
Blue cheese	X[a]	X
Cheddar cheese	X	X
Cream	X	X
Milk	X	—[b]
Milk fat	X	—
Milk protein	—	X
Neufchatel cheese	X	—
Nonfat dry milk	X	X
Parmesan cheese	—	X
Swiss cheese	—	X
Whey, dried	—	X
Vegetables		
Carrot	—	X
Dill pickle	X	—
Garlic	X	X
Horse radish	X	X
Mixed vegetables	X	—
Olive	X	X
Onion	X	X
Parsley	X	X
Pepper	X	X
Pimento	X	—
Tomato	X	—
Miscellaneous		
Bacon	X	—
Egg yolk	X	—
Monoglutamate	X	X
Onion soup	X	—
Soybean flour	—	X
Starch	—	X
Vegetable fat	X	X
Vegetable protein	X	X
Yeast, smoked	X	X
Citric acid	—	X
Lactic acid	—	X
Lemon juice	X	—
Vinegar	X	—
Calcium stearate	—	X
Disodium phosphate	—	X
Sodium citrate	—	X
Sodium silica aluminate	—	X
Stabilizer	X	X
Color	X	X
Preservative	X	—
Salt	X	X
Spice	X	X
Sugar	X	X
Water	X	X

[a]Ingredient present
[b]Ingredient not present

Organoleptic evaluation

Twenty-one of the 56 samples of reconstituted dips were criticized for flavor with stale powder occurring most frequently, followed by rancid, sour, bitter, excessive spice and chalky. Most of these flavor defects were attributed to the dehydrated bases which acquired off-flavor from several sources including oxidation, microbiological spoilage and blending of poor quality ingredients. Thirty-nine of the 56 reconstituted samples were criticized for body and texture defects, the most common of which were doughy, gummy, over-stabilized, coarse, mealy, por-

ous or spongy.

Generally the ready-to-serve dips were assigned higher hedonic scores than the reconstituted dips on the basis of flavor, body and texture. Only 12 of the 59 ready-to-serve samples were criticized for flavor defects. Usually the criticism was stale ingredients. Twenty of these samples were criticized for body and texture defects with weakness being the most common criticism.

Components

The components of the commercial dehydrated chip-dip bases and the ready-to-serve chip-dips are indicated in Table 4. Tabulations were made from the information provided on the label of the various products. Obviously not all of the constituents listed are to be found in any one base or dip.

SUMMARY AND CONCLUSION

Dehydrated chip-dip bases and ready-to-serve chip-dips were examined chemically and microbiologically. Additional appropriate tests for physical and chemical properties were applied to the above types of dips and to reconstituted dips.

Chip-dips flavored with vegetables or spices usually had much higher total, coliform and mold counts than samples flavored with cheese. The fat content of dehydrated chip-dips varied from 0.4 to 34.3%, whereas the fat content of the ready-to-serve samples varied from 13.0 to 54.0%. Both groups included samples which contained *(a)* milk fat only, *(b)* vegetable fat only and *(c)* blends of both fats.

The moisture content of the dehydrated bases varied from 1.3 to 8.2% and in the ready-to-serve samples the variation ranged from 34.7 to 74.4%. The ready-to-serve chip-dips were more acceptable organoleptically than those reconstituted from dehydrated bases.

The high populations of organisms in some of the samples of chip-dips and the variations in composition indicate that consideration should be given to the establishment of regulatory standards.

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ROLE OF SANITATION IN DEHYDRATION OF FOODS[1,2]

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This is an age of movement. From week-end picnics to outer space we are a nation on the move. This concept of movement has also become a part of the doctrine of military planning and make up. In order to move fast and far one must be properly equipped and unburdened with weighty and bulky materials. Since food is an important part of the supplies of men in the Armed Forces, it has become necessary to pay considerable attention to the make up, form and weight of this food.

Over the years food has been processed in cans and has proven very satisfactory with regard to stability, utility and handling. This is still true, and canned foods offer no problems where large numbers of men are in training or fairly stationary. However, for the striking force of rapidly moving men believed necessary for any future action such types of food supplies present a problem. Food in round cans is difficult to carry on the person; it is heavy and bulky and does not fit into the weight

[1]Presented at the Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS INC., at Des Moines, Iowa, August 14-17, 1961.

[2]This paper reports research undertaken at the QM Food and Container Institute for the Armed Forces, QM Research and Engineering Command, U. S. Army and has been assigned No. 2165 in the series of papers approved for publication. The views or conclusions contained in it are those of the author. They are not to be construed as necessarily reflecting the views or indorsement of the Department of Defense.

limit of supplies for such a soldier. It has become necessary, therefore, to develop new types of food, new packaging for it, and a new food service concept to meet this need.

The most productive result of years of research and development in this area has been a family of dehydrated food items, packaged in flexible containers and containerized to provide a complete meal, even to the preparation and serving equipment. For example, in the Quick-Serve Meal now under development, one box of approximately 9 pounds in weight, will contain a complete menu of food for 6 men. It will supply 1200 calories per man. It will contain serving trays and eating equipment, a container for heating water, and an accessory package of comfort items. This box and 5 quarts of water is all that is needed to feed 6 men.

The development of this type of meal was made possible through the development of new food processing techniques and equipment and the development of new packaging materials and package design. This work has also given impetus to the growth of a new food industry. There have been many problems concerned with dehydration characteristics of certain foods, the storage stability, the rehydration within time limits dictated by the schedules of soldiers on the move. Constant striving to meet these challenges has resulted in the development of several meat items that can be rehydrated in less than one-half minute and have very high palatability and acceptance.

In these food developments there are several items and certain concepts that should be of great interest to you as Sanitarians. This is why I am appearing on your program today. As these new food products come on the market problems will be developed of concern to the sanitarians in the plants where the processing takes place and to the public health workers in the area of distribution and serving of the food. These are concerned in part with the fact that these non-sterile foods will be eaten essentially as they are prepared and packaged. There will be no cooking involved. Hot water will be added to the food and the product eaten in a matter of minutes. In many cases only cold water is added.

Let us look at the areas of dehydrated foods and see what fields require attention from the public health standpoint. There are many air dried items on the market today such as dry soup mixes, potatoes, onions, etc. These require cooking to varying degrees and the product is heated to or near the boiling point of water in the preparation. Freeze-dehydrated uncooked products are those dehydrated in the raw or blanched state to a low moisture content by dehydration under vacuum in the frozen state. Since these items need to be cooked to prepare them as finished food items, the temperature must of necessity be raised to boiling or above. The area that should receive considerable attention in my estimation is that of the pre-cooked or pre-prepared items that require only the addition of water before consuming. We need to research this area to determine just where the problems are and what is needed to solve them. The recommendation is for the addition of 180°F water. However, this may not always be attained and in cool weather the temperature drop would be very rapid. Such conditions would result in very little killing of bacteria that might be present.

The practice of sanitation has become a way of life with us in this country. We practice it in the preparation of our own food and various agencies devote great effort in supervising food production and providing assurance of safety and wholesomeness. It would seem that the industrial sanitarian is obligated to place emphasis on quality and cleanliness in the preparation since the consumer feels entitled to a guarantee of sanitary preparation and wholesomeness of the food he buys. The problems are magnified in the pre-cooked dehydrated food area because of the manner of final preparation for eating.

Most of the pre-cooked type of food should be rendered free of pathogens and organisms of sanitary significance by the manner of their preparation for drying. However, considerable handling and manipulation is necessary in preparing for the dehydration step and in the packaging step. Any chance contamination at these points will result in the contamination being carried through to the consumption of the item with little if any change during the final preparation. For example, roast beef must be sliced and handled after it is thoroughly cooked, chicken meat is prepared by deboning, by hand, after cooking and with such items strict attention must be paid to the sanitation with which they are handled. Long delay in handling the cooked product must be avoided, the temperature at which held is very important in preventing rapid bacterial multiplication, and the personal habits of the workers who handle the products must be closely controlled.

The preparation of certain raw items also present problems. For example, dehydrated raw salad items, such as cabbage slaw, are never heated. The raw product is washed, shredded, dehydrated, rehydrated in the field and served as a crisp salad material. Opportunity for chance contamination lurks at every stage of the process and with little chance of correction at any stage since the product is never heated. Several dessert items are prepared by merely stirring with cold water.

With procurement practices going more and more

to end item inspection and evaluation closer sanitary controls within the plant must be exercised by the management. This is necessary to meet the end item requirements under which the procurement is made. For example, the military must place certain end item requirements for quality and condition on the final product as delivered. These requirements are based upon reasonable and attainable values and not on an arbitrary figure. It has been found through experience that the keeping quality often depends upon the type of raw material, the final moisture content, the elimination of oxygen, etc. Likewise, bacterial requirements can be met only when attention is paid to the quality of the raw material, the rapidity of handling, proper temperature control and the manual handling of product closely supervised. If there is slippage in the sanitary program of the plant it is generally evidenced in the final product. Experience has shown that abnormal bacterial counts or types generally can be accounted for by a thorough sanitary survey of the plant operation. At some point a condition will be found that can account for the failure to meet the requirement. In one product the high coliform content of the product was traced to the floor, the customary place of repose for a strainer used to remove product from the cooking vessels. With provision for hanging the strainer up, the problem disappeared.

In the future the dehydrated products that have been described will without doubt fill an important need in the feeding of men of the Armed Services. Such foods only can be procured from industry and much of it produced with equipment that is just now in the design stage. In my opinion, the sanitarians of industry will play an important role in the development of that industry and in the delivery of satisfactory products. Let me emphasize that this applies not only to products that may be prepared for the military, but also for that of the civilian commercial trade. The success of any such product will be gained through the satisfaction and confidence of the consumer. Quality control and good sanitary procedures will play major roles in that success.

THE IMPORTANCE OF FOOD ADDITIVES AND GOVERNMENT REGULATION OF THEM[1]

JAMES D. KITTELTON[2]

Food Additives Committee,

Manufacturing Chemists' Association, Inc., Washington, D. C.

In the discussion below the definition of food additives which has been developed by the Food Protection Committee, a part of the Food and Nutrition Board of the National Academy of Sciences is used. This definition states that a food additive is a substance or a mixture of substances, other than a basic foodstuff, which is present in a food as a result of any aspect of production, processing, storage, or packaging. The term does not include chance contaminants.

The food additive activity of the Manufacturing Chemists' Association began in 1950 with the formation of our Food Additives Committee. This Committee is composed of toxicologists, chemists, doctors, labeling experts and lawyers. Since 1950 this Committee has worked diligently to aid the Federal Government in the development of the Food Additives Law and in the effective administration of the law. These efforts culminated in passage of the Food Additives Amendment of 1958. The law had the strong support of our Association which represents 193 chemical companies in the United States and Canada. The United States segment represents over 90% of the productive capacity of the chemical industry.

Some preliminary comments concerning food additives are in order at this point. As all of you are aware all components of foods are chemicals. The great bulk of foods is comprised of chemicals classified as carbohydrates, fats, proteins, minerals and water. In addition to the natural chemical composition of foodstuffs, chemicals may be incorporated, either directly or indirectly, during the growing, storage, or processing of foods. Such chemicals may be either intentional additives or incidental additives.

Intentional food additives serve one or more of these purposes: improve nutritional value, enhance quality or consumer acceptability, improve the keep-

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ing quality, make the food more readily available or facilitate its preparation. These intentional food additives may be classified as follows:

1. Acids, Alkalies, Buffers, Neutralizing Agents
2. Bleaching and Maturing Agents, Bread Improvers
3. Emulsifying, Stabilizing, and Thickening Agents
4. Flavoring Materials
5. Food Colors
6. Nutrient Supplements
7. Preservatives, Antioxidants
8. Miscellaneous Intentional Additives

All of these classes of food additives are described quite fully in the Food Protection Committee's publication 887 entitled, *The Use of Chemicals in Food Production, Processing, Storage, and Distribution.*

Such chemicals are absolutely necessary in our food distribution pattern of today. One hundred years ago, commercial food processing was largely limited to salting, smoking, fermenting, and drying of a few products. Today there is available to everyone, a steady supply of fresh foods and vegetables and processed products that retain practically all of the nutritive quality and flavor of the fresh product. It has been said, and I wholeheartedly agree with the statement, that there is not the remotest possibility of producing our present food requirements without the help of chemicals. Many times we hear of organically grown products. However, the proponents of such a method of agriculture fail to make it clear that if such a system were to be adopted the price of most foods would increase two times, three times or more, as compared to present prices. As a matter of fact, certain foods would be impossible to grow or prepare for market without the use of chemicals.

I do not believe that I need to comment on the fact that our population and that of the world is increasing at a very rapid rate with the result that we will need ever increasing amounts of food to feed such an expanding population. The time may very well come when we will no longer have a surplus of food such as this country is blessed with today.

It is regretable that in this field of food additives, there is very little public understanding of the valuable role which food additives play in making available the nutritious foods we enjoy today. I believe that one of our major troubles has been that the public in general considers that the addition of any chemical to a food is the addition of a substance which may in some way, harm the individual eating the food. However, as you know, this is not so. Certainly the public is quite familiar with salt, a very common seasoning agent. Even this widely accepted chemical could be toxic if ingested in large amounts.

Our Association firmly believes that qualified experts in the food field have a duty to educate the public to the great benefits which chemicals confer upon our society. Your association can be very helpful in this endeavor.

What we are doing in the way of a concrete educational program on food additives may be of interest. Our Association has engaged a firm of experts in this field to develop the program. The objectives of it are:

1. To provide key "food professionals" with accurate, documental information on the story of food additives.
2. To create an awareness and appreciation of the fact that our food supply continues to be better and safer, thanks to modern food technology.
3. To give, among other factors, a better understanding of the role of food additives in:

a. Protecting food, improving its keeping qualities and increasing safety.
b. Improving the flavor, nutrient value, and texture of food.
c. Helping to make possible the many convenience foods.

We hope by this program to reach the following groups: teachers and supervisors of high school home economics, college foods teachers and administrators, public health specialists, and interested physicians, home demonstration agents and extension specialists, food editors; radio and television broadcasters on food topics, nutritionists and dietitians and home economists in business.

One of the first steps undertaken has been the preparation of a basic food additives booklet, entitled, *Food Additives: What They Are/How They Are Used.* Copies of this booklet are available from our Association upon request. If you would like one, please fill out the form which you will find at the back of the room, and return it to us. This booklet covers many aspects of food additives presenting technical information in popular, readable language.

Leading food scientists from education, government and industry served as advisors in the development of the manuscript to insure both scientific accuracy and usefulness. We have distributed some 85,000 copies of this booklet to date. The response has been excellent and we believe that the booklet is filling a sorely felt need for information of this type.

In addition to the basic reference booklet there are available a number of users guides addressed to various groups informing them how to make use of the basic food additives booklet. It is also planned to prepare filmstrips on the subject of food additives to aid individuals who address groups con-

cerning this subject. Such filmstrips will tell the story of food through the ages concentrating on the achievements since the turn of the century.

A review of government regulation of food additives goes back many years. In 1906, Congress passed the Pure Food and Drug Act, the purpose of which was to prevent and penalize unsanitary practices in food handling and adulteration of food with worthless substances. Then in 1938, Congress broadened consumer protection by passing the Food, Drug & Cosmetic Act.

Later a system of informal conferences grew up between FDA and industry resulting in the issuance of sanctions for the use of certain food additives. This was, however, in the face of the implication in the law that poisonous and deleterious substances were not to be used in any amount. The Food and Drug Administration however, by about 1953, began to emphasize and enforce this poisonous per se doctrine.

This was the background which led to the eventual passage of the Food Additives Amendment of 1958 with the strong support of the food and chemical industries. However, at the last minute the controversial Delaney Cancer Clause was added to the law without any hearings having been held on the clause.

The Food Additives Amendment applies to substances which result, or may reasonably be expected to result, directly or indirectly, in becoming components of food, unless the substances are "generally recognized by qualified experts as safe for their intended use," or have prior approval or sanction. Thus, it covers *(a)* direct additives such as flavorings, vitamins, and minerals added to improve nutrient values, sweeteners, preservatives, emulsifiers, stabilizers and thickeners, acids, alkalies, buffers, neutralizing and bleaching agents, and *(b)* indirect additives such as those that may migrate from packaging, in coatingg of citrus fruit, from adhesives in packaging, or inks and plasticizers.

Our Association has published a Manual entitled, *How to Proceed Under the Food Additives Amendment.* In this Manual there are a number of questions posed which will aid in a determination of whether a product is subject to the Food Additives Amendment. The booklet then goes on to specify how to proceed if a regulation is desired and also gives information concerning the filing of a petition proposing a regulation for a food additive, as well as information concerning objections, hearings and appeals.

The Food Additives Amendment is certainly a major step forward in progressive legislation since it recognizes that there is a safe and unsafe level of intake of any substance.

The Food Additives Amendment placed an enormous additional burden upon the Food and Drug Administration. The Food Additives Amendment of 1958 covered not only intentional additives, but also incidental additives. Incidental additives are those which find their way into food by migration. Thus, minute amounts of certain substances may migrate to the food from, for example, a packaging material. After the passage of the Food Additives Amendment, it was realized that in many cases there was absolutely no information concerning what did migrate from packaging materials and there were few analytical methods available to ascertain such migrants and their amounts. The Food and Drug Administration now has adopted the policy that in place of attempting to write individual regulations say for 100 substances in paper which may conceivably migrate to food, one regulation should be developed specifying the ranges in composition, performance requirements, and conditions of use which will insure that the paper is safe for its intended use.

Many of you have read about the controversy which raged, concerning Ex-Secretary Flemming's action on cranberries at Thanksgiving time in 1959. Secretary Flemming's action was taken as a result of information that some cranberries had been contaminated with aminotriazole, a suspected carcinogen. This contamination resulted from the failure by farmers to follow the directions for use placed on the label by the manufacturer.

The following year a Color Additive Law was considered by Congress and extensive hearings were held by the House Committee on Interstate and Foreign Commerce. After considerable discussion, the Delaney Cancer Clause was also inserted in the new Color Law.

Under the Delaney Cancer Clause now appearing in both the Food Additives Amendment and the Color Additives Amendments it is forbidden to use any substance in any amount whenever it is "found to induce cancer when ingested by man or animal, or if it is found by the Secretary (of Health, Education and Welfare) after tests which are appropriate for the evaluation of the safety of additives for use in food to induce cancer in man or animal."

An eminent toxicologist has made the statement that at the present time there is no way of experimentally determining whether there is a safe level for a particular carcinogen. He also states, however, that there is sufficient experience and actual human use of natural and synthetic carcinogens to define rather well a safe intake for many specific substances. Thus, in this phase of food additive control, many people in the scientific community believe that the "rule of reason" should be used.

They cite, among other references, the Kistiakowsky Report of the Panel on Food Additives. This report was prepared at the direction of President Eisenhower after the cranberry incident. The report, I believe, presents the proposition - that the "rule of reason" should apply in the determination of safety of additives, including carcinogens or suspected carcinogens.

With your permission, I would like to quote a portion of the Kistiakowsky Report concerned with the "Problem of the Relation of Dose to Conser Production in Man":

". . . . For a number of carcinogens that have been studied, however, there is evidence for the existence of a level of ingestion at which no carcinogenesis occurs during the life of the animals when tested in limited numbers. Also, dose-response curves for certain potent carcinogens in animals have been worked out from which can be reliably predicted the probability of an individual, in a given sized population, developing a tumor from a given dose of carcinogen. Such curves lead to the conclusion that dietary levels of carcinogenic agents exist at which the probability of cancer induction in animals is near zero.

"The conclusion derived from animal studies has relevance to certain common components of the diet of man. In foodstuffs, as they occur in nature, one finds traces of chemicals which in larger amounts are generally accepted as carcinogenic, such as certain inorganic arsenic compounds, radium and selenium. It can be shown by methods of analysis now available that ordinary table salt derived from rock salt contains trace amounts of radium and that foodstuffs containing iron satls are contaminated by minute quantities of arsenic. Although it cannot be stated absolutely that these traces of carcinogenic materials have never induced cancer in any human, the available evidence has not directed suspicion to these trace amounts as significant to the over-all cancer morbidity.

"There is additional evidence which indicates that a dose-response relation for carcinogens exists in man . .

"From the experience obtained in animal experiments and study of humans who have been exposed to carcinogens in the course of their work such as cited above, the panel believes that the probability of cancer induction from a particular carcinogen in minute doses may be eventually assessed by weighing scientific evidence as it becomes available."

You will note that this quotation ends with the comment that it will be necessary to weigh scientific evidence as it becomes available. This is really the nub of the problem today. There is not at hand the necessary scientific evidence to support or refute the basic position of the Delaney Cancer Clause. There is a great need for a sharper definition of what is a carcinogen. Also the entire subject of carcinogenesis needs more quantitative and analytical evaluation by scientists.

It is hoped that eventually an agreement may be reached for a projected program of study of this important problem of carcinogenesis. Such a program might be j o i n t l y undertaken by industry, government and academic institutions. It is only with a joint approach of this kind that the vexing problem of carcinogenesis may be eventually solved.

COMMITTEES OF THE INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., FOR 1962

COMMITTEE ON APPLIED LABORATORY METHODS

Objectives

To study new laboratory procedures and bacteriological problems to evaluate both published and unpublished data, and to present conclusions which will be helpful to the sanitarian in the conduct of his work.

Members

O. W. Kaufmann, *Chairman,* Dept. of Microbiology and Public Health, Michigan State University, East Lansing, Michigan.

F. W. Barber, National Dairy Products Corp., 260 Madison Avenue, New York 16, N. Y.

A. R. Brazis, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Pkwy, Cincinnati, Ohio.

B. M. Barney, Midwest Dairy Products Corp., 1681 University Ave., Memphis, Tenn.

Everett Cole, Biological Research Laboratories, P. O. Box 374, Arvada, Colo.

W. E. Glenn, Dairy Section, University of Kentucky, Lexington, Ky.

Barry E. Gay, Jr., Lab. Survey Office, Bureau of San. Bact., Dept. of Public Health, State Capital Building, Springfield, Ill.

J. J. Jezeski, Dept. of Dairy Industries, Univ. of Minnesota, St. Paul, Minn.

Elmer George, Minneapolis & St. Paul Quality Control Lab., 2274 Como Ave., St. Paul, Minn.

J. C. Olson, Jr., Dept. of Dairy Industries, Univ. of Minnesota, St. Paul, Minn.

B. C. Wiggins, Advanced Instruments, Inc., 45 Kenneth Street, Newton Highlands 6, Mass.

H. B. Richie, Swift & Co., Research Lab., Union Stock Yards, Chicago 9, Ill.

Mike Purko, State Dept. of Agriculture, Box 3228, Laramie, Wyoming.

COMMITTEE ON BAKING INDUSTRY EQUIPMENT

Objectives

The objectives of this committee are to provide consultative assistance to the Baking Industry Sanitation Standards Committee in the development of standards for items in the Baking Industry.

Members

Vincent T. Foley, *Chairman,* Chief of Food, City Health Dept., 21st Floor, City Hall, Kansas City 6, Mo.

A. E. Abrahamson, Chief, Wholesale Div., City Health Dept., 125 Worth St., New York 13, N. Y.

W. R. McLean, Regional Director, USPHS, Dept. H.E.W., Region V, Room 712, 433 Van Buren St., Chicago 7, Ill.

Lewis W. Pickles, Director, Div. of Sanitation, City Health Dept., Room 202, City Hall, Peoria, Ill.

Armin A. Roth, 421 N. Rosevere, Dearborn, Mich.

Harold Wainess, Wainess & Associates, 510 N. Dearborn St., Chicago 10, Ill.

Louis A. King, Jr., Director, Dept. of Bakery Sanitation, American Institute of Baking, 400 E. Ontario St., Chicago 11, Ill.

Glen McElyea, USPHS, Region V, 433 W. Van Buren St., Chicago 7, Ill.

COMMITTEE ON COMMUNICABLE DISEASE AFFECTING MAN

Objectives

To Study problems related to those diseases communicable to man through the consumption of foods, including milk and milk products, meat, poultry, and shellfish, and to recommend specific measures that can be taken by the sanitarian to control such diseases.

Members

Stanley L. Hendricks, *Chairman,* Ass't. Director, Preventable Disease Div., State Dept. of Health, State Office Bldg., Des Moines 19, Iowa.

P. N. Travis, Supervisor, Milk Sanitation, Jefferson Co. Health Dept., P. O. Box 2591, Birmingham, Alabama.

John Andrews, Chief, Sanitation Section, Sanitary Engr. Sec., State Board of Health, Raleigh, North Carolina.

Calvin E. Seavy, Staff Veterinarian, Milk and Food Program EEFP, H.E.W. Bldg., South, Room 4123, Washington, D. C.

H. L. Bryson, Director, Environmental Sanitation Div., Vancover Health Dept., 456 W. Broadway, Vancouver, B. C. Canada.

F. B. Clack, Chief, Milk and Food Division, Dept. of Health, County of Allegheny, 623 City-County Bldg., Pittsburgh 19, Pa.

Dwight D. Lickty, Public Health Veterinarian, P. O. Box 29, West Palm Beach, Fla.

E. R. Price, Director, Bureau of Veterinary Public Health, Missouri Dept. of Public Health & Welfare, State Office Bldg., Jefferson City, Mo.

Charles Hunter, Public Health Laboratories, National Reserve Bldg., Topeka, Kansas.

COMMITTEE ON DAIRY FARM METHODS

Objectives

To study dairy farm methods and procedures, to determine the sanitary problems involved, and to make recommendations for the solution of such sanitary problems, and for the improvement of dairy farm methods which have a relationship to the sanitary quality of milk.

Members

A. K. Saunders, *Chairman,* P. O. Box 666, Mundelein, Ill.

R. W. Metzger, Director of Quality Control, Dairymen's League Coop. Ass'n., Inc., 402 Park St., Syracuse 8, N. Y.

Chester F. Bletch, Maryland & Virginia Milk Producers Ass'n., Inc., 1530 Wilson Blvd., Arlington 9, Va.

Alternate to above - James B. Smathers, Maryland & Virginia Milk Producers Ass'n., Inc., 1530 Wilson Blvd., Arlington 9, Va.

J. C. Flake, Evaporated Milk Ass'n., 228 N. LaSalle St., Chicago 1, Ill.

A. E. Parker, Chief, Milk Section, City of Portland Health Dept., Portland, Oregon.

Milton E. Held, Regional Milk & Food Consultant, Engineering Services, USPHS, Dept. H.E.W., 447 Federal Office Bldg., Civic Center, San Francisco 2, Calif.

M. W. Jefferson, Chief, Dairy Products, Div. of Animal and Dairy Industry, 203 N. Governor St., Richmond 19, Va.

Harry Tibberend, Chief, Food & Drug, Wyoming Dept. of Agric., Cheyenne, Wyoming.

Robert M. Keown, Milk Sanitarian, Inter-City Milk Control Council, Inc., Municipal Bldg., Elkhorn, Wisconsin.

William McCorquodale, 409 Huron St., Tononto, Ontario, Canada.

Elmer Kihlstrum, Johnson & Johnson, Filter Products Div., 4949 W. 65th St., Chicago 38, Ill.

R. P. March, Assoc. Professor, Dairy Industry Dept., 118 Stocking Hall, N.Y.S. College of Agriculture, Cornell Univ., Ithaca, N. Y.

Richard M. Martin, Ohio Dept. of Health, 306 Ohio Departments Bldg., Columbus 15, Ohio

Mike O'Conner, Seattle-King County Milk Div., 425 South Garden, Bellingham, Wash.

I. E. Parkin, 213 Borland Lab., Penn. State University, University Park, Pa.

Harry F. Stone, Milk Control Section, Dept. of Public Welfare, No. 11 Municipal County Bldg., St. Louis 3, Mo.

Alternate to above - Vernon Nichols, 416 10th St., Crystal City, Mo.

William Trobaugh, Milk Sanitation Section, City & County Dept. of Health & Hospitals, 659 Cherokee Street, Denver 4, Colo.

Clarence C. Gehrman, Area Supervisor, Dept. of Agriculture, P. O. Box 120, Olympia, Wash.

William Nasson, Chief of Milk Sanitation, San Francisco Health Dept., 101 Grove St., San Francisco 2, Calif.

R. M. Parry, Dairy Div., State Dept. of Agriculture, State Office Bldg., Hartford 15, Conn.

George Coffee, Dairy Div., City Dept. of Health, Washington, D. C.

COMMITTEE ON FOOD EQUIPMENT

OBJECTIVES

To participate with, other health organizations and industries in the formulation of sanitary standards and educational materials and to represent the International Association specifically with - (a) National Sanitation Foundation, (b) Automatic Merchandising Health Industry Council, and (c) when directed by the Executive Board, to co-operate with other health and industry groups on food equipment sanitary guides. To present to the membership at the annual meeting those standards or other materials which the Committee recommends be endorsed or approved by the Association.

MEMBERS

Karl K. Jones, *Chairman*, Chief of Retail Food Section, Div. of Food & Drugs, Indiana State Board of Health, 1330 W. Michigan St., Indianapolis 7, Ind.

Robert E. Hunt, Section Chief, Minnesota Dept. of Health, 435 State Office Bldg., St. Paul 1, Minnesota.

James W. Bell, National Canners Ass'n., 1133 20th Street, N. W., Washington 6, D. C.

Martin Donovan, Dade County Dept. of Public Health, Miami, Fla.

Col. F. H. Downs, Jr., 2802 South Colonial Drive, Montgomery 6, Alabama.

J. H. Durbin, Div. of Food and Drugs, Kentucky State Health Dept., Frankfort, Ky.

D. R. Gooden, LCDR, MSC, USN, Retired, Los Angeles Health Dept., 111 E. First St., Los Angeles, Calif.

Fred B. Jacobson, Food Consultant, 4721 Chestnut St., Philadelphia, Pa.

Gene McElyea, USPHS, Region V, 433 S. Van Buren St., Chicago 7, Ill.

J. Schoenberger, Supervisor of Equipment Section, City Dept. of Health, 125 Worth St., New York 13, N. Y.

Eaton E. Smith, Food Divsion, Dept. of Consumer Protection, Food & Drug Commission, State Office Bldg., Hartford 15, Conn.

H. L. Mitten, Director of Technical Sales, Creamery Package Mfg. Co., 1243 W. Washington Blvd., Chicago, Ill.

O. J. Weiman, Chief, Food & Drugs, Colorado Dept. of Public Health, Denver, Colo.

James A. Westbrook, Milk & Food Consultant, PHS, U. S. Dept. of Health, Education & Welfare, Region III, 700 E. Jefferson St., Charlottesville, Virginia.

George N. Stich, Morrison Cafeterias, P. O. Box 309, Mobile, Alabama.

COMMITTEE ON FROZEN FOOD SANITATION

OBJECTIVES

To study conditions and practices within the frozen food industry, to determine the sanitary problems involved which might contribute to a public health hazard, and to make recommendations for the solution of such problems.

MEMBERS

Frank E. Fisher, *Chairman*, Div. of Food and Drugs, Indiana State Board of Health, 1330 W. Michigan St., Indianapolis, Ind.

Glen G. Slocum, Director, Div. of Microbiology, Bureau of Biological and Physical Sciences, Food & Drug Admin., Washington, D. C.

H. P. Schmitt, Research Director, National Ass'n. of Frozen Food Packers, 919 18th St., Washington, D. C.

James Doughty, Texas Dept. of Health, Austin, Texas.

G. L. Hays, Bacteriological Group, American Can Co., Central Division, 11th Ave., & St. Charles Rd., Maywood, Ill.

William C. Miller, Jr., Milk & Food Program, Div. of Sanitary Engineering Services, USPHS, Washington 25, D. C.

Eaton E. Smith, Food Division, Dept. of Consumer Protection, Food & Drug Commission, State Office Bldg., Hartford 15, Conn.

A. C. Leggatt, Dept. of Dairy Science, Ontario Agricultural College, Guelp, Ont., Canada.

J. L. Adame, Div. of Environmental Health & Safety, University of California, Riverside, Calif.

Harold Clark, Food Division, Dept. of Consumer Protection, Dept. of Agriculture, Hartford, Conn.

COMMITTEE ON MEMBERSHIP

OBJECTIVES

To make every effort to increase the membership of the organization by bringing to the attention of all qualified

persons the advantages of belonging to the International Association of Milk and Food Sanitarians, Inc., and to interest State milk and food sanitarians' organizations in the advantages of affiliation with the Association.

MEMBERS

Harold Wainess, *Chairman,* Wainess and Associates, 510 Dearborn, Chicago 10, Illinois.

John H. Fritz, Milk & Food Program, EEFP, H.E.W., Washington, D. C.

Karl K. Jones, Chief, Retail Food Section, Division of Food & Drugs, Indiana State Board of Health, 1330 W. Michigan St., Indianapolis 7, Ind.

COMMITTEE ON ORDINANCES AND REGULATIONS PERTAINING TO MILK AND DAIRY PRODUCTS

OBJECTIVES

To review and study the provision of sanitary ordinances and regulations pertaining to milk, milk products, and frozen desserts, to evaluate data on research findings relative to the sanitary and public health significance of the specific requirements of ordinances and regulations, and to prepare for submission to the members of the Association recommendations for changes in existing ordinances and regulations.

MEMBERS

Donald H. Race, *Chairman,* Dairymen's League Cooperative Ass'n., Inc., Quality Control, 402 Park Street, Syracuse, N. Y.

C. V. Christianson, Director of Laboratories, Bowman Dairy Co., 140 W. Ontario St., Chicago, Illinois.

J. C. Flake, Sanitary Standards, Evaporated Milk Ass'n., 228 N. LaSalle St., Chicago 1, Ill.

A. B. Freeman, Milk & Food Consultant, PHS, U. S. Dept. of Health, Education & Welfare, Region II, 42 Broadway, New York 5, N. Y.

K. A. Harvey, District Supervising Sanitarian, South Central District Health Dept., 309 Second Avenue, East, Twin Falls, Idaho.

C. H. Holcombe, Agricultural Products Inspection, State Dept. of Agriculture, 557 State Office Bldg., St. Paul, Minn.

Howard K. Johnston, Principal Sanitarian, Division of Milk Sanitation, Bureau of Foods & Chemistry, Dept. of Agriculture, 1241 Old Boalsburg Rd., State College, Pa.

Frank L. Kelley, Kansas State Board of Health, Food & Drug Division, State Office Bldg., Topeka, Kansas.

David Monk, Sanitarian, Wichita-Sedgwick County Health Dept., 1900 E. 9th St., Wichita, Kansas.

R. M. Parry, Chief, Dairy Division, Dept. of Agriculture, State of Connecticut, Hartford 15, Conn.

Louis Smith, Kentucky State Health Dept., 275 E. Main St., Frankfort, Ky.

Livingston Jennings, National Dairy Products Corp., 260 Madison Ave., New York 16, N. Y.

Ed Small, Standardization & Program Development Bureau, Agriculture Marketing Service, U. S. Dept. of Agriculture, Washington 25, D. C.

John F. Speer, Jr., International Ass'n. of Ice Cream Mfgrs., 1105 Barr Bldg., 810 17th St., N. W., Washington 6, D. C.

Stephen J. Wolff, Pevely Dairy Co., 1001 S. Grand Blvd., St. Louis 4, Mo.

COMMITTEE ON PROFESSIONAL DEVELOPMENT OF ENVIRONMENTAL SANITARIANS

(Formerly COMMITTEE ON EDUCATIONAL AND PROFESSIONAL DEVELOPMENT)

OBJECTIVES

First, to develop plans and to devise methods whereby the Sanitarian can more fully gain recognition as a professional worker in public health, and secondly, to recommend standards of education, training and experience designed to establish desirable professional qualifications to the end that the title Sanitarian will denote adequate preparation for professional work and attainment.

MEMBERS

Darold Taylor, *Co-Chairman,* Chief, Milk Certification, Milk Sanitation Section, Milk & Food Program, Washington, D. C.

Sumner Morrison, *Co-Chairman,* Dept. of Pathology and Bacteriology, College of Veterinary Medicine, Colorado State University, Ft. Collins, Colo.

W. Howard Brown, Director, Food & Laboratory Div., Dept. of Public Health, 940 Main St., Jacksonville, Fla.

Russell B. Cunningham, 1208 Riley Court, La Porte, Indiana.

Gilbert L. Kelso, 515 Webster Drive, Apt. No. 3, Decatur, Ga.

John Patillo, 3025 Columbia St., Richmond 34, Va.

Richard Mansfield, 504 Woodland Drive, Clinton, Tenn.

Howard H. Johnston, 1241 Boalsburg Rd., State College, Pa.

Thomas McLaughlin, Manager, Institutions Div., Klenzade Products, Inc., P. O. Box 1020, Beloit, Wisc.

Guy P. Stephens, Supervisor of Dairying, State Dept. of Agriculture, 412A State Capitol Bldg., Salt Lake City, Utah.

M. P. Baker, Dept. Dairy & Food Industry, Iowa State University, Ames, Iowa.

Raymond Summerlin, 3141 Toney Drive, Decatur, Ga.

L. Wayne Brown, 421 Chemistry Bldg., University of Wisconsin, Madison, Wisc.

John D. Faulkner, Chief, Milk & Food Program, Division of Engineering, USPHS, Washington 25, D. C.

Harold S. Adams, Dept. of Public Health, University of Indiana Medical School, 1100 W. Michigan Street, Indianapolis, Ind.

COMMITTEE ON RECOGNITION AND AWARDS

OBJECTIVES

This committee is charged with the responsibility of implementing those objectives of the Association concerned with (1) recognition of individual milk, food and environmental sanitarians whose achievements have contributed greatly to the public health and welfare of their communities, and (2) recognition of those members of the Association who have, through distinguished service, contributed greatly to the professional advancement and growth and reputation of the International Association of Milk and Food Sanitarians, Inc.

The Committee receives and reviews nominations for the annual Sanitarian's Award, and has full responsibility for the selection of the recipient. The Committee also receives and reviews recommendations on candidates for the annual

Citation Awards, and counsels with the Executive Board relative to the selection of the recipients. It is also responsible for handling all matters pertaining to the presentation of awards, publicity and other related items.

MEMBERS

William V. Hickey, *Chairman,* Paper Cup and Container Institute, 250 Park Ave., New York 17, N. Y.

John J. Sheuring, Dairy Dept., University of Georgia, Athens, Ga.

Larry Gordon, Albuquerque Health Dept., Box 1293, Albuquerque, New Mexico.

Paul Elliker, Dept. of Microbiology, Oregon State College, Corvallis, Ore.

Faegen Parrish, Georgia Health Dept., 47 Trinity Ave., Atlanta, Ga.

Shelby Johnson, Director, Food & Drugs, Kentucky State Health Dept., Frankfort, Ky.

COMMITTEE ON RESEARCH NEEDS AND APPLICATIONS

OBJECTIVES

The objectives of this committee are: (1) to serve the field sanitarian as a clearing house for new ideas and practices which would enable a more efficient discharge of their duties; (2) to coordinate its activities with those of a similar committee of the American Public Health Association (Engineering and Sanitation Section); (3) to ascertain the needs of the membership for specific information on given problems and to find the best method of disseminating information obtained by the committee.

MEMBERS

W. C. Lawton, *Chairman,* Twin City Milk Producers Ass'n., 2424 Territorial Rd., St. Paul, Minn.

Fred C. Baselt, American Can Co., 100 Park Avenue, New York 17, N. Y.

Samuel H. Hopper, Dept. of Public Health, Indiana University Medical Center, 1100 W. Michigan St., Indianapolis 7, Indiana.

Darrell Deane, Assoc. Professor, Division of Animal Science, University of Wyoming, Laramie, Wyoming.

J. C. White, Dept. of Dairy & Food Science, 118 Stocking Hall, Cornell University, Ithaca, N. Y.

Glen L. Hays, Research & Technical Dept., American Can Co., 11th Ave., & St. Charles Rd., Maywood, Ill.

Floyd Copenhaver, Kansas City Board of Health, Kansas City, Mo.

C. K. Johns, Director, Research Branch, Dairy Technology Research Institute, Central Experimental Farm, Ottawa, Canada.

E. L. Ruppert, Milk & Food Program, EEFP, U. S. Public Health Service, 3rd & C Street, Washington, D. C.

Keith H. Lewis, Chief, Milk & Food Research, PHS, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Parkway, Cincinnati 26, Ohio.

Merle Gilmore, Borden and Co., Denver, Colo.

James Barringer, 1703 Oneida St., Joliet, Ill.

Pat Langevine, Salt Lake City Board of Health, Salt Lake City, Utah.

E. N. Kennedy, 330 S. Lucas, Iowa City, Iowa.

John C. Brown, State Board of Health, Columbia 1, S. Carolina.

COMMITTEE ON SANITARY PROCEDURES

OBJECTIVES

To participate jointly with the Sanitary Standards Sub-Committee of the Dairy Industry Committee and the Milk and Food Branch, U. S. Public Health Service, in the formulation of 3A Sanitary Standards for Dairy Equipment. Specifically, the functions of this committee are: (1) to receive, consider, and comment on proposed sanitation standards for dairy equipment submitted by the Sanitary Standards Subcommittee; (2) to bring to the attention of the Sanitary Standards Subcommittee items of dairy industry equipment and methods for which formulation of sanitary standards appear desirable; and (3) to cooperate with the Dairy Industry Committee, the U. S. Public Health Service, and health officials in attaining universal acceptance of the sanitary standards upon which mutual agreement has been reached.

MEMBERS

D. B. Whitehead, *Chairman,* 4886 Woodmont Drive, Jackson, Miss.

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Kenneth Carl, Chief, Dairy & Consumer Service Division, Oregon Dept. of Agriculture, Salem, Oregon.

W. K. Jordan, Assoc. Professor, Dept. Dairy & Food Service, Cornell University, Ithaca, N. Y.

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Specific Project 1962, Study of Committee Structures.

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NEWS AND EVENTS

DATE SET FOR DAIRY PRODUCTS IMPROVEMENT INSTITUTE ANNUAL MEETING

According to E. J. Roberts of Crowley's Milk Company and President of the Dairy Products Improvement Institute, the program for the Fifteenth Annual Meeting will be one of very important topics discussed by leaders in their respective fields. The meeting begins with a luncheon at 12:30 p.m. in the Hotel Governor Clinton in New York City on February 15, 1962.

There will be a talk on uniformity in milk ordinances in the northeast by D. H. Race of the Dairymen's League; U.S.P.H.S. ratings of milk supplies for interstate shipment by John D. Faulkner of the U. S. Public Health Service; activities of the national committee on labels for milk and its products by Harold J. Barnum of the Denver Department of Health and Hospitals; preemption by the federal government in food regulation by Charles M. Fistere, General Counsel for the Dairy Industry Committee; and a paper on improvement of milk supplies by a program of milking management by Dr. William G. Merrill of the Department of Animal Husbandry of Cornell University.

There will be a session for members in the morning with E. J. Roberts presiding. It is expected that more than 250 persons from industry, regulatory agencies, government, and education will attend the afternoon session.

ANNUAL SANITARIAN'S AWARD COMPETITION ANNOUNCED

TO ALL MEMBERS

EACH OF YOU MUST KNOW A SANITARIAN WHO HAS DEMONSTRATED TO A HIGH DEGREE THE QUALITIES AND CHARACTERISTICS SPECIFIED AS CRITERIA FOR SELECTION OF THE WINNER IN THIS COMPETITION. DO HIM THE HONOR OF ENTERING HIS NAME. NO NEED TO WORRY ABOUT YOUR NOT BEING ABLE TO COMPOSE A STORY THAT MAKES FASCINATING READING. THE SELECTION IS BASED ON FACTS, NOT PRESENTATION. YOUR NOMINEE WILL BE COMPETING WITH SOME OF THE WORLD'S BEST SANITARIANS. EVEN THOUGH HE MAY NOT BE SINGLED OUT AS THE WINNER, HE WILL BE IN A SELECT COMPANY OF UNPUBLICIZED SANITARIANS WHOSE PERSONAL DEDICATION HAS HELPED SAVE MANY LIVES AND EXTENDED THE USEFUL LIFE SPAN FOR A HOST OF OTHERS.

Each year at its annual meeting the International Association of Milk and Food Sanitarians makes an award of $1,000.00 to the sanitarian selected as outstanding in his performance and as best exemplifying the ideals of his profession. The following rules and procedures have been established governing the competition:

The Award consists of a Certificate of Citation and $1,000 in cash, and is sponsored jointly by the Diversey Corporation, Klenzade Products, Inc., Oakite Products, Inc., Pennsalt Chemicals Corporation, and the Olin Mathieson Chemical Corporation. It is administered by the International Association of Milk and Food Sanitarians, Inc., and is presented annually. The next presentation will be at the annual meeting of the Association in Philadelphia next October.

Eligibility

The rules concerning eligibility of candidates for nomination are:

(1) Any living citizen of the United States or Canada who, at the time of nomination, is employed as a professional milk and food sanitarian, or both, by a county or municipality, is eligible for the Award, except members of the Executive Board and members of the Committee on Recognition and Awards of the International Association of Milk and Food Sanitarians, Inc. Employees of State or Federal agencies and of industry are not eligible for the Award. Membership in the International Association of Milk and Food Sanitarians, Inc., is not a prerequisite of eligibility, and there are no restrictions as to race, sex or age.

(2) A candidate shall have made a meritorious contribution in the field of milk and food sanitation to the public health and welfare of a county or municipality within the United States or Canada.

(3) The achievements and contributions on which the Award is to be based, must have been completed during the five-year period immediately preceding January 1 of the year during which the Award is to be made. Under special circumstances, consideration will be given to related work accomplished by the candidate during the seven-year period preceding January 1 of the year during which the Award is to be made.

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

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

Nominations

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

Each nomination must be accompanied by factual information concerning the candidate, a resume of his work and achievements, evidence supporting his achievements and if available, reprints of publications. A form for the submission of nominations may be obtained upon request from H. L. Thomasson, Executive Secretary, International Association of Milk and Food Sanitarians, Inc., P. O. Box 437, Shelbyville, Indiana.

Deadline for Submission of Nominations

The deadline for submission of nominations is set annually, and all nominations and supporting evidence must be postmarked prior to midnight of that date. The deadline for this year's competition will be June 1, 1962.

Selection of the Recipient

The Committee on Recognition and Awards of the International Association of Milk and Food Sanitarians, Inc., has full responsibility for selecting from among the candidates nominated the recipient of the Sanitarians Award. In judging the contributions of each candidate, the Committee will give special consideration to (a) originality of thought, mode of planning, and techniques employed, (b) the comprehensive nature of the candidate's achievements, and (c) their relative value as they affect the health and welfare of the candidate's community. The Committee will give consideration also to the efforts of the candidate to establish professional recognition in the community in which he serves, as well as to his research, administrative development, program operation and educational achievements. Additional information or verification of submitted information will be requested when considered necessary by the Committee. Testimonial letters in behalf of a candidate are not desired.

If, after reviewing the nominations and supporting evidence, the Committee decides that the work and achievements of none of the candidates have been significantly outstanding, the Award shall not

be made. In this connection, it is fundamental that if meritorius professional achievement cannot be discerned the Award shall be omitted for a year rather than to lower the standards for selections of a recipient.

ROCKY MOUNTAIN ASSOCIATION HOLDS SUCCESSFUL ANNUAL MEETING

The Rocky Mountain Association of Milk and Food Sanitarians held its annual meeting on the Campus of Colorado State University, November 17, 1961. Program and arrangements were in charge of Dr. S. M. Morrison, Department of Microbiology of the University and Michael Purko, President of the Rocky Mountain Association.

Robert J. MColloch, Head, Agricultural Research Chemistry, of the University of Wyoming, gave a very informative paper on, *Industry's View on Food Technology Curricula.* Material for this paper was gathered through a survey made among all types of food industry. The survey asked what type of curricula offered by an institution of higher learning would best fit the needs of industry. Replies gave preference to men with a chemical background. Industry indicated in service training in the particular type of food industry involved would be given after the man was employed.

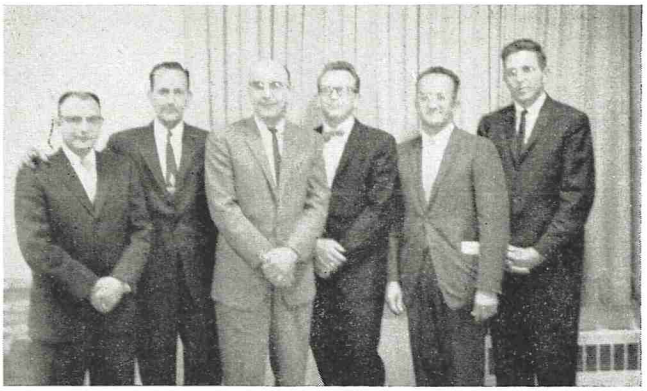
Four resolutions were adopted at the business meeting. First, a resolution endorsing and supporting the work of the *Sanitarian's Joint Council.* Second, support for the continuing enrichment of milk and milk products with Vitamin D. Third, Support of the program of the *National Mastitis Control Council,* and fourth, support of the Committee on Labeling, Definitions and Standards for milk and its products.

A study was authorized to bring the Rocky Mountain Association Constitution into conformity with the parent Association and to recommend needed changes which should be brought to the attention of the parent Association.

A year's subscription to the *Journal of Milk and Food Technology* was voted to the 1961 reciepient of the William B. Palmer Scholarship Award, Mr. Charles E. Powell who is presently a public health student at the University of North Carolina.

A banquet was held at the Student Union with the guest speaker Mr. Douglas Fisk, Western Representative, National Dairy Council. Mr. Fisk gave a very stimulating talk under the title, *Challenge of Change.*

New Officers elected were: Michael Purko, Chemist, Wyo Dept. of Agriculture, reelected President, Everett Cole, Biological Research Laboratories, Arvada, Colorado, President Elect, Dr. William Thomas, Professor of Dairying, University of Wyoming, 1st Vice President, Edward Cruz, Director of Sanitation, Las Animas Huerfano Dist. Health Department, 2nd vice President, Dean Fox, Laboratory Technician, Chemistry and Bacteriological Laboratories, Wyo. Dept. of Agriculture and William Trobaugh, Sanitarian, Denver Health and Hospitals, Auditors.



1962 officers of the Rocky Mountain Association: left to right Dean Fox and William Tribaugh, auditors, Michael Purko, President, Everett Cole, Pres-Elect, Edward Cruz, Second Vice-President, William Thomas, First Vice President.

RESOLUTION ADOPTED BY THE ROCKY MOUNTAIN STATES ASSOCIATION OF MILK AND FOOD SANITARIANS

Those in attendance served as a Committee of the whole to discuss four subjects of interest to the parent organization and which are projects of the parent organization. The purpose and background of each subject was discussed after which the following resolution was offered and passed unanimously.

"Whereas, we feel that the following subjects, being projects of the International Association of Milk and Food Sanitarians are in the interest of the public and the entire membership of that organization.

"Therefore, be it resolved that the Rocky Mountain Association of Milk and Food Sanitarians offer their assistance and moral support in favor of continued participation in

1. The Sanitarians Joint Council
2. The addition of Vitamin D to milk products
3. The National Mastitis Council
4. The Committee on Coordination of Labeling, Definitions and Standards for milk and its products.

"Be it further resolved that a copy of this resolution be forwarded to the Executive Secretary of the International Association of Milk and Food Sanitarians." Motion carried.

Harold J. Barnum, Chairman

TWENTY-THIRD DAIRY INDUSTRIES EXPOSITION IN ATLANTIC CITY OCTOBER 28 - NOVEMBER 2

The 23rd Dairy Industries Exposition will open its doors at 1 p.m., Sunday, October 28 and close at 6 p.m., Friday, Novemer 2, 1962, in Convention Hall in Atlantic City, New Jersey.

More than 350 firms which furnish supplies, equipment or services to the dairy processing industries will present displays.

– heavy machinery, such as compressors, evaporators, pasteurizers, homogenizers, freezers, driers, bottle washers, storage tanks, conveyor systems, control systems for automation, and many others;

– transportation equipment, such as tank trucks, refrigerated and non-refrigerated delivery vehicles, truck bodies, truck chasses, etc.;

– ingredients, including all flavors, the latest refinements in old standards such as vanilla and chocolate, stabilizers, sweeteners, toppings, novelty flavors, etc.;

– packages and packaging equipment, such as fluid milk containers of plastic, fibre, and glass; wrappers and boxes of manufactured products; self-selling printed cartons for ice cream and other products; foil and plastic air-tight packages for cheese, butter and dry milk; and many others;

– cleansers, detergents, sanitizers and all other chemical products necessary for sanitation of and processes in dairy plants;

– merchandising and advertising aids and point-of-sale equipment, such as soda fountains, vending equipment, signs and displays; and many others.

The exposition is sponsored by Dairy Industries Supply Association, 1145 19th Street, N.W., Washington 6, D.C., which has sponsored every U. S. Dairy Industries Exposition since the first one was held in 1926. The Exposition is now held every two years, and is the most comprehensive exposition, as well as the largest, serving the dairy industries in the world.

Numerous international and national dairy organizations plan meetings in or near Atlantic City either just before or during the week of the 23rd Dairy Industries Exposition. They include:

International Association of Milk and Food Sanitarians, which will hold its 49th Annual Meeting in nearby Philadelphia, Pa., October 24-27, 1962.

Dairy Society International, which will hold its 16th Annual Meeting on October 28 in Atlantic City.

Milk Industry Foundation, which will hold its 55th Annual Meeting October 29-31 in Atlantic City.

International Association of Ice Cream Manufacturers, which will hold its 58th Annual Meeting October 31-November 2 in Atlantic City.

Additionally, meetings are scheduled by National Ice Cream Mix Association, National Association of Retail Ice Cream Manufacturers, and others to be announced at a later date.

RIGHTS TO TETRA-PAK TAKEN OVER BY U. S. FIRM

Deering Milliken, Inc., 96 year old textile house, has entered into an agreement with Akerlund & Rausing of Lund, Sweden to take over the exclusive rights in the United States to the patents and trademarks of Tetra Pak Co., Inc., of Union, New Jersey.

Tetra Pak is the trademark for patented containers, machinery and materials used in the packaging of milk and other liquids. This is Milliken's first venture outside of the textile field.

Tetra Pak method is in use in 46 countries in all parts of the world. It is the largest selling milk package on four continents.

Tetra Pak has announced recently the success of the aseptic packing of sterile milk which could have impact on the distribution of milk and certain other products throughout the world.

INTERNATIONAL COMPLIMENTED BY MODERN SANITATION AND BUILDING MAINTENANCE PUBLISHERS

In an editorial entitled, *Fifty Years of International,* the publishers of the magazine, *Modern Sanitation and Building Management,* in the November 1961 issue, made the following complimentary comments:

This year marks the golden anniversary of the International Association of Milk and Food Sanitarians, a ripe age in the field of sanitation. This organization, formed in Milwaukee in 1911 to promote milk sanitation, has grown as its objectives were progressively realized, and its history is practically that of the evolution of safe milk . Its succession of leaders were the pioneers of research, applied sanitation and regulation in milk production and processing.

Outstanding milestones in the helf-century were the Standard Milk Ordinance and Code issued and revised by the Public Health Service, the 3-A Sanitation Standards and the development of Standard Methods for the Examination of Dairy Products as sponsored by the American Public Health Association. To each of these projects IAMFS contributed leaders and organized support.

Another accomplishment greatly to its credit is the monthly Journal of Milk and Food Technology, now in its 24th volume and becoming more sprightly with each issue.

All who work in the field of sanitation owe a debt to the International for its driving part in the most complete and successful of all sanitation campaigns. The development of principles of hygiene, of regulatory procedures and of collaboration by equipment manufacturers, as well as by the milk industry itself, has profoundly influenced food sanitation and environmental health practices.

International is most grateful for this complimentary editorial and takes pleasure in reproducing it in the Journal.

LETTER TO THE EDITOR

Charles E. Walton
President IAFMS
Box 957, Laramie, Wyo.
Dear Mr. Walton:

I want to thank you and the International Association of Milk and Food Sanitarians for awarding me with the *William B. Palmer Scholarship.* I will do my best in trying to deserve it.

Thus far my grades have been acceptable. It is hard for me to make the top grades, however, because much of my time is spent working on my financial aid part-time job.

Again I would like to say that I am very grateful for receiving the *William B. Palmer Scholarship Award.* Without this award, it would have been hard for me to have continued my studies at the University of North Carolina. Box 672

Sincerely yours, Warsaw, N. C.
s/Charles E. Powell November 11, 1961

PAPERS PRESENTED AT AFFILIATE ASSOCIATION MEETINGS

Editorial Note: The following is a listing of subjects presented at recent meetings of Affiliate Associations. Copies of papers presented may be available through the Secretary of the respective Affiliate Association.

Virginia Association of Sanitarians

Richmond, Virginia
November 9-10, 1961
(*Secretary*: G. S. Kennedy, 504 Blanton Bldg., Richmond 19, Va.)

The New U. S. P. H. S. Food Service Sanitation Manual - John Faulkner, Chief, Milk & Food Program, USPHS, Washington, D. C.

Self Inspection - Industrial Viewpoint - John A. Wagner, Ass't. Dir., Bakery Operations, American Stores Co., Philadelphia, Pa.

Food Sanitation Group

What You Should Know About Botulism - Dr. Edward J. Shantz, Chief, Chemistry Branch, U. S. Army Chemical Corp Biological Lab., Fort Detrich, Maryland.

Problems of Sanitation in the Oyster and Crab Industry in Virginia - R. H. Gregory, Dir., Bureau Shellfish Sanitation Va. State Dept. Health.

Food Service Planning and Renovating - J. A. Kolbe, Pres., John G. Kolbe, Inc., Richmond, Va.

Uniformity in Food Inspection - Earl T. Agee, Bureau of Tourist Establishment Sanitation, Va. State Dept. Health.

Environmental Health Group

How Important are Swimming Pools as Public Health Problems - Dr. J. D. Reid, Chairman, Dept. Microbiology, Medical College of Va., Richmond, Va.

Septic Tank Limitations - W. A. Wood, Advisory Sanitarian, Va. State Dept. Health.

The Pest Control Operator's Role in Public Health - Charles D. Cushing, Gen. Mgr., Vogel-Ritt, Inc., Philadelphia, Pa.

Milk Sanitation Group

Latest Development in Milk Processing Equipment - Hugh E. Egan, Milk & Food Training Consultant, U. S. P. H. S., Atlanta, Ga.

Latest Dairy Buildings for Grade A Milk Production - Dan Kite, Agr'l. Engineer, V. P. I. College, Blacksburg, Va.

Dairy Industry Control of Antibiotics and Pesticides in Milk - William Arledge, Div. of Quality Control, Tri-State Milk Producers Ass'n., Bristol, Va.

Some Helpful Hints for Sanitarians in Disasters - Raymond O. Chapman, Specialist, Civil Defense Training Program, Food & Drug Administration, Dept. Health, Education & Welfare, Washington, D. C.

What is wrong with Official Regulation of Food Sanitation - Robert S. Taggart, San. Engineer, National Biscuit Co., NYC.

Who Is Your Public - Mrs. Anne Montague, Supervisor, Public Health Social Work, Richmond Dept. Public Health, Richmond, Va.

Ultransonics Applied to the Milk and Food Industries - Harry R. Lugenbeel, Sales Mgr., Ultrasonic Eastern Sales, Bethesda, Maryland.

Kansas Association of Public Health Sanitarians
and
International Association of Milk and Food Sanitarians

Kansas City, Kansas
November 1, 2, 3, 1961
(*Secretary*: Frank L. Kelley, 1216 Ohio Street, Lawrence, Kansas)

An Evaluation of the School Inspection Program - Evalyn Gendel, M. D., Kansas State Board of Health, Topeka.

Certification on Plan A of Bang's Program - R. C. Knowles, D.V.M., Ext. Vet., Kansas State Univ., Manhattan.

New Food Ordinance and New Equipment - Joe Perrin, USPHS, Kansas City.

Problems in Community Sanitation - C. F. Haughey, M. D, Health Officer, Salina.

Relationship of the Health Officer and the Sanitarian - Robert F. Cavitt, M. D., MPH, Health Officer, Johnson County.

Radiation - Lee Mayes, State Board of Health, Topeka.

How to Make Bakery Inspection - Theo Benjamine, FDA., Kansas City.

The Free Flow Milk Law - Dale Clinton, M. D., Dir., Douglas Co. Health Dept.; Ivan VanNortwick, Sec.-Treas., Kansas Dairy Institute; John Carlson, Attorney, KSBH; Pete Caldwell, Attorney, LKM.

Packaging and Shipping of Samples for Laboratory Analysis - Dick Ripper, State Board of Health, Topeka.

Pond Water Supplies - Jack Burris, KSBH, Topeka.

Court Cases - Evan Wright, Dir. Food & Drug Div., State Board of Health, Topeka.

Iowa Association of Milk Sanitarians

Marshalltown, Iowa
October 24, 1961
(*Secretary*: Richard E. Stedman, State Dept. of Health, Des Moines, Iowa)

MASTITIS ACTION PROGRAM

Mastitis Progress Report - Dr. John Herrick, Extension Veternarian, Iowa State Univ.

Mastitis and Public Health - Dr. Stanley Hendricks, P. H. Veternarian, Iowa State Dept. of Health.

Milking, Machines and Mastitis - Panel Discussion - *Moderator* - Ed Kennedy.

Milking Procedure and Care of Cows - Tony Colletti, Mgr. Dairy Farm, Iowa State Univ.

Milking Machine Operation and Practices - Vern Myer, Ext. Agr. Dairying Engineer, Iowa State Univ.

Mastitis on Herd Basis - Dr. Ralph Mohri, City Sanitarian, Ames City Health Dept.

Mastitis and Loose Housing (Construction, Ventilation, Cowyards, etc.) - Fred Roth, Ext. Agr. Dairying Engineer., Iowa State Univ.

Quality Milk after Mastitis - Earl O. Wright, Ext. Dairyman, Iowa State Univ.

Mastitis Farm Tests - Dr. R. A. Packer, Dept. Vet. Medicine, Iowa State Univ.

Minnesota Sanitarians Association

Sixteenth Annual Meeting
St. Paul, Minn.
September 14, 1961

(Program sponsored by the Department of Dairy Industries and the School of Public Health, University of Minnesota.)

(*Secretary.*, O. M. Osten, Minn. Dept. of Agriculture, State Office Bldg., St. Paul)

FIELDMEN'S SECTION

The National Mastitis Council - Organization and Plan of Operation. J. R. Hay

Some Aspects of Milking Equipment Design and Use. R. Mather

USDA Manufacturing Milk Standards. E. Small

Problems in Sediment Testing. R. J. Schneider

Present Status of and Current Developments in the Tuberculosis and Brucellosis Testing Programs. R. K. Anderson and J. G. Flint

FOOD AND ENVIRONMENTAL SANITION SECTION

How Do You Ventilate a Kitchen? L. D. Stauffer

Some Observations on Meat Sanitation. H. P. Urban

Sanitary Aspects of Vending Machines. H. S. Adams

Food, Beverage, Lodging, and Recreation Sanitation—Some Current Aspects. R. E. Hunt

A Common Sense Approach to Sanitary Sampling. V. W. Greene

GENERAL SESSION

The New U. S. Public Health Service Drinking Water Standards. M. C. Hope

ANNUAL CRUMBINE AWARD ANNOUNCEMENT

Invitations have been sent to all full-time local health departments in the United States to enter the 1962 competition for the National Samual J. Crumbine awards. Eligible to compete are city, city-county, county, and local district health units.

Each year two awards are presented. One is given to the department considered outstanding for its achievement in the development of a comprehensive program of environmental health. The other is given to the department judged outstanding for its achievement in the development of a program of public food and drink sanitation.

These awards are sponsored by the Public Health Committee of the Paper Cup and Container Institute in memory of Dr. Samuel J. Crumbine, long-time Kansas State Health Officer and a pioneer in the development of sound environmental sanitation practices and techniques for health education of the public. The awards consist of an engraved plaque for each prize-winning department, and individual medallions for the health officers and staff members most directly involved in the development of the winning programs.

Entries submitted in the competition are judged on their individual merits by an impartial jury of outstanding authorities in the public health field. Particular attention is given to progress made during the preceding calendar Year.

The closing date for submission of entries in the 1962 competition will be March 1, 1962. Inquiries should be addressed to the Crumbine Awards Jury, Room 1020, 250 Park Avenue, New York 17, N. Y.

ADVISORY COMMITTEE ON PROGRESS IN ENVIRONMENTAL HEALTH LISTS SERIES OF RECOMMENDATIONS

An advisory committee to the Surgeon General of the Public Health Service and chaired by Dr. Paul M. Gross, has made a series of recommendations toward improved environmental health control. The Committee is commonly referred to as the *Gross Committee*, so called for the man who is the chairman.

While the complete report is not yet available for general distribution a summary of certain recommendations has been released and these are abstracted below as seven separate items.

1. A major national effort, both governmental and non governmental, must be started if the environmental health problems resulting from the rapid growth of our highly technological civilization are to be adequately understood and if measures for their control and ultimate prevention are to be developed.

2. The focus of this national effort should be the U. S. Public Health Service but the potential of university, industrial, governmental and other research and technological capabilities should be utilized to the fullest. Grants and contracts for research, demonstrations, education and training will have to be made to facilitate this all our effort.

3. Funds in excess of 25 million dollars were urged to initate a man power training program with strong efforts made to improve the status and income levels of environmental health scientists and step up their technical capabilities.

4. A National Environmental Health Center should be located in the Washington, D. C. area and should include

headquarters activities of present operational programs, including administration, fundamental and applied research. It should also be the headquarters of a unified environmental health grants program in support of fellowships, university programs, university related research projects and demonstration grants to appropriate agencies.

5. Establish an Office of Environmental Health Sciences. This should be independent of divisional structure within the Public Health Service, but should be a part of the new center. It should have separate budegtary provisions, be staffed with scientists well versed in the biological, physical and social sciences. It would be the task of these scientists to study basic environmental health problems, undertake research on problems of common interest to several divisions and would provide central services in mathematics, data processing, information storage and research services.

6. The establishment of regional research facilities. These would supplement the National Center. The regional centers should have adequate staff and facilities to conduct applications research, training and control activities.

7. The establishment of a Bureau of Environmental Health through legislation. Such legislation should give full authority to administer the coordinated programs recommended. In addition it should permit the establishment of an Advisory Council on Environmental Health to advise the Surgeon General on policy, research and training in this whole field.

Members of the committee, in addition to Dr. Gross, were Dr. Clark D. Ahlberg, Syracuse University; Dr. Gaylord Anderson, University of Minnesota School of Public Health; Dr. Leslie A. Chambers, University of Southern California; Dr. G. M. Dack, University of Chicago; Dr. Charles A. Dambach, Ohio State University; Dr. Samuel A. Goldblith, Massachusetts Institute of Technology; Seth Gordon, North American Wildlife Federation; Dr. Philip Handler, Duke University; Dr. Theodore F. Hatch, University of Pittsburgh; Dr. John Logan, Northwestern University; Dr. Malcolm Merrill, California Health Department; Dwight Metzler, Kansas Board of Health; Dr. Russell Morgan, Johns Hopkins University; Dr. E. M. Mrak, University of California; Dr. Leslie Silverman, Harvard University School of Public Health; Dr. K. G. Weckel, University of Wisconsin. Hal Hollister served as executive secretary.

STATEMENT ON RADIOACTIVITY ISSUED

The Department of Health, Education and Welfare said last week that radioactive *iodine-131 levels in air, water, milk and other foods were not high enough anywhere in the country to justify general use of non-radioactive compounds to block the uptake of radioactive iodine* by the thyroid gland.

The statement was issued in the form of an interim report to State and Territorial health departments and to national medical organizations, pending completion of special studies of various counter measures which might be taken if fallout levels were to reach a point where individual or public action to reduce exposure would need to be considered.

The report emphasized that nationwide daily surveillance reports to the Public Health Service enable state, county and city Governments to be alerted in ample time if radioactivity levels should be reached which would warrant institution of protective measures.

The interim recommendation against the general use of iodine compounds as a counter measure pending completion of current studies, is based on the advice of a number of medical and scientific authorities. They were consulted by the PHS, Children's Bureau and the Food and Drug Administration as an interim step. A few weeks will be required for reports to be formulated by the National Advisory Committee and other scientists serving the department in an advisory capacity.

There were some encouroging developments last week. Some scientific experts put some *remarks* on the record *in the matter of radioactive residues in milk.* In a network broadcast the question was asked, "Is milk today dangerous, in any sense, from a radioactive standpoint?" The answer was "No" and it was given by Dr. Francis Weber, recently retired Chief of the Public Health Service Radiological Health Division who said further: "It is unfortunate that milk has been made, what you call, a whipping boy, because it should not be. Milk is by no means the highest in radioactivity of the various dietary constituents that the American public consumes.

"Milk can be expected to contain a certain amount of radioactivity, but under fallout conditions, particularly, so can we expect the air we breathe to contain more radioactivity, water to contain more, and, of course, other dietary constituents that we consume."

Dr. Weber was also asked whether Americans should curtail milk consumption, and he answered that there were some very good reasons against doing so. He said that milk should continue to be consumed because of its importance in the American diet, particularly for children, for whom it is the chief source of calcium.

On another occasion, at a press conference held for the Women's Strike for Peace movement, PHS officials expressed the opinion that *if fallout levels should be double what they presently are, it is doubtful that countermeasures drastically affecting the diet - such as elimination of or substitution for milk - would be put into effect.* Participating in this Strike for Peace press conference was Dr. Clifford Nelson of the State Assistance Branch, Division of Radiology, PHS. Dr. Nelson cited statistics to dispel fears of a rapid increase in the incidence of leukemia as a re-

sult of strontium-90 deposits in the bone and marrow from drinking contaminated milk.

British Think Milk is Safe . . . .

A news story reports that the British Government has also concluded that present levels of radioactive contamination of milk require no countermeasures. The British Minister of Science is quoted as saying that the iodine-131 which has so far entered milk is less than 1/6 of that which the British Medical Research Council would call dangerous.

It is also stated in the press dispatch, however, that the *British Government is prepared to distribute fallout-free powdered milk*, if necessary.

It has been learned further that *Members of Congress are taking steps to reassure their constituents* about milk in the face of the publicity being given to fallout dangers. Representative D. G. Hall, of the 7th District (Springfield), Mo., has sent a release to his District telling them that to consider reducing the amount of milk we and our children consume would be completely ineffectual in combatting fallout, unless we also stopped breathing, drinking and eating. The Congressman said further that there is scientific basis for saying that milk is the safest source of calcium in the human diet.

He pointed out that in comparing units of strontium-90 absorbed by various food items, a recent test in Chicago showed that while milk disclosed 5.1 units of strontium-90, meat has 11.1 units, fresh vegetables 16.3 units, canned fruits 18.1 units, and potatoes 28.4 units. Mr. Nelson said further that none of these levels are considered dangerous.

The Congressional Joint Committee on Atomic Energy will hold public hearings on fallout early next year. No definite date has been set, but the hearings will be held soon after Congress reconvenes in January.

GENERAL POLICY IN REGARD TO THE ADDITION OF SPECIFIC NUTRIENTS TO FOODS

The Recommended Dietary Allowances, first developed by the Food and Nutrition Board of the National Research Council in 1943, specify levels of nutrient intake judged on scientific evidence to be desirable goals for the maintenance of good nutrition of healthy persons in the United States. The recommendations were revised in 1945, 1948, 1953, and 1958 as new data on nutritional needs became available. The nutrients for which allowances are specified and all other essential nutrients for healthful nutrition are expected to be provided by a variety of foods commonly available to the general population. To insure this expectation the judicious addition of specific nutrients to certain processed foods has proved useful. A statement of policy in regard to this practice is desirable for guidance of the public and the food industry.

The Council on Foods and Nutrition of the American Medical Association adopted its policies on proper additions of vitamins and minerals to foods in 1939 and again in 1946. In 1941 the Food and Nutrition Board likewise adopted a policy on the addition of specific nutrients to foods. These statements of policy were reconsidered jointly by the Food and Nturition Board and the Council on Foods and Nutrition in 1953, were reaffirmed in principle, and with revision of wording were published jointly as a statement of general policy in regard to the addition of specific nutrients to foods. There is good evidence to indicate that the policies have been beneficial to the public and have encouraged sound nutritional practices during a period of increasing awareness by both producers and consumers of the nutritional and economic problems of supplementation of foods with specific nutrients.

The 1953 statement of general policy has now been re-examined to determine its accuracy, realism, and usefulness in the light of experience and from the viewpoints of existing and probable nutritional needs in the United States, of current and anticipated agricultural production of food in relation to an increasing population, and of prudent application of technological developments in the industrial preparation of nutrients and in the processing of foods. On the basis of these considerations the policies have been revised in part and are embodied in the following statements:

(1) The principle of the addition of specific nutrients to certain foods is endorsed, with defined limitations, for the purpose of maintaining good nutrition in all segments of the population at all economic levels. The requirements which should be met for the addition of a particular nutrient to a given food include (a) acceptable evidence that the supplemented food would be physiologically or economically advantageous for a significant segment of the consumer population, (b) assurance that the food item concerned would be an effective vehicle of distribution for the nutrient to be added, and (c) evidence that such addition would not be prejudicial to the achievement of a diet good in other respects.

(2) The desirability of meeting nutritional needs by the use of an adequate variety of foods as far as practicable is emphasized strongly. To that end, research and education are encouraged to insure the proper choice and preparation of foods and to improve food production, processing, storage, and distribution so as to retain their essential nutrients.

(3) Foods suitable as vehicles for the distribution

of additional nutrients are those which have a diminished nutritive content as a result of loss in refining or other processing or those which are widely and regularly consumed. The nutrients added to such foods should be the kinds and quantities associated with the class of foods involved. The addition of other than normally-occurring levels of nutrients to these foods may be favored when properly qualified judgment indicates that the addition will be advantageous to public health and when other methods for affecting the desired purpose appear to be less feasible.

(4) Scientific evaluation of the desirability of restoring an essential nutrient or nutrients to the diet is necessary whenever technologic or economic changes lead to a nutritionally-significant reduction in the intake of a nutrient or nutrients. Such reduction might result either from a marked decrease in the consumption of an important food or from a considerable increase in the consumption of foods of diminished nutritive quality.

Similar evaluation is desirable, with the limitations defined in section (1) above, whenever advances in nutritional science and in food technology make possible the preparation of nutrient-enriched products which are likely to make important contributions to good nutrition.

(5) The endorsement of the following is affirmed: the enrichment of flour, bread, degerminated corn meal, corn grits, whole grain corn meal and white rice; the retention or restoration of thiamine, riboflavin, niacin, and iron in processed food cereals; the addition of vitamin D to milk, fluid skim milk, and nonfat dry milk; the addition of vitamin A to margarine and to fluid skim milk and nonfat dry milk; and the addition of iodine to table salt. The protective action of fluoride against dental caries is recognized and the standardized addition of fluoride to water is endorsed in areas in which the water supply is low in fluoride.

(6) The above statements of policy and of endorsement apply to conditions existing in the United States. Recommendations for additions of nutrients to foods for export should be based on similar physiological or economic advantages expected to accrue to the respective consumers.

Food and Nutrition Board Nat'l. Academy Sciences, 1961.

NEW WASHERS FOR CONTAINERS AND RACKS

Of interest to sanitarians are container washers recently introduced by the R. G. Wright Co. of Buffalo, whose equipment is well known in the dairy industry. Since they are able to handle a wide range of sizes and remove almost any type of soil on which detergent solutions are effective, they have proved most useful for garbage and refuse cans and for various types of containers used in meat packing, rendering and food processing plants.

Among the features of the washing and sanitizing machines for racks, used for transportation and storage of bakery, food and meat products, are that no floor pit is needed and, if required, the washer can be disassembled where building passageways are limited in size.

Following the recommendations resulting from research projects in washing and sanitizing, these machines have carefully planned jet patterns, adequate pressures and volumes of solution, automatically controlled temperatures with pre-set time cycles.

ELMER H. MARTH RECEIVES PROMOTION

Elmer H. Marth of 1160 Hazel Aveue, Deerfield, Ill., has been promoted to Sr. Research Bacteriologist in the Fundamental Laboratory of the National Dairy research center in Glenview, Ill., it was announced today by A. H. Johnson, Director of Research and Development.

Marth joined the company in 1957 as a Bacteriologist. He is a graduate of the University of Wisconsin, where he majored in Bacteriology, receiving his Doctorate Degree in 1954. He is a member of American Society for Microbiology, American Dairy Science Ass'n., International Ass'n. of Milk and Food Sanitarians, and Institute of Food Technologists. He is an active member of the Grace Lutheran Church in Northbrook, Ill., where he is on the Board of Education.

Dr. and Mrs. Marth have lived in Deerfield since 1957. They formerly resided in Madison, Wisconsin.

FOOD LAW INSTITUTE SPEAKER URGES BETTER INTERNAL PLANNING BY FDA

If the Food and Drug Administration is to meet successfully its vastly increased responsibilities, it must have adequate time and personnel for internal planning as well as for day-to-day operations, Kenneth E. Mulford, Assistant to the Executive Vice President of Atlas Chemical Industries, Inc., said at the 1961 joint meeting of FDA and the Food Law Institute, held recently in Washington.

Noting the recent appointment of a new Citizens Advisory Committee, Mr. Mulford said he thought FDA needed the assistance of such an outside group in meeting its current and future problems, and expressed the hope that industry would have the opportunity to offer "constructive suggestions."

Mr. Mulford, who took part in a panel discussion covering recent food additive legislation, pointed out that FDA's burdens had been increased substantially since the report of the last advisory group in 1955, with the passage of the 1958 Food Additives Amendment, the 1960 Color Additive Amendments, and the Federal Hazardous Substances Labeling Act.

In considering the adequacy of FDA resources, Mr. Mulford said, he hoped the "Committee will not concern itself merely with budget and staff for day-to-day operations, "but also with finding ways of affording the agency "adequate time and personnel for planning its internal organization structure, with clearly delineated lines of responsibility and authority."

In reviewing the amount and kind of consumer protection needed, Mr. Mulford suggested that "the Committee . . . consider whether the research required to solve some of the major problems under the present law really provides commensurate or substantial protection." He noted that one class of suppliers of ingredients used in paper and paperboard wrappings had spent over one quarter of a million dollars in research on substances that do not migrate into foods.

He emphasized that there are limited research resources — both in terms of personnel and facilities — and that if we are to "preserve and strengthen our position in a turbulent world we must utilize these resources with great wisdom."

Efficient and effective administration of the food law, Mr. Mulford said, should meet three minimum conditions:

"(1) It must be administered to afford protection to the public.

"(2) It must be administered reasonably and on a sound scientific basis.

"(3) It must be administered efficiently to make the best use of the research facilities and the manpower of the agency and industry."

Mr. Mulford called for several procedural changes under the food amendment. Pointing out that product specifications in FDA regulations are based on extensive data supplied by a petitioner, Mr. Mulford said other producers of the product "should be required to establish that their product is identical with the product" that underwent safety tests. At the present time, he said, producers — other than the original petitioner — might meet product specifications of a regulation even though the product differed in some respects.

"It also seems to me that if industry petitioners provide, as they have done, most of the data which supports the regulations, there should be some way in which a petitioner could be advised of the proposed regulation and a forum designated before which the petitioner could formally present his view on the regulations before it is published in the *Federal Register.*"

For the past several years, Mr. Mulford has been serving as Chairman of the Food Additives Committee of the Manufacturing Chemists' Association, Inc.

QUESTIONS AND ANSWERS

Note: Questions of technical nature may be submitted to the Editorial Office of the Journal. A Question in your mind may be in the minds of many others. Send in your questions and we will attempt to answer them.

QUESTION:

What is the cause of malty flavor in raw milk received at the plant and how can it be corrected?

ANSWER:

This is a bacteriological problem on the farm and can be corrected by proper clean up and sanitation of equipment and premises. All equipment should be thoroughly cleaned and all milkstone removed. Old inflations should be replaced and milk hoses and lines replaced or cleaned. All equipment should be sanitized with proper solutions prior to use.

QUESTION:

What is the proper procedure for cleaning the vacuum line in a dairy barn?

ANSWER:

This is a very important and often neglected part of routine clean up procedures. Lines should be cleaned at least four times a year. In addition, the lines should be cleaned at once if any milk is known to have escaped into the line. The procedure for doing the complete clean up is detailed step by step in an excellent pamphlet put out by the Pennsylvania State University, University Park, Pennsylvania. It is leaflet No. 134 "Milking Machine Care".

QUESTION:

We are interested in information pertaining to the storage of whipped cream, vanilla filled or custard products and the subsequent hazard by human consumption through their improper storage. *(1)* Is refrigeration necessary? *(2)* How long does it take for spoilage to occur? *(3)* What is the subsequent hazard if consumed? *(4)* Is there a distinct taste readily noticeable at the outset of spoilage?

ANSWER:

(1) Refrigeration to 40°F or less is definitely required. Higher temperatures permit the growth of a variety of bacteria. Staphylococci are usually implicated in "food poisoning", while a wide variety of organisms may cause spoilage.

(2) The time required for spoilage to occur will depend on several factors. The initial bacterial contamination and the type of organisms present and the temperature at which the food is stored will determine the time and type of spoilage. If the food is stored at room temperature, it may spoil in a few hours.

(3) The spoilage of food can be divided into two types. One type of spoilage will make the food inedible with no hazard other than an esthetic one, while the other type, caused by toxin production by the staphylococci or other toxin producing organisms, may be highly dangerous, causing illness and even death if the food is consumed.

(4) In the first type of spoilage there is a distinct taste which would in most cases discourage consumption. However, bacterial toxins may be produced in products without any alteration in the taste as toxin production is not necessarily associated with spoilage as we normally consider it.

ENVIRONMENTAL HEALTH PLANNING SOME BROADER ASPECTS

A thorough report on environmental health planning, one which we commend heartily, was presented by Oscar Sutermeister, a city planner of Bethesda, Md., to the annual conference of the American Institute of Planners in Detroit, Nov. 27.

Health officials and planners will have to learn a great deal about each other's problems, and the Federal Government will be required to provide the leadership and prestige, Sutermeister said. When all are finally working in harmony, however, the public figures to be the big winner.

Urban fringe sanitation, healthful housing and air pollution are the major fields of interest in environmental health, he says. Under urban fringe sanitation he puts water supply, sewerage and refuse.

Those problems are most acute in urban fringe areas, where new population growth often precedes publicly provided facilities. This is probably the environmental health field of most widespread concern to planners "because metropolitanization and continued expansion of freeway networks are setting the stage for ever more widespread fringe development."

"*In fringe areas,*" he continued, "sewer extensions control the timing of intensive development. Open development on septic tanks almost assures ultimate health problems, and complicates the planning and financing of later increases in density. Fringe area water supply problems generally parallel sewerage problems, but are less troublesome. Refuse collection and disposal are problems of the entire urban area, and may become more severe in the center than at the fringe."

Healthful homes in healthful neighborhoods organized into healthful communities and sub-communities should also be a major objective of environmental planning. The traffic and land use pressures which continuing rapid urban growth is placing upon existing neighborhoods should be a matter of prime importance to USPHS, he said.

As an extra fillip, Sutermeister suggested that two additional environmental health problems which should concern USPHS are traffic accidents on arterial roads and jet noise around airports. The proposed Bureau of Environmental Health within USPHS does not now include accident prevention.

The Sanitary Sewer Plan should be the foremost planning consideration of the environmental health official, Sutermeister says. He should review the land use planning and sanitary engineering of areas to be sewered in order to insure that the size of lines will be adequate to carry liquid wastes produced by the proposed land uses at future rates of waste water generation.

Secondly, he should become deeply involved in the Residential Land Use Plan, to protect neighborhoods against arterial and short-cut traffic. The health official should also be at the center of official neighborhood improvement plans in every urban area, and finally, should be concerned with highway planning.

"*The critical factor from the point of view of environmental health* is whether or not the plan makes adequate provision for right-of-way reservation for future widening of major thoroughfares as may be required to satisfy the future traffic needs of rapidly and constantly growing urban areas," he said. "The penalty for a planning omission in this regard is urban scar tissue and the permanent maiming of healthful neighorhoods, caused by bulldozing new highways through existing built-up areas."

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CALENDAR OF MEETINGS

1962

Feb. 1—Evaporated Milk Association, bi-monthly meeting of the Industry, Builders Club, Chicago, Illinois. Administrative Officer., E. H. Parfitt, 228 North LaSalle Street, Chicago 1, Illinois.

Feb. 1—Ice Cream Conference, Student Union Building, College Park, Maryland. Administrative Officer, W. S. Arbuckle, University of Maryland, College Park, Maryland.

Feb. 4-7—National Dairy Council, 47th Annual Meeting, Bellevue Stratford Hotel, Philadelphia, Pennsylvania. Administrative Officer, Milton Hult, President, 111 North Canal Street, Chicago 6, Ill.

Feb. 7-9—Mississippi Dairy Products Assn., Annual Convention, The Buena Vista, Biloxi, Mississippi. Administrative Officer, F. H. Herzer, Box 356, State College, Mississippi.

Feb. 12—Oklahoma Dairy Products Institute, Board of Directors Meeting, Institute Office, Oklahoma City, Oklahoma. Administrative Officer, Dallas French, 129 N. W. 44th Street, Oklahoma City 18, Okla.

Feb. 13-14—Michigan Allied Dairy Assn., Convention, Hotel Pantlind, Grand Rapids, Michigan. Administrative Officer, Frank Koval, 3030 Vine Street, Lansing 12, Michigan.

Feb. 13-15—Oregon Dairy Industries, Annual Conference, Withycombe Hall, Corvallis, Oregon. Administrative Officer, J. O. Young, Oregon State University, Corvallis, Oregon.

Feb. 14-15—South Carolina Dairy Association, Inc., Convention—Annual Business Meeting, Hotel Wade Hampton, Columbia, South Carolina. Administrative Officer, W. L. Abernathy, Jr., P. O. Box 5, Chester, South Carolina.

Feb. 15—Dairy Products Improvement Institute, Inc., Annual Meeting, Hotel Governor Clinton, New York, New York, Administrative Officer, A. C. Dahlberg, 302 East State Street, Ithaca, New York.

Feb. 20-21—Conference of Fieldmen & Sanitarians, University of Kentucky, Lexington, Ky. Contact: T. R. Freeman, Dairy Dept., University of Kentucky, Lexington 29, Ky.

Feb. 21-22—Missouri Ice Cream and Milk Institute and Dairy Institute of Kansas, Joint Annual Convention, Muehlebach Hotel, Kansas City, Missouri. Administrative Officier, W. H. E. Reid, Mo. Ice Cream and Milk Inst., 124 Eckles Hall, Columbia, Missouri.

Feb. 25-27—Dairy Products Institute of Texas, Inc., Annual Convention, Hotel Texas, Fort Worth, Texas. Administrative Officer, George M. Clark, 1006 Perry-Brooks Building, Austin, Texas.

Feb. 27-28—Dairy Engineering Conference. Kellogg Center, Michigan State University, East Lansing, Michigan. Administrative Officer, Carl W. Hall, Dairy Eng. Conf., Cantinuing Education Service, Michigan State University, East Lansing, Michigan.

March 1-2—Minnesota Dairy Products Association, Annual Meeting & Convention, Radisson Hotel, Minneapolis, Minnesota. Administrative Officer, Floyd Thompson, 416 New York Building, St. Paul 1, Minnesota.

March 11-13—Dairy Products Association of Kentucky, Inc., Annual Meeting and Industrial Conference, Sheraton Hotel, Louisville, Kentucky. Administrative Officer, D. F. Conley, 2927 West Kentucky Street, Louisville 11, Kentucky.

March 12-14—ICMI Merchandising Council Spring Meeting, Boca Raton Hotel, Boca Raton, Florida. Administrative Officer, Robert H. North, 1105 Barr Building, Washington 6, D. C.

March 15-17—Pacific Dairy & Poultry Association, 38th Annual Convention, Biltmore Hotel, Los Angeles, California. Administrative Officer, Carl E. Nall, 1304 E. 7th Street, Los Angeles, California.

March 18-20—Tennessee Dairy Products Association, Annual Convention, Andrew Jackson Hotel, Nashville, Tennessee. Administrative Officer, B. V. Lawson, 1719 West End Building, Nashville 3, Tennessee.

March 19-20—Florida Association of Milk & Food Sanitarians, Annual Meeting. Secretary, Dr. Kenneth L. Smith, Dairy Lab., Fla. Agr. Expt. Sta., Gainsville, Florida.

March 20-22—American Dairy Association, Annual Meeting, Pick Congress Hotel (tentative hotel) Chicago, Illinois. Administrative Officer, M. J. Framberger, 20 N. Wacker Drive, Chicago, Illinois.

April 2-13—Urban Planning for Environmental Health, Robert A. Taft Engineering Center, Cincinnati, Ohio. Contact: Chief, Training Program, Robert A. Taft Engineering Center, 4676 Columbia Pkwy., Cincinnati 26, Ohio.

April 3-4—University of Nebraska, Annual Dairy Industry Conference, Nebraska Center for Continuing Education College of Agriculture Campus, Lincoln, Nebraska. Administrative Officer, T. A. Evans, 101 Dairy Building, Lincoln 3, Nebraska.

April 11-13—Institute of Environmental Sciences, Annual Technical Meeting and Equipment Exposition, Sheraton-Chicago Hotel, Chicago, Ill. Contact: J. P. Monroe, Lear, Inc., Grand Rapids, Mich.

April 8-10—Indiana Dairy Products Association, Inc., Business and Social Meeting, French Lick-Sheraton Hotel, French Lick, Indiana. Administrative Officer, Ward K. Holm, 603 Union Title Building, Indianapolis 4, Indiana.

April 9-10—American Butter Institute, Inc., National Cheese Institute, Inc., Annual Meeting, LaSalle Hotel, Chicago, Illinois. Administrative Officer, E. W. Gaumnitz, 110 N. Franklin Street, Chicago 6, Illinois.

April 10-11—Iowa Milk and Ice Cream Mfgs. Assns., Annual Convention, Hotel Savery, Des Moines, Iowa. Administrative Officer, John H. Brockway, 710 Fifth Avenue, Des Moines, Iowa.

April 11-13—Institute of Environmental Sciences, annual technical meeting and equipment exposition, Sheraton-Chicago Hotel, Chicago, Ill. Administrative Officer, J. P. Monroe, Lear, Inc., Grand Rapids, Michigan.

April 12-13—American Dry Milk Institute, Inc., National Meeting, Edgewater Beach Hotel, Chicago, Illinois. Administrative Officer, John Walsh, 221 North LaSalle Street, Chicago 1, Illinois.

April 26—Evaporated Milk Association, bi-monthly meeting of the Industry, Builders Club, Chicago, Illinois. Administrative Officer, E. H. Parfitt, 228 N. LaSalle Street, Chicago 1, Illinois.

Apr. 28-May 3—IAICM-ICMI Board of Directors Spring Meeting, Mountain Shadows, Scottsdale, Arizona. Administrative Officer, R. H. North, 1105 Barr Building, Washington 6, D. C.

Apr. 30-May 1-2—National Assn. of Dairy Equipment Mfgrs. Annual Spring Meeting, The Diplomat, Hollywood, Florida. Administrative Officer, John Marshall, 1012 Fourteenth St., N. W., Washington, D. C.

May 1-2—Pennsylvania Association of Milk Dealers, Annual Convention, Penn Harris Hotel, Harrisburg, Pennsylvania. Administrative Officer, Henry R. Geisinger, 303 Telegraph Building, Harrisburg, Pennsylvania.

May 9-10—National Dairy Council, Board of Directors Meeting, Sheraton-Chicago Hotel, Chicago, Illinois. Administrative Officer, Milton Hult, 111 North Canal Street, Chicago 6, Illinois.

May 9-10—New England Association of Ice Cream Manufacturers, Annual Convention, Sheraton Plaza, Boston, Mass. Administrative Officer, Malcolm D. MacLeod, 70 Franklin Street, Worchester, Massachusetts.

May 21-23—Assn. of Ice Cream Mfgrs. of Pa., New Jersey & Delaware, Inc., Annual Meeting, Pocono Manor Inn, Pocono Manor, Pennsylvania. Administrative Officer, Peter F. Rossi, 405 Lexington Avenue, New York 17, N. Y.

June 6—The Holstein-Friesian Association of America, Annual Convention, Hotel Roanoke, Roanoke, Virginia. Administrative Officer, Robert H. Rumler, Brattleboro, Vermont.

June 10-15—VIII Congress of the Inter-American Assn. of Sanitary Engineering, Washington, D. C. Administrative Officer, Edmund G. Wagner, c/o Officer of Public Health, I.C.A., Washington 25, D. C.

June 17-21—The American Dairy Science Association, Annual Meeting, University of Maryland, College Park, Maryland. Administrative Officer, H. F. Judkins, 32 Ridgeway Circle, White Plains, New York.

June 17-21—National Association of Retail Grocers, Annual Convention, Auditorium, San Francisco, California. Administrative Officer, Marie Kiefer, 360 North Michigan Ave., Chicago 1, Illinois.

June 18-20—Grocery Manufacturers of America, Inc., Mid-Year Meeting, Greenbrier, White Sulphur Springs, West Virginia. Administrative Officer, Paul S. Willis, 205 E. 42nd Street, New York 17, N. Y.

June 18-21—National Dairy Council, Summer Conference, Sheraton-Chicago Hotel, Chicago, Illinois. Administrative Officer, Milton Hult, 111 North Canal Street, Chicago 6, Illinois.

June 28—Evaporated Milk Association, bi-monthly meeting of the Industry, Builders Club, Chicago, Illinois. Administrative Officer, E. H. Parfitt, 228 N. LaSalle Street, Chicago, Illinois.

August 5-8—West Virginia Dairy Products Association, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, West Virginia. Administrative Officer, S. J. Weese, West Va. University Dairy, Morgantown, W. Va.

Sept. 12-13—National Dairy Council Board of Directors Meeting, Sheraton-Chicago Hotel, Chicago, Illinois. Administrative Officer, Milton Hult, 111 North Canal Street, Chicago 6, Illinois.

Sept. 17—Wisconsin Creameries Association, Annual Convention, Whiting Hotel, Stevens Point, Wisconsin. Administrative Officer, Oscar Christianson, 1 West Main Street, Madison, Wisconsin.

Sept. 18-20—American Dairy Association Board of Directors & State Managers Meeting, Olympic Hotel, Seattle, Washington. Administrative Officer. M. J. Framberger, 20 N. Wacker Drive, Chicago, Illinois.

Sept. 27—Evaporated Milk Association, bi-monthly meeting of the Industry, Builders Club, Chicago, Illinois. Administrative Officer, E. H. Parfitt, 228 N. LaSalle Street, Chicago 1, Illinois.

Oct. 2-3—Minnesota Creamery Operators' and Managers' Association, Annual Convention and Business Sessions, Hotel Lowry, St. Paul, Minnesota. Administrative Officer, Floyd Thompson, 416 New York Building, St. Paul 1, Minnesota.

Oct. 24-27—International Association of Milk and Food Sanitarians, Inc. Annual Meeting, Ben Franklin Hotel, Philadelphia, Pennsylvania. Administrative Officer, H. L. Thomasson, P. O. Box 437, Shelbyville, Indiana.

Oct. 28-Nov. 2—Dairy Exposition, Atlantic City, New Jersey. Administrative Officer, Joseph Cunningham, Dairy Industry Supply Association, 1145 - 19th St. N. W., Washington, D. C.

Nov. 12-14—Grocery Manufacturers of America, Inc., Annual Meeting, Waldorf Hotel, New York, New York. Administrative Officer, Paul S. Willis, 205 E. 42nd Street, New York 17, N. Y.

Dec. 6—Evaporated Milk Association, bi-monthly meeting of the Industry, Builders Club, Chicago, Illinois. Administrative Officer, E. H. Parfitt, 228 N. LaSalle Street, Chicago, Illinois.

1963

May 7-9—Pennsylvania Association of Milk Dealers, Annual Convention, Bedford Springs Hotel, Bedford, Pennsylvania. Administrative Officer, Harry R. Geisinger, 303 Telegraph Building, Harrisburg, Pennsylvania.

June 17-19—Grocery Manufacturers of America, Inc., Mid-Year Meeting, Greenbrier, White Sulphur Springs, W. Va. Administrative Officer, Paul S. Willis, 205 E. 42nd Street, New York 17, N. Y.

NEW BOOKS

Kotschevar, Lendal H., and Terrell, Margaret E., Food Service Planning: Layout and Equipment, John H. Wiley & Sons, Inc. Publishers ($11.75).

The book surveys worker comfort, space allotment, equipment of every nature, and how all fixtures may be safely ensconced in the handiest nook or cranny and then flawlessly coordinated. Among the countless points taken up are: where individual units stand in relation to each other, how to reduce fatigue by using proper chairs and table heights, in what way to calculate dining room size and get in the most tables, the isolation but accessibility needed for hazardous slicers and choppers, the difference in handling hot and cold foods, and the many-sided aspects of refrigeration, acoustics, flooring, plumbing, dishwashing, shelving, conveyors. The authors consider nothing too large nor too small for proper management.

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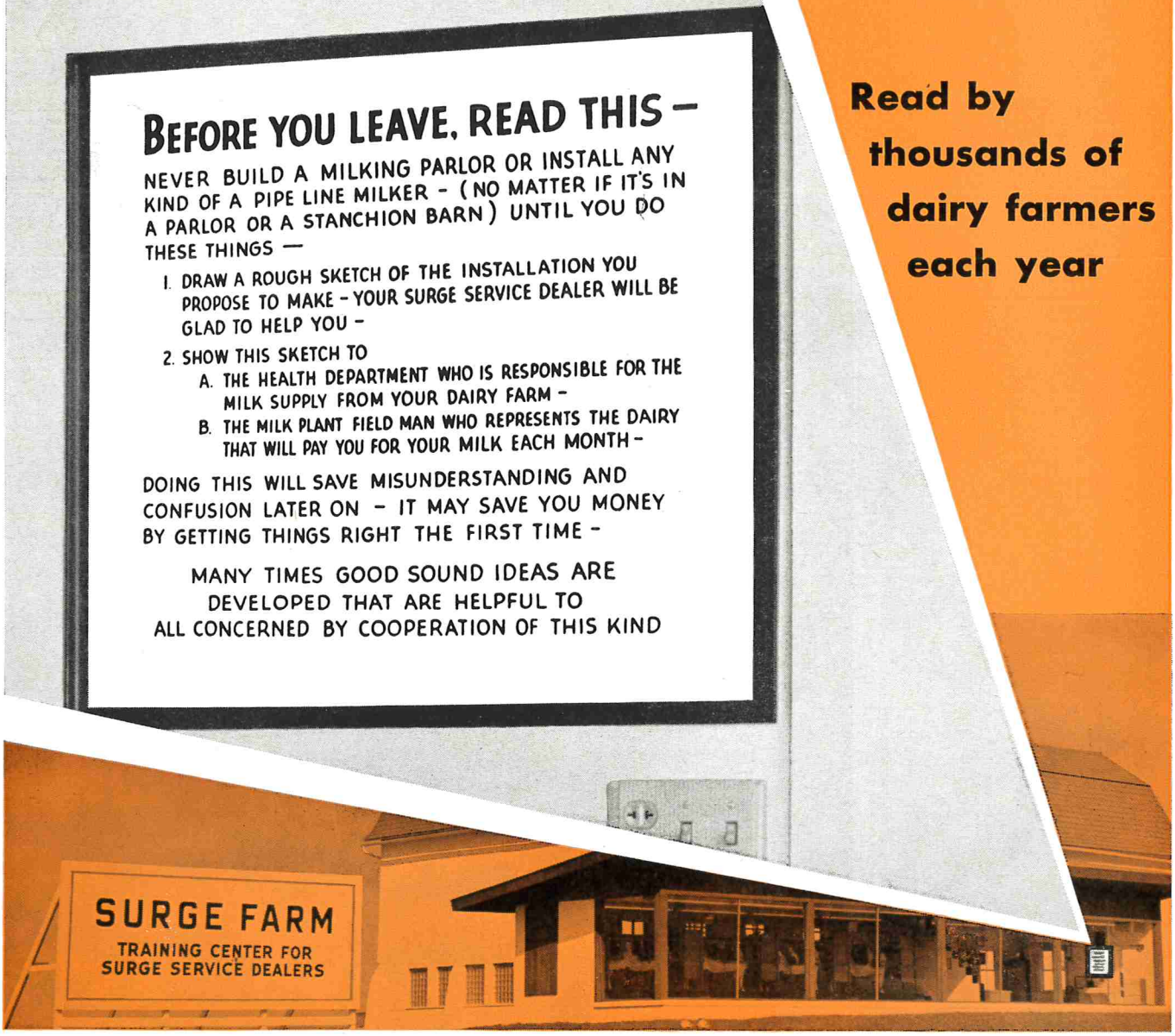

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