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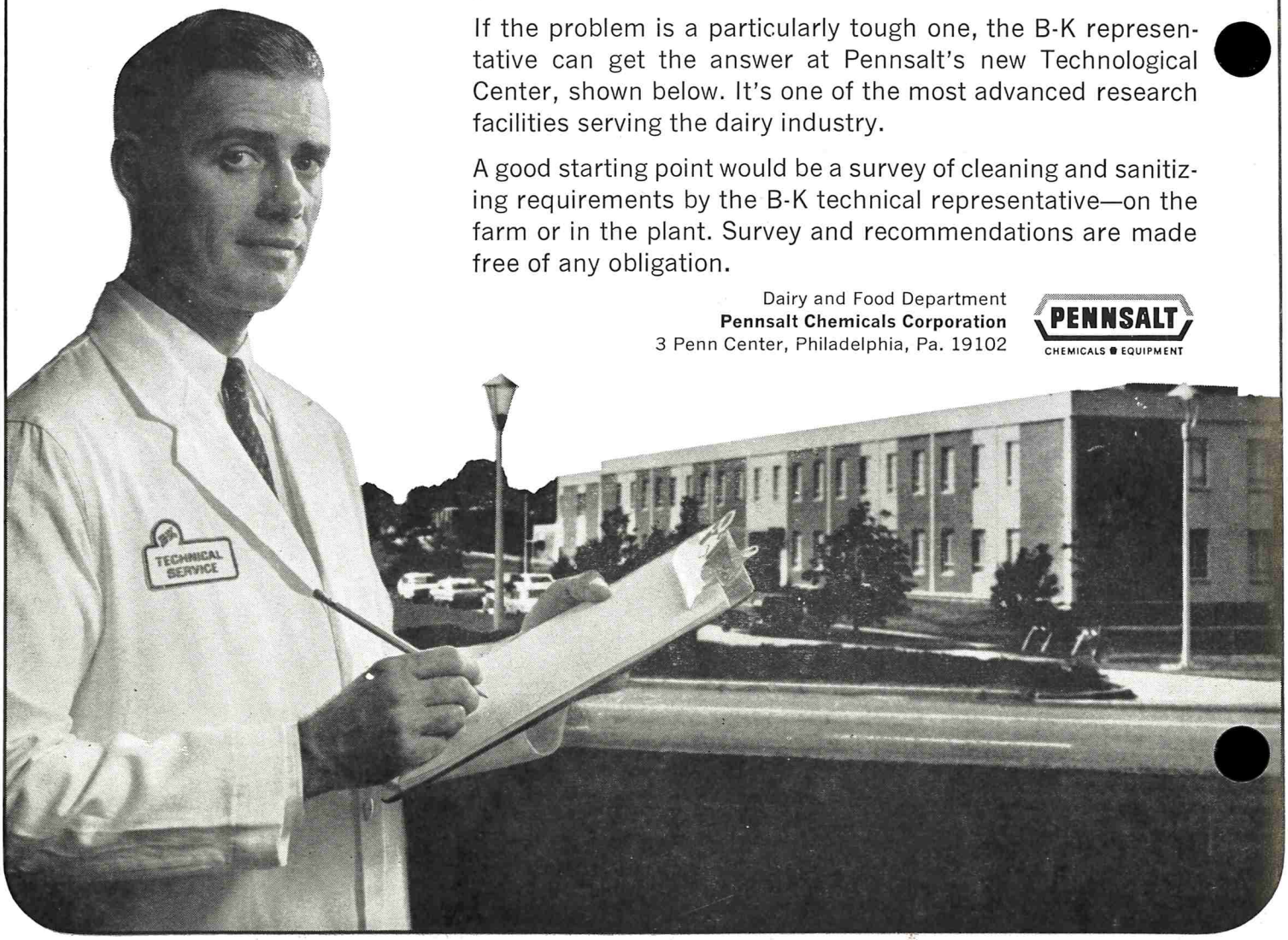

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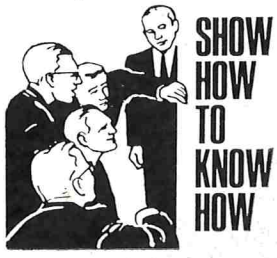

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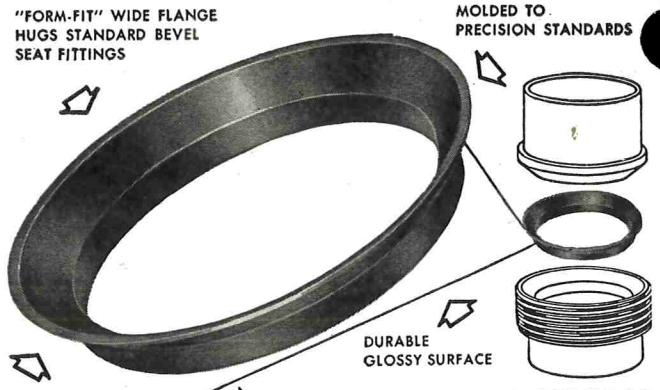

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INDEX TO ADVERTISERS

PRESIDENTIAL ADDRESS[1]

FRED E. UETZ, *President*

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

Fred E. Uetz presents Presidential address.

Another year has gone down in the history of our Association and it is my privilege to report to you what has been done and what must be done to keep our Associatoin in the forefront of the profession of the Sanitarian.

Circumstances have dictated a realistic and practical appraisal for the future financing of the International. The members of the Executive Board at the last Annual Meeting in Hartford spent many hours searching out possible ways to make ends meet without disturbing our current dues structure.

The end result was that all the fund raising schemes that were available to us fell far short of being able to, in any appreciable degree, meet anywhere near our needs. In fact, at the Portland meeting, the Executive Board heard an applicant for the job vacated by John Simpkins who contended that the advertising potential of the Journal could be exploited to produce increased revenue. The proposal, however, was turned down as being inconsistent with the established policies of the International. The dues story has been clearly told in the June issue of the Journal. An amendment to the By-Laws of the Association has been proposed by the Executive Board to facilitate dues adjustments. This proposed method of handling the problem is one now generally being practiced by other organizations comparable to ours.

Your Executive Board has had very strong convictions in this matter which feeling resulted in stimulating an all out effort to bring to the attention of the membership, the seriousness of the problem. Specifically, the Board agreed that one or more of its members should appear at the Annual Meeting of each affiliate in his geographic area. I personally made four such meetings and came away with the feeling that perhaps this could be a precedent in the making. Heretofore, this would have been one of Red's functions, but the importance of getting the message across while minimizing travel time and expense on Red's part seemed to indicate that this was an ideal way to handle the situation.

Last year President Lawton briefly discussed the activities of the Inter-Society Relations Committee. The optimism, justifiably expressed at that time, in achieving closer working relations with other Sanitarians' Associations, regrettably, has not been indicated. Should you ask what is the reason, the answer, based on the record, would be insolvency. Lack of finances has been advanced as the deterent to participate in joint conferences to work out a mutually acceptable and beneficial relationship.

The Federal Trade Commission has made the word *merger* a dirty name in the proprietary segment of the Milk and Food Industry. In non-profit organizations such as ours, this does not apply. In my four years as a member of the Executive Board, particularly since the advent of our most recent name change, there have been ever growing manifestations of a feeling on the part of an increasing number of members that a multiplicity of sanitarian organizations, publications and services are unwarranted and uneconomical.

These manifestations must be recognized, acknowledged, and submitted to the membership for consideration and action. Specifically during the past year several affiliates have adopted resolutions requesting the International to take action in specific directions to bring about a unification in common efforts where the dignity and individuality of the

[1]Presented at the 53rd Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK, FOOD, AND ENVIRONMENTAL SANITARIANS, INC., in Minneapolis, Minnesota, August 14-18,1966.

participating organizations are in no way affected.

We are blessed with many members holding dual memberships in national sanitarians' organizations and I would look to these individuals to spearhead a demand for faster action than we have seen thus far.

Dick Adams and his committee have extended themselves to the utmost within the limitations set for them by the Executive Board. The preliminaries agreed upon have not come to pass. The reason, lack of funds. We have been set back a year in what was considered a mutually approved timetable for resolving issues affecting a unification. As of now, a firm mandate from the membership to the respective association boards for action, with necessary funds provided for this purpose, must be forthcoming.

I have, during recent years, become quite conscious of the role of the Affiliates in the affairs of the International. In my present capacity, I have received newsletters, reports and copies of correspondence which originate with pretty much dedicated affiliate secretaries. The Affiliates continue to become a more and more important factor in the future of the International. The recognition of this fact must be apparent from the Affiliate Council Agenda appearing in the program which is by no means complete.

The Executive Board has availed itself of the potentials of the Affiliate Council in referring to it those problems, the solution of which must reflect the opinions of the membership across the country or the world, if you will. In the future, I hope to see a transition from the long used expression, "The International should do something" to "The Council of Affiliates should do something."

These aforementioned dedicated secretaries who represent the Affiliates in the Council are collectively probably more conversant with needs, views and attitudes of the membership than the Executive Board ever will be. This is by no means an inference that the Council should replace the Board, but is intended to dignify the Council as probably the most valuable adjunct the Board has at its command.

Annually, each succeeding president has devoted some time to exploring with you the meritorious efforts of our fine committees. This past year has been no exception. Enlightening has been the number of requests from educational institutions for information relative to developing courses of study in the sanitary sciences which would qualify graduates for registration and or eventually certification. These were referred to the concerned committee for reply.

I am ashamed to admit it, but I did let one committee become temporarily static because of my inability to persuade one of its members to accept the Chairmanship which had been vacated because of a change of interests of the incumbent Chairman. As a result of this experience, the Executive Board has accepted a recommendation that in the future committee appointments, there will be included a Vice-Chairman.

Soon to be published will be the roster of a newly created Food Protection Committee, the objectives of which will, among other things, seek to coordinate the efforts of our Committee on Laboratory Procedures, Committee on Baking Industry Equipment, Committee on Food Equipment, Committee on Frozen Food Sanitation and the Committee on Sanitary Procedure, toward minimizing the incidence of outbreaks of food borne epidemics. The potential for far reaching accomplishments on the part of this Committee seems almost unlimited.

Of equal interest has been the momentum generated toward the formation of another new committee which will, I hope, fill in a gap still existing in the complete sanitary standardization of all food processing and handling equipment. For want of a better name perhaps, this committee will be known as the "Industrial Food Equipment Sanitary Standards Committee."

The impetus for the formation of such a committee has come from many sources. Dairy equipment manufacturers who also fabricate equipment for the food industries have decried the fact that there is a lack of, or even the absence of, generally accepted concepts of sanitary design and construction as has been developed in the dairy, food service and baking industries. Unfortunate, perhaps, is the fact that the plants and equipment referred to are not of a local nature so that regulatory supervision is confined to one or two national agencies with limited manpower, who, at best, can only perform token services. At the 3A Sanitary Standards Committees' meeting in May, a formal request was made to the steering committee that serious consideration be given to implementing an effort to resolve this problem. Unless we achieve wholehearted and intelligent cooperation from all concerned, the effort will fail and this we should not let happen.

We have long prided ourselves on the fact that our Association is International in scope. We have, however, no affiliated group other than our Canadian members in Ontario. Some time ago, I was made aware of the existence of a group in Japan known as the "Food Hygiene Association." This information was on a calling card of a visitor who was spending considerable time touring the milk and food process-

ing plants across the United States. As time went on and other visitors came, I sought more information and found it to be a somewhat loosely knit organization of individuals who apparently felt that, if nothing else, there was some prestige attached to the name. Unfortunately my letters were never answered, which, however, does not change my opinion that possibilities do exist for further expansion in this direction.

The Annual Election, the second by mail vote, indicates a marked increase in the interest of the Membership in the right to choose the new member to the Executive Board. This year 805 ballots were cast, which constitutes approximately 20% of the membership. This was almost double that of last year. One sad aspect of the voting, however, was the fact that 13 ballots were voided because the voters seemed to like everybody and thus refrained from showing their preference.

That our Association is held in high esteem by many kindred Associations, in many fields of comparable endeavor, becomes apparent to your President by the volume of material he receives during his term of office. Certainly to be asked to participate in the activities of the American Association for the Advancement of Science, the National Health Council and even the Keep America Beautiful effort indicates a wholesome respect for what we stand for.

Michigan State University has undertaken a Voluntary Association Leadership Study in which we were asked to participate. The questionnaire, four pages of fine print, covered practically every facet of the operation of Associations such as ours. The reward for participating will be a copy of the report of the study which should be interesting enough to print in the Journal. My point in commenting on this study is to, perhaps, bring to you a better understanding of your Executive Board. You elected the members and they accepted the honor with justifiable pride. However, do you know what you have done and what the members have wholeheartedly agreed to do. Three solid weeks each year, on an average, is spent on Association business, a goodly part of that on their own time and in some instances at their own expense in one form or another. For this all that is asked is a token of appreciation and cooperation to help maintain the high standards of performance set for us by our predecessors.

In the year to come, as indicated by the calibre of the program you are about to enjoy, the selection of candidates for the Executive Board will have to be predicated on much more diversified backgrounds in order to more intelligently deal with management of our Association. If youth will be served, then we should seek out young, energetic and dedicated men who can reflect the modern attitudes and always keep our Association abreast of the times.

In concluding these comments I express the hope that you will agree with much of what I have said. If we are going to remain a strong, progressive organization, in a fast moving world and continue to enhance the professional status of the sanitarian, it behooves us all to carefully weigh the facts as we see them and then move forcefully and positively. If we don't, we will surely wither and slowly succumb to dismal failure.

VARIATIONS IN TEMPERATURE OF FARM BULK TANK MILK AT TIME OF PICK UP[1]

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University of Kentucky, Lexington

and

D. J. Conner
Food and Drug Program
State Department of Health, Frankfort, Kentucky

(Received for publication June 6, 1966)

Summary

A study was made of the temperature of bulk tank milk at the time of pick up. The study included 534 Grade A producers from routes of 29 bulk tank haulers, with 22 brands of tanks ranging in age from <1 to >10 yr. Actual temperatures of milk at the time of pick up ranged from 0 to 12.8C (32 to 55 F). Differences were observed in the temperature of the top layer of milk before agitation and the blend temperature after agitation. Butterfat particles and ice were observed in approximately 8% and 2% of the tanks, respectively.

Approximately 6% of the bulk tank thermometers were either broken or out of order. About 20% of the tank thermometers' readings did not check within ± 3F of those of a test thermometer. The majority of the bulk tank haulers did not carry or use a test thermometer to check the temperature of the milk.

Proper cooling and storage of raw milk is recognized as an essential prerequisite to the production of high quality dairy products. The widespread use of farm bulk tanks during the past decade has resulted in more efficient cooling and storage of milk. They undoubtedly have contributed to a general improvement in the quality of milk.

A bulk tank must be properly designed, sized and operated in order to meet basic cooling requirements. Recommended standards for performance have been formulated by the 3-A Sanitary Standards Committees on farm milk cooling and holding tanks *(3)*. Problems associated with malfunctioning of the bulk tank as a result of aging have been discussed by Atherton *(1)*. Quality problems observed in bulk tank milk in recent years apparently can be attributed to inefficient cooling of tank milk *(2, 4, 5)*.

This study was undertaken to obtain information on the temperature of farm bulk tank milk at the time of pick up, the accuracy of farm bulk tank thermometers, and the practices of haulers with respect to temperature measurements.

[1]Journal article No. 66-6-55. Published with the approval of the Director of the Kentucky Agricultural Experiment Station.

Experimental Procedure

State and local sanitarians and fieldmen from major dairy companies and producer cooperatives collected the information used in this study. They obtained these data by riding with the bulk hauler or by meeting him at the individual farms. Observations were made and recorded on: the bulk tank hauler's temperature readings, the actual tank thermometer reading before and after agitation, and the temperature of the top layer of milk before and after agitation measured with a test (± 1 F) thermometer. The test thermometer readings were made within the top 6-inch layer of milk. Also, information on the characteristics of the bulk tank and other facts pertinent to the pick up were recorded. Information was obtained on 534 Grade A producers from routes of 29 bulk tank haulers from July to November 1965.

Results and Discussion

Twenty-two brands of bulk tanks, ranging in age from <1 to >10 yr, were included in the study. The average age was 6.6 (± 2.6) yr. Approximately half of the tanks were of the ice bank type and half of the direct expansion type. The average capacity of the tanks was 265 (± 155) gal. Almost all of the tanks had automatic agitators, with either one or two speeds. Over 80% of the pick ups were on an every-other-day basis.

Temperature Readings

A comparison of the hauler's with the sanitarian's or fieldman's temperature readings taken before and after agitation of the milk is summarized in Table 1.

The results reveal that fewer than 20% of the haulers carried or used a test thermometer. A majority of the haulers made their temperature observations after agitation; however, some made temperature observations both before and after agitation. Although the number of observations was not consistent, the average temperature readings indicate that the tank

TABLE 1. COMPARISON OF TEMPERATURE READINGS MADE BY HAULER AND SANITARIAN OR FIELDMAN ON BULK TANK MILK

Temperature reading	Temperature taken	No. observations	Ave. temp.	Std. dev.
By hauler				
Tank thermometers	Before agitation	149	37.85	4.23
Tank thermometers	After agitation	228	39.20	4.50
Hauler thermometers	Before agitation	68	38.91	5.74
Hauler thermometers	After agitation	102	39.21	4.56
By sanitarian or fieldman				
Tank thermometers	Before agitation	377	38.18	3.52
Tank thermometers	After agitation	502	38.51	3.92
Test thermometers	Before agitation	397	38.95	3.93
Test thermometers	After agitation	534	38.73	3.43

TABLE 2. EFFECT OF STRATIFICATION ON TEMPERATURE OF BULK TANK MILK AS REVEALED BY READINGS BEFORE AND AFTER AGITATION[a]

Difference in temperature taken before and after agitation	Observations No.	Observations %
Tank thermometer		
Temp. before agitation >3 F higher than temperature after agitation	7	1.8
Temp. before agitation 2 to 3 F higher than temperature after agitation	36	9.7
Temp. before agitation within ± 1 F of temperature after agitation	312	83.2
Temp. before agitation 2 to 3 F lower than temperature after agitation	13	3.5
Temp. before agitation >3 F lower than temperature after agitation	7	1.8
Test thermometer		
Temp. before agitation >3 F higher than temperature after agitation	25	6.3
Temp. before agitation 2 to 3 F higher than temperature after agitation	40	10.1
Temp. before agitation within ± 1 F of temperature after agitation	318	80.1
Temp. before agitation 2 to 3 F lower than temperature after agitation	14	3.5
Temp. before agitation >3 F lower than temperature after agitation	0	0.0

[a]All readings taken by sanitarians or fieldmen.

thermometer readings were lower than the test thermometer readings. Differences in the average temperature readings before and after agitation indicate variations in the uniformity of temperature throughout the body of milk.

Effect of Stratification on Temperature

The effect of stratification on the temperature of bulk tank milk as revealed by the temperature readings taken before and after agitation is summarized in Table 2. The results show that no measurable differences in temperature before and after agitation were present in over 80% of the tanks. Data obtained with the test thermometers indicate that the top layer of the milk was higher than the blend temperature after agitation by >3 F and 2 to 3 F in approximately 6 and 10% of the tanks, respectively. These results indicate that stratification could be a significant cause of quality problems in bulk tank milk. The temperature of the top layer of milk was lower than the blend temperature in less than 4% of the tanks, and in no case was the temperature more than 3 F lower.

Accuracy of Tank Thermometers

Approximately 6% of the bulk tank thermometers were either broken or out of order. Table 3 shows a comparison of tank thermometer readings with those of a test thermometer. The results reveal that less than 50% o the tank thermometer readings were within ± 1 F of the test thermometer readings. Approximately 20% were inaccurate by more than ± 3 F. It is believed that tank thermometers should be accurate to ± 2 F at 50 F *(3)*.

TABLE 3. ACCURACY OF BULK TANK THERMOMETERS IN COMPARISON WITH READINGS TAKEN WITH TEST THERMOMETERS[a]

Temperature readings[b]	Observations No.	Observations %
Tank thermometer >3 F higher than test thermometer	46	9.2
Tank thermometer 1 to 3 F higher than test thermometer	74	14.7
Tank thermometer within ± 1 F of test thermometer	234	46.6
Tank thermometer 1 to 3 F lower than test thermometer	91	18.1
Tank thermometer >3 F lower than test thermometer	57	11.4

[a]All readings taken by sanitarians or fieldmen.
[b]All readings taken after agitation.

Based on the results reported here, a significant number of bulk tank thermometers do not meet accuracy recommendations. Such thermometer inaccuracies as observed in this study could be a source of confusion and/or false security to producers and to bulk tank haulers, resulting in quality problems.

Butterfat and Ice Particles

Butterfat particles were observed in 43 and ice in 12 tanks. Both butterfat and ice particles were observed in 3 tanks. These observations, indeed, indicate improper functioning of the bulk tank cooling system. Of the 43 tanks containing butterfat particles, 25 were of the direct-expansion and 18 of the ice bank type. Of the 12 tanks with ice, 11 were of the direct-expansion and 1 was of the ice bank type. All of the tanks which contained both butterfat particles and ice were of the direct-expansion type.

ACKNOWLEDGMENT

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FELLOWSHIPS FOR GRADUATE STUDY AT NORTH CAROLINA UNIVERSITY

Applications for Environmental Health Fellowships are now being accepted for study during the 1966-67 academic year at the Consolidated University of North Carolina (Chapel Hill and Raleigh campuses). This is a new interdepartmental program designed to give graduate students broad training for careers in research, teaching, and practice in environmental health.

It is sponsored jointly by the Departments of Environmental Sciences and Engineering, Biostatistics, Epidemiology, City and Regional Planning, Zoology, Botany, Chemistry and Food Science. Students will generally enroll in the department of their basic specialty and then select courses in other departments in order to obtain a broad understanding of the problem of the environment and the application of their specialty to the solution of these problems. The fellowships provide for tuition, fees and a stipend. The amount of the stipend will be in accordance with current Public Health Service regulations and University policy.

Further information may be obtained by writing the head of any of the departments mentioned above. All are located at Chapel Hill, North Carolina 27515, except the Department of Food Science which is at Raleigh, North Carolina 27607.

THE CONTROL OF BACTERIAL CONTAMINATION IN MAPLE SAP STORED IN FIELD STORAGE TANKS BY ULTRAVIOLET IRRADIATION

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SUMMARY

During the maple sap seasons of 1964 and 1965, sap collected from roadside stands of trees was stored in field holding tanks for as long as eleven days without deterioration, by continually irradiating the stored sap with germicidal ultraviolet lights emitting in the range of 260-300mμ. The bacterial populations of the stored, irradiated sap did not exceed 4.0 x 10^5 organisms per ml, and sirup made from the sap was light amber in color (fancy grade) with an excellent flavor.

The storage of maple sap is one of the more important problems of the maple sirup industry. Unlike other crops, there is no warning or indication as to the amounts of sap that will be produced per day in a sugar grove. Often, the amounts produced far exceed the capacity of the evaporators, causing the sap to be held in storage for periods up to five days during which time the sap, because of its perishable nature, deteriorates with considerable financial loss to the producer. Due to this, the sap producer must have a method whereby the sap can be held for several days without deterioration.

In recent years, sap yields have been increased through *(a)* improved sugar bush sanitation procedures *(8)*, *(b)* the use of germicidal taphole pellets *(2)*, and *(c)* the use of plastic tubing for sap collection *(9)*.

Raw maple sap is a highly perishable commodity. Although it is sterile as it flows from the tubules of the tree, subsequent contamination of the sap with bacteria, yeasts and molds invariably occurs at the woods site or at the evaporator plant during its collection and transportation. The degradation of sap due to microbial growth results in the production of darker, lower grade sirup *(4)*, the production of off-flavors *(8)* and poor texture (ropy) sirup *(8)*. All of these effects result in a lower sirup price and decrease farm income.

Maple sap producers try to hold spoilage to a minimum by processing the sap within 24 hours after collection, but often this is not possible. When sap is held beyond 24 hours, microbial growth, even at low temperatures, is sufficient to produce fermentation products that result in low quality sirup.

The use of germicides are unsatisfactory for controlling microbial growth in sap since *(a)* they result in the addition of chemicals to a food product, and *(b)* the chemical additive is concentrated 30-40 fold in the concentration of sap to sirup.

Ultraviolet irradiation, on the other hand, is ideally suited for controlling the growth of microorganisms in maple sap. Since it is a physical method there are no problems of chemically induced off-flavors or harmful chemical residues. Ultraviolet irradiation has no effect on the flavor precursors in sap nor on the delicate maple flavor in the resulting sirup.

Sap, a water solution containing only 1-4% dissolved solids, is comparable to water in clarity and in the transmission of ultraviolet light. Thus, it is an excellent medium or irradiation with the actinic rays of ultraviolet light derived either from sunlight or ultraviolet lamps that produce wavelengths of 260-300 mμ which are known to be lethal to microorganisms. Frank and Willits *(3)* and Schneider, Frank and Willits *(7)* showed the effectiveness of these actinic rays for the control of microbial growth in sap under laboratory conditions. In 1965, Kissinger and Willits *(5)* reported on the industrial application of irradiation of a flowing stream for the control of micororganisms in flowing maple sap, adapting commercially available ultraviolet irradiation units used to control microbial growth in cane sugar solutions and domestic water supplies *(6)*.

This paper presents the results obtained on the control of microorganisms in sap stored under field production conditions by continuous irradiation of the static sap with actinic rays of ultraviolet lamps.

METHODS

Apparatus.

Tanks. Two round, galvanized iron, free-standing storage tanks 4 ft high by 4 ft in diameter with tight-fitting covers.

Tank covers. The metal covers were equipped with 18 in. diameter man-heads for inspection and sampling. The man-heads were covered with tight-fitting, metal lids.

Uutraviolet light source. A 30 watt, 36-inch tubular ultraviolet lamp, General Electric model G30T8[1] *(1, 8)*, with re-

TABLE 1. THE EFFECTS OF ULTRAVIOLET IRRADIATION ON BACTERIAL POPULATIONS IN MAPLE SAP HELD IN FIELD STORAGE TANKS—1964

		Tank 1					Tank 2			
Sap flow period	Date	Days in storage	Sap temp.	Sap vol.	Sap depth	Bacterial count/ml	Sap temp.	Sap vol.	Sap depth	Bacterial count/ml
			(° F)	(gal)	(inches)		(° F)	(gal)	(inches)	
1	2/4	1	33	4	½	0	33	4	½	50
		3	41	9	1⅛	45	41	64	8	45
		4	47	9	1⅛	2	47	64	8	2
2	2/14	1	36	3	⅜	10	36	24	3	10
		4	33	20	2½	10	33	100	12½	13
		6	33	40	5	0	33	132	16½	12
3	3/2	1	44	48	6	1	44	144	18	150
		2	44	48	6	1	44	144	18	TNTC[a]
4	3/9	1	50	4	½	3	50	30	3¾	20
		5	50	28	3½	0	48	105	13⅛	TNTC[a]
		9	65	40	5	3				
		10	60	46	5¾	33				
5	3/20	1					40	12	1½	30
		2					45	38	4¾	3.8×10^2
		3					65	74	9¼	3.5×10^4
		4					60	76	9½	TNTC[a]
6	4/1	1	40	16	2	1	40	31	3⅞	1.2×10^3
		3	42	43	5⅝	2	42	89	11⅛	1.9×10^3
		5	65	56	7	4.0×10^5	65	128	16	4.0×10^4

[a]TNTC = Colonies Too Numerous To Count at a dilution of 10^5.

flectors was mounted on the underside of each of the tank covers 4 ft above the bottom of the tank so that the entire inner surface of the tank's walls and bottom were irradiated.

Sap. This was supplied to the tanks from 50 taps in roadside grown sugar maples. Tank 1 received sap from young trees, 10 inches D. B. H. (di.ameter at breast height) which had not been previously tapped. Tank 2 received sap from mature trees, 18-25 inches D. B. H., which had been tapped each year for the preceding ten years. Each taphole contained a paraformaldehyde pellet *(2)*.

Plastic tubing. The tubing, 7/16 inch I.D. *(9)*, was used to conduct the sap from the tapholes to the holding tanks.

Sampling

Samples for bacterial counts were taken aseptically from the holding tanks each day during the storage periods with the exception of days when ice in the tanks prevented sampling. At the time of sampling, the volume, depth and temperature of the sap were recorded.

Bacterial counts

Tryptone glucose extract agar (Difco[1]) was used as the culture medium for all bacterial counts.

All incubations for bacterial counts were carried out for 48 hrs at 30 C.

A Quebec[1] colony counter was used for making bacterial counts.

[1]Mention of company or trade names does not indicate endorsement of the Department over other commercial items not named.

RESULTS AND DISCUSSION

In 1964, the first year these experiments were conducted, weather conditions conducive to the flow of maple sap occurred intermittently from February 4 to April 6. The effects of continuous ultraviolet irradiation on bacterial populations in sap held in the field holding tanks during this period are shown in Table 1. During these storage periods, the temperature sometimes was below freezing. This caused interruption of sap flows and also caused the stored sap to freeze which prevented sampling on those days. Hence, the data in Tables 1 and 2 refer only to those days on which the sap was liquid or partially frozen. The first and second sap flows of 1964 were stored for four and six days, respectively. Sap temperatures ranging from 33 F to 47 F for the first run and 33 F to 36 F for the second run reflected average seasonal norms. Bacterial counts were very low (0-50 organisms per ml) in the sap stored in both tanks, and the sirup made from the sap was delicately flavored, light amber in color and graded table sirup Fancy grade.

On March 1, 1964 a large volume of sap was produced (sap flow number 3).. Within 48 hrs, the sap held in tank 2 developed a heavy turbidity with microbial counts very high and a musty odor. Sirup made from this sap had a dark color and a strong,

musty off-flavor. The sap was discarded, and the tank was sanitized with hypochlorite solution (0.5%). The sap held in tank 1 during this same period, however, remained very low in bacterial population; and a light amber, delicately-flavored sirup was made from it.

During the fourth sap flow period, the sap in tank 1 was held for 10 days without deterioration. During this time, sap temperatures ranged from 36 F to 65 F with ambient temperatures reaching as high as 72 F, and the bacterial counts throughout this period did not exceed 33 organisms per ml. The sirup made from sap which had been stored for the 10 days had an excellent maple flavor and was of light amber color (Fancy grade).

The sap in tank 2 collected during this same period had bacterial counts that remained below 30 per ml. for the first three days. Then, they rapidly increased to high populations by the fifth day. The tank was taken out of service for the remainder of period 4 to permit washing and sanitizing.

During the fifth flow period, tank 1 was taken out of service for cleaning and sanitizing since it had become highly contaminated due to a break in the sap supply line. In this same flow period (March 20-24), the bacterial count in sap stored in tank 2 remained low (below 400 organisms per ml) for the first two days and then increased rapidly through the fifth day. These high bacterial counts in the sap in tank 2 were unexplainable until it was discovered that the reflector of the ultraviolet fixture, which was not readily observed from the "man-head", had shifted so that most of the surface of the sap was shielded from the germicidal rays of the lamp. The reflector was readjusted, and both tank and plastic tubing lines were sanitized. During the sixth flow period, bacterial counts in the sap held in both tanks were again low (below 4 x 10^5 organisms per ml) but they showed a slight though steady increase during the five days of storage. This increased count reflected the effect of the high sap temperature which rose from 40 F on the first day to 65 F on the fifth day. Thus, even with sap temperatures favorable to bacterial growth, the final bacterial counts in both lots of stored sap were kept sufficiently low so that no deterioration of the sap occurred as determined by the grade of the sirup made from it. These counts were comparable to the counts reported in fresh sap delivered to a central evaporator plant *(4)*. The depth of the sap in the tanks varied from 1/2 inch to 13 1/8 inches. These different depths appear to have no appreciable correlation with the effectiveness of the germicidal lamps on the control of bacteria in the stored, irradiated sap. All of the sirup made from the sap stored during the different periods (except for that of run 4 and 5 in tank 2) was light amber and had a good maple flavor.

During the 1965 sap season which occurred from February 2, 1965 to March 28, 1965, sap storage studies were carried out in exact duplication of those conducted for the 1964 season using the same two tanks (equipped with the germicidal lamps) with sap supplied from the same trees. This season's data are presented in Table 2. During the first sap flow period, sap was held in both tanks for nine days. Daily temperatures were normal for the sea-

TABLE 2. THE EFFECTS OF ULTRAVIOLET IRRADIATION ON BACTERIAL POPULATIONS IN MAPLE SAP HELD IN FIELD STORAGE TANKS—1965

		Tank 1					Tank 2			
Sap flow period	Date	Days in storage	Sap temp.	Sap vol.	Sap depth	Bacterial count/ml	Sap temp.	Sap vol.	Sap depth	Bacterial count/ml
			(° F)	(gal)	(inches)		(° F)	(gal)	(inches)	
1	2/12	1	47	1	⅛	6	47	32	4	1
		4	33	44	5½	0	33	120	15	0
		6	44	60	7½	0	44	154[a]	19¼	0
		9	43	112	14	1.3 x 10^2	45	226	28¼	0
2	3/12	1	44	3	⅜	1	44	16	2	2.9 x 10^2
		2	48	36	4½	0	48	90	11¼	8 x 10^2
		3	44	40	5	0	44	100	12½	1.6 x 10^3
3	3/18	1	34	12	1½	0				
		4	43	32	4	25				
		8	33	70	8¾	5				
		9	37	84	10½	3.5 x 10^2				
		11	44	92	11½	3.6 x 10^3				

[a]24 gallons of sap removed from tank for experimental use.

son with sap temperatures ranging from 33 to 47 F throughout the period, and as predicted from the 1964 data, the bacterial counts remained at a very low level ranging from 0-130 organisms per ml. Sirup made from the sap which has been stored for 9 days, had an excellent maple flavor and was light amber in color (Fancy grade). The storage of sap collected in tank 2 during the second sap flow period was terminated after three days, because of vandal damage to the tank. The sap stored in both tanks for these three days was again low in bacterial count ranging from 0-1000 organisms per ml with sap temperatures remaining about 45 F. The sirup made from this sap was fancy grade.

At the end of the second flow period, tank 1 was sanitized. Sap collected during the third flow period was held for eleven days. The temperature of the sap ranged from 33 to 45 F with ambient temperatures as high as 71 F. The bacterial counts remained below 25 per ml through the seventh day and then increased to 3.6×10^3 per ml by the eleventh day when storage was terminated. The sirup made from this sap was again of Fancy grade.

These results indicate that sap can be stored for periods of at least eleven days without deterioration, and the resulting sirup will be of Fancy grade, when the sap is irradiated continuously with germicidal lamps emitting actinic rays in the range of 260-300 mμ. The bacterial counts in sap can be kept below 4×10^5 organisms per ml even when the ambient temperature and the temperature of the sap are relatively high. Bacterial populations below 4×10^5 cells per ml in sap have no deleterious effect on the sirup made from the sap. However, sap having high bacterial counts (tank 2, sap flow 3, 1964 where the counts reached a high level after two day's storage) produced dark-colored, low grade sirup.

During the second year, sap held in storage in tank 2 reached a depth of 28 1/4 inches (flow period 1), but the bacterial count in the stored sap did not exceed 20 organisms per ml during the 9-day storage period. These results indicate that the effectiveness of the ultraviolet lamps on the control of microbial growth was independent of the sap depth. Likewise, the distance between the lamps and the surface of the sap varied with the changes in depth of sap, but there was no apparent effect with the change in these distances.

CONCLUSIONS

Maple sap can be held in storage for as long as eleven days in field storage tanks without deterioration, if the sap is constantly irradiated with ultraviolet light of 260-300 mμ. The entire surface of the sap must be continually illuminated by the ultraviolet light.

The storage tank and its feeder lines should be initially sanitized with hypochlorite solution or other equally effective and safe sanitizing solution.

Increases in stored sap temperatures cause small increases in bacterial populations, which are not great enough to affect the quality of the sirup produced.

High quality sirup can be made from sap stored as long as eleven days under ultraviolet irradiation. This was independent of the time when the sap flowed during the sap season.

The depth of the sap (up to 28 inches) and the distance that the germicidal lamps are mounted above the sap surface (up to 48 inches) are independent of the control of bacterial growth in sap by the actinic rays of the lamps.

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FIFTY-THIRD ANNUAL MEETING OF IAMFES

August 15-18, 1966

LARGE ATTENDANCE AT MINNEAPOLIS MEETING

Prospects for a well attended annual meeting were anything but good with the airlines strike still in effect as annual meeting arrangements were finalized by the Minnesota affiliate, sponsors of the 53rd annual meeting of IAMFES. Actually, there was little need for concern as registration soared to 459, second highest in the history of the Association, and exceeded only by the 1952 annual meeting also held in Minneapolis. Ladies and children registration reached an all time high of 83.

On hand early, the Board of Directors began their executive sessions Sunday morning and continued through Monday evening. Appropriate Board actions will be reported later.

Eleven Affiliate Association Secretaries or delegates were represented among the seventeen who attended the Affiliate Council meeting Monday evening. Mr. John Fritz, Senior Past President represented the Board of Directors and explained Association activities and policies. The minutes of the meeting will be published soon in the Journal.

Monday evening the first of two informal get-togethers occurred with refreshments made available by Land O' Lakes Creameries. Tuesday evening after the evening discussion sessions the North Central Cheese Industries Association hosted an informal gathering with several varieties of cheese available to ease the hunger pains.

The opening session Tuesday morning was highlighted first by President Uetz's address on his stewardship of the Association during the past year and later by two addresses dealing with various sanitation problems in space explorations. President Uetz minced no words in informing the membership of the need to provide adequate funds for proper financing the Association activities. Evidently his words were taken seriously (see complete text of Presidential Address in this issue) as the membership voted a dues increase of $8.00 and $10.00 for affiliate and direct memberships, respectively, at the business meeting Wednesday morning. President Uetz also called for immediate solution to the problems created by a "multiplicity of sanitarian organizations, publications and services," stating that such duplications is unwarranted and uneconomical. He also announced the appointment of a newly created Food Protection Committee, the objectives of which will, among other things seek to coordinate the efforts of several other Committees whose activities bear on the general area of food protection. This could be an important Committee if its objectives are clearly spelled out. It will have to guard carfeully against becoming merely a forum for rehashing the results of other Committee activity.

Dr. M.S. Favero provided an insight into the problems and their solutions involving the sterilization of interplanetary space vehicles and other hardware. Summaries of this paper and all others which were available appear elsewhere in this issue. Complete texts of most papers given on the program will appear in subsequent issues of the Journal.

Dr. V. W. Greene was the third speaker on the opening session. Now a member of the staff of the University of Minnesota School of Public Health, Dr. Green called upon his extensive industrial and institutional experiences, involving sanitation problems in space exploration and movement and distribution of microbial contaminants, to give the audience a preview of what's to come in the Sanitarian's activities in the future.

Attendance at all sessions throughout the meetings was exceptional. This indeed was a tribute to the efforts of the program Committee headed by Dr. Paul R. Elliker. The evening discussion sessions too were unusually well attended.

The Annual Banquet Wednesday evening truly was a gala affair. Preceding the banquet members and guests were hosted at a cocktail party by Norris Dispensers, Inc. of Minneapolis. This organization hosted a similar affair at the 1952 Meeting in Minneapolis. Music by Miss Kathy Kohls who moved about from group to group and table to table during the Cocktail hour and the banquet added much to the enjoyment of all.

Presentation of Association awards was of course the highlight of the evening. The Sanitarian's Award and accompanying check for one thousand dollars was awarded to Mr. Paris B. Boles (see report elsewhere this issue) Senior County Sanitarian, Wayne County Health Department, Monticello, Kentucky.

Dr. J. C. Olson, Jr., Editor of the Journal was the recepient of the Association's Citation Award which is given annually in recognition of a member who has made meritorious contributions to furthering the aims of the Association and the professional interests of sanitarians.

The Association also honored past Citation Award winner Dr. Milton R. Fisher, Chief, Milk Control Section, St. Louis Health Department by electing him to Honorary Life Membership.

Near the close of the formal activities of the banquet Dr. Paul R. Elliker was installed as new *President* of IAMFES by outgoing *President* Fred E. Uetz. Also election of Milton Held as *Second Vice-President* was announced. Since the *President-Elect*, *First* and *Second Vice-Presidents* advance automatically to offices of *President*, *President-Elect* and *First Vice-President*, respectively, the Executive Board of the Association now is as follows: *President*, Dr. P. R. Elliker, Chairman, Department of Microbiology, Oregon State University, Corvallis; *President-Elect*, A. N. Myhr, Professor, Department of Dairy Science, Ontario Agricultural College, Quelph; *First Vice-President*, S. O. Noles, State Board of Health, Jacksonville, Florida; *Second Vice-President*, Milton Held, Regional Milk and Food Consultant, U. S. Public Health Service, Regional Office, San Francisco; *Junior Past-President*, Fred E. Uetz. The Borden Co., New York; and *Senior Past-President*, Dr. W. C. Lawton, Director of Laboratories and Quality Control, Twin City Milk Producer's Assoc. Minneapolis, Minn.

The ladies program during the meeting was enjoyed by all. The largest turnout of ladies ever occurred at this meeting. Particularly enjoyable was the coffee party hosted by Mrs. Fred E. Uetz Tuesday morning, the bus tour of Minneapolis, and the luncheon at Diamond Jim's Restaurant, the latter hosted by Sep-Ko Chemical Co., of Minneapolis.

The Association, formally at the business meeting and informally by many present, was lavish in complimenting the local arrangements Committee headed by Mr. Ben Zakarison, of Land O' Lakes Creameries. Arrangements were complete in every detail which resulted in a smooth functioning Annual Meeting in all respects.

August 19-22, 1967, are the dates of the next annual Meeting in Miami, Florida. The Florida Association is well along in their planning. Sam Noles assures us that Florida weather will especially favor us so make your plans to attend the meeting and combine it with an enjoyable vacation for your family in Florida.

Mrs. Fred E. Uetz (center standing) hosts ladies coffee party first day of Annual Meeting.

Paris B. Boles (right) receives Sanitarian's Distinguished Service Award from Past President and Awards Committee Chairman John H. Fritz.

PARIS B. BOLES RECEIVES IAMFES SANITARIANS AWARD

Mr. Paris B. Boles, Senior County Sanitarian, Wayne County Health Department, Monticello, Kentucky, has received the Sanitarians Award for his outstanding and meritorious contributions to the health and welfare of his county during the past seven years. The Award carries with it a check for $1,000.

The presentation was made at the 53rd Annual Banquet of the International Association of Milk, Food, and Environmental Sanitarians, August 17, at the Radisson Hotel in Minneapolis, Minnesota. Administered by the IAMFES and presented annually to sanitarians employed by a county or municipality, or a State sanitarian employed in a similar capacity, this Award is the highest national recognition bestowed upon professional sanitarians.

The citation which accompanied the Award reads: "This Award is conferred for distinguished service to his community in the field of public health; for his contribution to the advancement of the Sanitarian; for his meritorious achievements in the field of milk, food and environmental sanitation; and for his ability to personalize the ideals of the Sanitarian."

The Committee on Recognition and Awards of the IAMFES selected Mr. Boles for his honor following consideration of nominations of several sanitarians from various parts of the United States. Some of his major achievements are as follows:

Conducted an educational program aimed at creating public awareness in Wayne County as to the danger of drinking raw milk and succeeded not

only in eliminating the sale of raw milk within the County but also in getting numerous farm families to "switch" to Grade A pasteurized milk. Also, he was instrumental in securing adoption of a milk ordinance and code in Monticello and Wayne County.

Launched a city-wide rodent control program in Monticello, a major city within Wayne County, and succeeded in greatly reducing the once heavy rodent infestation and in creating public awareness of the seriousness of the problem and the importance of eliminating food and harborage for such pests in achieving and maintaining a high level of control.

Established a county-wide trash and garbage collection service which has proved highly successful in eliminating indiscriminate dumping of refuse which previously had not only created an insect and rodent problem, but was unsightly and highly undesirable from a community and tourist standpoint.

Developed and implemented a continuing and highly successful program pertaining to abnormal milk, aimed at educating all milk producers as to the cause and prevention of off-flavor milk and the elimination of mastitis. The program includes monthly tests of all producer milk for antibiotics and mastitis with 98% of all samples currently tested being negative. As a result of this program, the quality of the county's milk supply has been significantly improved and there has been a substantial savings to the milk producers.

Instrumental in securing expansion and modernization of the sewage treatment plant in Monticello to provide sufficient capacity for years to come, as well as securing the extension of sewer lines to all city residences. This has resulted in the elimination of most of the septic tanks used previously and discontinuance of a practice of disposing of sewage into underground caves, a practice which endangered the city's water supply.

Responsible for securing a 200-bed emergency civil defense hospital for Wayne County, which presently is not served by a regular hospital; and serves as custodian over this emergency hospital.

Worked with the Corps of Engineers in establishing a comprehensive sanitation program for recreation and camping areas contiguous to Lake Cumberland.

Selected in 1963 to serve as Chairman of a polio immunization program for Wayne County, which involved the establishment of thirteen clinics for the administration of Sabin oral vaccine; 87% of the population were immunized during the campaign.

Served as Co-Chairman of a successful effort to pass a public health tax for the County. This resulted in the construction of the new Wayne County Health Center, an important contribution to the conduct of increased and improved health care programs.

Worked with the Farm and Home Administration in securing grants to indigent families for home improvements, particularly water and toilet facilities. He made surveys to determine what facilities were needed and then worked with the families to assure proper installation.

Conducted annual clinics and a continuous educational program for the control of rabies throughout Wayne County. These have resulted in there not having been a reported case of rabies in the County in the past five years.

In addition to the accomplishments already cited, Mr. Boles has been extremely active in civic affairs. He has served as President of his State's IAMFES affiliate; was Chairman of the June Dairy Month Committee for the past seven years; has, since 1964, been a member of the Wayne County Community Development Board, (now the Official Technical Action Committee for the County) and was Chairman of the Health and Sanitation Committee of that Board since 1958; he was President of the Monticello Lions Club in 1961; and has served on the Tourist Promotion Committee.

In recognition of his many accomplishments, Mr. Boles was awarded the Kentucky Outstanding Sanitarians Award in 1965, sponsored by the Kentucky Association of Milk and Food Sanitarians, an affiliate of IAMFES. He also received an award from the Kentucky State Health Department and the Kentucky Public Health Association for an article he wrote in 1962 entitled "How to Improve Public Health in Kentucky." He is known as Mr. Health Department in Wayne County and has a high degree of public support for all health projects he undertakes.

Dr. J. J. Jezeski and E. C. Amundson (standing) and Banquet party. Seated l. to r. Mrs. Amundson, Mrs. Jezeski, R. Hunt, Wm. Kempe, Mrs. Kempe and Mrs. Hunt.

IAMFES Citation Award presented to Dr. J. C. Olson, Jr. (right) by Awards Chairman John H. Fritz.

DR. J. C. OLSON, JR. RECEIVES IAMFES CITATION AWARD

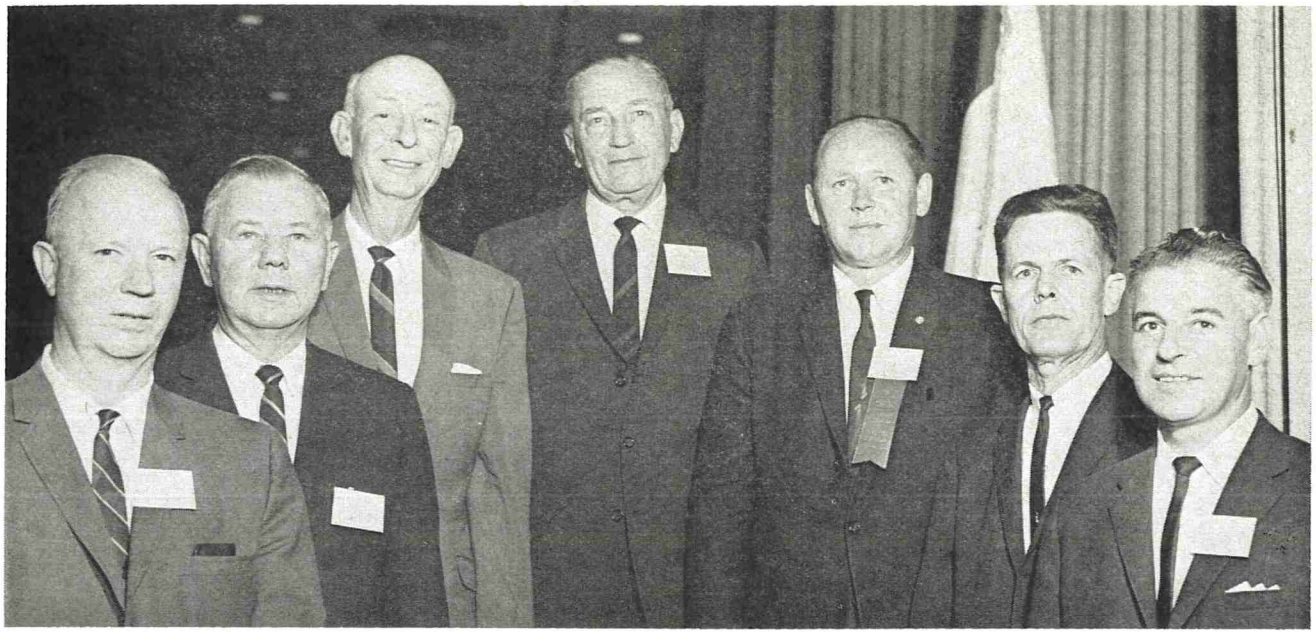
Dr. J. C. Olson, Jr., Professor of Bacteriology, Department of Food Science and Industries, University of Minnesota, was presented the Citation Award of the International Association of Milk, Food and Environmental Sanitarians at the 53rd Annual Meeting of the Association, August 17, 1966, at the Radisson Hotel in Minneapolis, Minnesota.

The Citation Award is presented annually by the Association in recognition of a member who has made meritorious contributions to furthering the aims of the Association and to promoting the professional recognition of Sanitarians. Dr. Olson was presented a plaque which read:

> "In recognition of outstanding service and devotion to the high ideals and principles of our Association."

A long-time member of the Association, Dr. Olson has served as Editor of the Journal of Milk and Food Technology since 1954 and has been highly instrumental in the development of a Journal which enjoys an international reputation as one of the important scientific publications in the field of milk and food protection. He has also served on numerous IAMFES Committees and has authored numerous scientific papers relating to milk and food sanitation. He was honored by the Minnesota Association with their Outstanding Achievement Award in 1956.

Dr. Olson is married and has two sons. He lives at 2124 Folwell Street, St. Paul, Minnesota. His wife, Irene, was present when the Award was bestowed on Dr. Olson.



Members of the Executive Board, IAMFES for 1966-67. Left to right: P. R. Elliker, President, M. E. Held, Second Vice-President; H. L. Thomasson, Exec.-Secretary; F. E. Uetz, Junior Past President, Dr. W. C. Lawton, Senior Past-President; K. K. Jones, Sec.-Treasurer; and A. N. Myhr, President-Elect. Absent: S. O. Noles, First Vice-President.

HONORARY LIFE MEMBERSHIP TO DR. M. R. FISHER

Dr. Milton R. Fisher, Chief, Milk Control Section, St. Louis Health Department was honored during the 53rd annual meeting of the International Association of Milk, Food and Environmental Sanitarians, at the Radisson Hotel in Minneapolis, Minnesota, when he was elected to Honorary Life Membership for his outstanding contributions to the Association.

Since Dr. Fisher was unable to be present at the meeting, Mr. Stephen Wolff of the Pevely Dairy in St. Louis, a long-time friend of Dr. Fisher accepted a plaque which accompanies this honor. The inscription on the plaque read:

> "Presented to Dr. Milton R. Fisher for many years of devoltion to the ideals and objectives of the Association with all privileges pertaining thereto, at the 53rd Annual Meeting."

In addition to being a Past President of the Association, Dr. Fisher served on a number of committees including many years as a member of the 3A Committee on Sanitary Procedures which develops sanitary standards for dairy equipment. He was also a trustee of the 3A Symbol Council which authorizes the use of the 3A Symbol on equipment meeting the standards.

In 1958, Dr. Fisher received the Association's Citation Award for distinguished and sustained service to the Association.

Honorary membership plaque received for Dr. M. R. Fisher by his good friend Mr. Stephen Wolff (right).

SANITARIANS AWARD WINNERS AND THEIR POSITIONS AT THE TIME OF THE AWARD

1952—Paul Corash, Chief of Milk Division, Bureau of Food and Drugs, New York, New York

1953—Dr. E. F. Meyers, Chief of Milk, Meat, and Food Division, City Health Department, Grand Rapids, Michigan

1954—Kelley G. Vester, Senior Sanitarian, City Health Department, Rocky Mount, North Carolina

1955—B. G. Tennent, Chief Sanitarian, Escambia County Health Department, Pensacola, Florida

1956—John H. Fritz, Chief of Milk and Food Section, City Health Department, Kansas City, Missouri

1957—Harold J. Barnum, Chief of Milk Sanitation, City Health Department, Green Bay, Wisconsin

1959—William Kempa, Dairy and Milk Inspector, City of Regina, Saskatchewan, Canada

1960—James C. Barringer, Director of Sanitation, City Health Department, Evansville, Indiana

1961—Martin C. Donovan, Airport Sanitarian, Dade County Health Department, Miami, Florida

1962—Larry Gordon, Director, City-County Health Department, Albuquerque, New Mexico

1963—R. L. Cooper, Adminstrative Assistant, Callaway County Health Department, Murray, Kentucky

1964—No recipient

1965—Harold R. Irvin, Chief, Milk Sanitation Section, Omaha Douglas County Health Department, Omaha, Nebraska

1966—Paris B. Boles, Senior County Sanitarian, Wayne County Health Department, Monticello, Kentucky

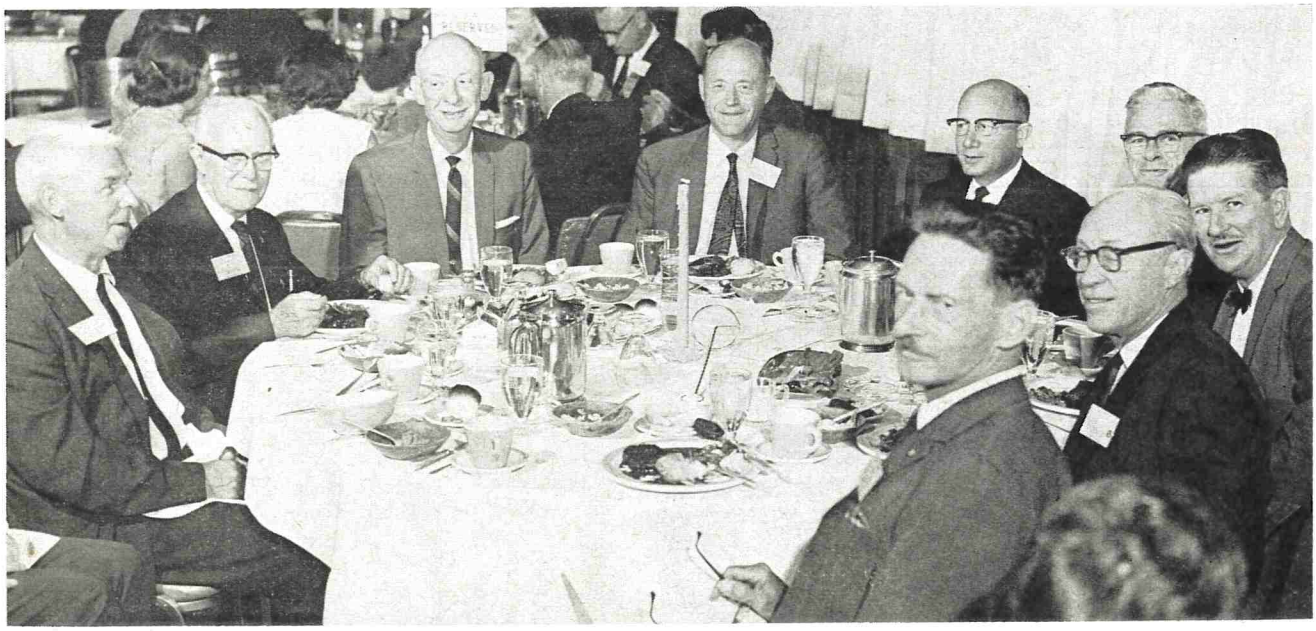
AFFILATE ASSOCIATIONS SPONSOR DOOR PRIZES AT ANNUAL MEETING

The custom of giving door prizes at the beginning of each session of the program was again followed at the Annual Meeting in Minneapolis. The following Affiliates provided the prizes that stimulated promptness in attendance at each of the program sessions:

Central Ontario Sanitarians Assoc.
Florida Assoc. of Milk and Food Sanitarians
Georgia Society of Registered Professional Sanitarians
Indiana Assoc. of Sanitarians
Kansas Assoc. of Public Health Sanitarians
Mississippi Assoc. of Sanitarians
Missouri Assoc. of Milk and Food Sanitarians
Oregon Assoc. of Milk Sanitarians
Rhode Island Assoc. of Dairy and Food Sanitarians
Rocky Mountain Assoc. of Milk and Food Sanitarians
So. Dakota Assoc. of Sanitarians
Virginia Assoc. of Sanitarians
Wisconsin Assoc. of Milk and Food Sanitarians

SUMMARIES OF PAPERS GIVEN AT THE 53RD ANNUAL MEETING OF IAMFES AT MINNEAPOLIS, MINNESOTA, AUGUST 15-18, 1966.

Sanitation problems in food vending machines, S. H. Hopper, Dept. of Pubilc Health, Indiana University School of Medicine, Indianapolis — The sanitation problems arise from the manner in which a machine is operated. It was pointed out that temperature control is a major problem and requires constant attention. The machines are not perfect but the manufacturers are willing and anxious to adopt changes in their methods if the Automatic Merchandising Health Industry Council recommends that they do so. It is possible to keep the equipment in first class operating condition and to take great care in the preparation, transportation and storage of perishable foods. Health department personnel whose duties involve the sanitation of food vending machines can



Nine Past Presidents attend awards banquet. Left to right, Ivan Parkin, C. A. Abele, H. L. Thomasson, H. J. Barnum, Ray Belknap, F. G. Barber, C. E. Walton, W. J. Hickey and C. K. Johns.

Ladies of the head table guests enjoy banquet together. Seated clockwise around table: Mrs. C. E. Walton (left forefront), Mrs. W. C. Lawton, Mrs. J. H. Fritz, Mrs. K. K. Jones, Mrs. W. J. Dixon, Mrs. F. E. Uetz, Mrs. Ray Belknap, Mrs. J. C. Olson, Jr. and Mrs. A. N. Myhr.

do a great deal to prevent the occurrence of a problem by working closely with the various groups in this industry.

Effective testing procedures for evaluating plant sanitation, E. L. Sing, P. R. Elliker, L. J. Christensen and W. E. Sandine, Mayflower Farms, Portland, and Department of Microbiology, Oregon State University, Corvallis — Continuing problems with post-pasteurization contamination of milk and cream have stimulated dairy plants to undertake intensive programs to improve sanitation practices. Many areas such as air, water, containers, fillers, pumps, joints, valves, cleaners and sanitizers, and sanitation techniques formerly taken for granted by plant operators have received more attention by the more progressive plants.

Basic steps have been found to be necessary in relating improvements with procedures developed. These are standardized reference tests such as the Moseley 5 days at 45 F test, applying trouble shooting procedures, and provision of additional measures of sanitation. Specific application of procedures and equipment outlined by these basic steps have resulted in net improvement of plant sanitation and have provided a means for evaluating plant sanitation.

Dr. W. C. Lawton (right) receives Past-President's Plaque from Senior Past-President, John H. Fritz.

Comparisons using the Moseley keeping quality test and CVT test showed little correlation between them. Data suggest inhibitors in CVT medium actually suppress numbers of bacteria that develop in milk at 45 F.

Information provided by plant tests, such as time, temperature and pressure charts, tasting, control of cleaning and sanitizing concentrates and daily production information, has aided improvement of trouble shooting procedures. Another tool that has provided valuable information is a newly designed sampler. This sampler is simply a 3/8 inch drilled hole with a rubber insert clamped in by a stainless steel clamp. The sampler has withstood any pressure applied to it internally under normal dairy processing and can be permanently located in any pipe line system. Swab tests indicate the sampler can be cleaned in place.

New fillers such as the rotary type Pure-Pak fillers have been designed with sanitation in mind. Comparative results with this and the piston type illustrate the superiority of the new design. Reasons for this superiority are, internal gravity filling, individual shielding of cartons and no vacuum defoaming. Other equipment designed to improve sanitation are, special circulating tanks with parts hangers, assembly jigs, flush line systems, more welded joints, improved sanitizer proportioners, and CIP solution samplers.

Product filling equipment is still the main contributor of contamination. It was found that manual cleaning instead of CIP cleaning was a necessity in equipment that had many product sealing joints. These areas are particularly vulnerable due to heavy lubricants often used. Spraying filling areas with sanitizers during processing is essential.

Plant conditions change every hour during production, therefore, adjustments in procedures to avoid contamination must be exercised. Cursory examination of plants to evaluate sanitation is insufficient. The best criterion still is the bacteriological and flavor condition of the product at the consumer level.

Opening session speakers: Dr. V. W. Green, School of Public Health, University of Minnesota; Fred E. Uetz, The Borden Co. and President of IAMFES; and Dr. M. S. Favero, Communicable Disease Center, HEW, Phoenix, Ariz.

Farm Equipment Sanitation Problems — Milking Machines, Bulk Tanks and Tank Trucks, H. V. Atherton, Dept. of Animal and Dairy Science, University of Vermont, Burlington — New and larger pieces of milk handling equipment on farms create sanitation problems. Recirculation cleaning has not been completely effective. However, the major sanitation problems are old, not new. Lack of attention to well-known details in sanitation procedures continue to cause difficulty in both old and new systems. These details have been known for years but present bacteriological standards for quality milk leave much to be desired in monitoring the sanitary condition of milk handling equipment. More attention must be given to temperature control, choice of cleaning chemicals, and the proper use of these chemicals in a cleaning system. However, until it is fully recognized that quality milk production requires more than maintaining low standard plate counts, quality problems will continue to demand the attention of fieldmen and sanitarians.

Significance and Control of Air-Borne Contamination in Milk and Food Plants, D. R. Heldman, Departments of Agricultural Engineering and Food Science, Michigan State University, E. Lansing — The control or elimination of air-borne contamination in the food industry provides many distinct advantages. Obtaining maximum shelf-life of packaged non-sterile food products, gaining full economic advantages of continuous sterilization of fluid food products and maintaining overall high quality levels are among the advantages. By control or elimination of sources such as floor drains, ventilation systems and plant workers, populations of air-borne microorganisms can be reduced significantly. Recent results reveal that 68% of the air-borne bacteria counts in packaging areas of a dairy plant are greater than 6 per ft^3. Nearly 45% of the air-borne bacteria are associated with particles between 2.0 and 5.5 microns. Contamination control can be accomplished by preventing transport of air-borne contaminants from source to point of contamination. Air turbulence is one of the primary mechanisms contributing to transport. Laminar flow of filtered air has provided effective control under experimental situations.

Sanitary Aspects of Flexible Packaging Materials for Food, D. T. Maunder, Continental Can Company, Inc., Chicago, Illinois — Packaging in flexible films has developed into a rapidly expanding technique for the marketing of foods ranging from solids to liquids and distributed as fresh, frozen, or commercially sterile items. Single films are being replaced by complex laminates to afford better protection and better seals as well as to permit packaging of products heretofore not suitably packed in single films. The physical qualities of flexible materials and of packages made from them present problems somewhat different in fact, but not in principle, from those encountered with foods packaged in metal, glass or paperboard containers. Factors involved in successful packaging are discussed. Sanitation is a prime consideration in the preparation and packaging of any food. The sanitary aspects of packaging food in flexible containers will be reviewed.

Latest Developments in Automatic Dishwashing, W. M. Podas and S. B. Crecelius, Economics Laboratory, Inc., St. Paul, Minn. — The advances in dishwashing technology of the past fifteen years are reviewed. Various methods for evaluation of machine dishwashing detergents and rinse additives are discussed. Recent discoveries in the chemical formulation of dishwashing detergents which have led to their improvement are pointed out. The N.S.F. Standard No. 3 code for the manufacture of dishwashing machines is reviewed and discussed. The effect of water in various regions on the performance of dishwashing detergents is covered and relationship of detergent biodegradability to the whole subject of water contamination and waste disposal is discussed.

Sanitary Problems in Utilization of American Dairy Products Overseas, George W. Weigold, Managing Director, Dairy Society International, Washington, D. C. — U. S. dairy products have been shipped overseas in vast quantity, until the recent downturn in production. With lagging food production relative to population growth, the need for dairy

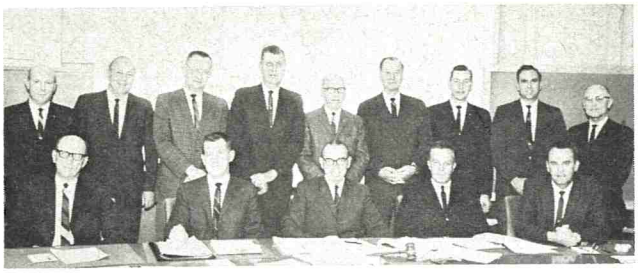
Princess Kay of the Milky Way — Mary Ann Titrud welcomes IAMFES banquet guests.

products is greater than ever, and will remain so in the foreseeable future. Under the impetus of market development and with slowly improving economies, the commercial demand has likewise grown spectacularly and this would continue if U. S. products were available for export. Most U. S. products are mixed with, and supplement, local production. This implies responsibility and challenges. The adverse conditions which challenge overseas operators are water, archaic food laws, untrained personnel and consumer indifference or lack of understanding. Sanitation is a key factor in processing, packaging and marketing dairy products overseas. Market development programs directed toward consumers can greatly raise the consumption of dairy products. These market development programs must stress the teaching and importance of sanitation at all levels: (*a*) health departments and governmental officials, (*b*) workers in plants, (*c*) distributors, and (*d*) consumers. Techniques employed in influencing better sanitation and thus, marketing, have been surveys, trade fairs, short courses and long range technical and nutritional education programs. All have produced improvements in the systems applied to handling foods and in the consumer attitudes toward dairy products.

Prepairing local health departments to cope with foodborne disease outbreaks, R. R. Dalton, Section of Environmental Health, Michigan Dept. of Health, Lansing — Local health

Banquet chairman Carl Mattson (standing) and party. Seated l. to r.: Dr. Charles Livak, Lancaster, Pa.; Mrs. R. W. Mykleby, Mr. Mykleby, Mr. Ron Ginn and Mrs. Ginn, St. Paul; and Mr. E. Stordahl, Fargo, N. Dakota.

officials in Michigan are in the best position to make prompt and meaningful investigations of suspected cases of foodborne disease outbreaks. The Michigan Department of Public Health assists local health departments by making consultative services available, providing specimen containers, and making laboratory analysis of speciments upon request. In an effort to be of further service to local health departments, the Michigan Department of Public Health in cooperation with the Communicable Disease Center, Training Branch and the Region V office of the Public Health Service conducted a course on epidemiology and control of foodborne diseases for the directors of local health departments and certain other selected local health department personnel. Since the medical director is the key man during the invstigation of a foodborne disease outbreak the training course was pitched at a level which he would find both interesting and challenging. Each health department represented at the course was presented with a kit containing basic equipment and materials needed to investigate suspected food-borne disease outbreaks.

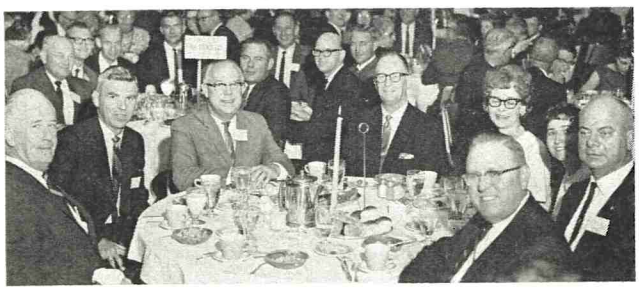


IAMFES Annual Meeting Local Arrangements Committee of the Minnesota Association. L to R front row: L. J. Waldock, O. W. Osten, B. Zakariesen, P. Deem, J. C. Olson, Jr. Rear row: R. Zeller, E. Wostrel, J. J. Jezeski, C. Markuson, E. C. Amundson, R. Lonsdale, R. Ginn, V. Packard, A. W. Sjowall. (Not shown: W. C. Lawton, R. Schneider, L. Hysell and Carl Mattson.)

These kits were considered the focal point of the training course. This course is considered only one step in a continuous effort to assist local health departments in dealing with foodborne disease outbreaks.

The Control of Bacterial Contamination in Maple Sap Stored in Field Storage Tanks by Ultraviolet Irradiation, J. C. Kissinger and C. O. Willits, Eastern Utilization Research and Development Division, U. S. Dept. of Agriculture, Philadelphia, Pa. — During the maple sap seasons of 1964 and 1965, sap collected from roadside stands of trees was stored in field holding tanks for as long as eleven days without deterioration, by continually irradiating the stored sap with germicidal ultraviolet lights emitting in the range of 260-300 mμ. The bacterial populations of the stored, irradiated sap did not exceed 4.0 x 10^5 organisms per ml, and sirup made from the sap was light amber in color (fancy grade) with an excellent flavor.

The Amfare Automated Restaurant System—Sanitary Aspects, Norman Potter, Dept. of Food Science, Cornell University, Ithaca, New York — An automated drive-in restaurant system has been developed and commercialized. This system, known as AMFare, is made up of six automatic machines operated under the control of a computer. The six basic machines prepare a variety of hamburger types, hot dogs, fried potatoes, various fried entree items, milk shakes, and beverages. A limited work force supplements the menu with additional conventionally prepared items. Unlike most vending machine concepts, the AMFare machines prepare foods on demand from fresh or frozen raw materials. In the preparation of the hamburgers, for example, fresh ground beef is formed into patties and grilled in a special oven while buns are simultaneously sliced and toasted. These components are conveyed to an assembly station where sauce



Missouri Association occupies two tables at banquet attended by 354 members and wives.

is pumped and cheese is sliced by the machine. The assembled item is mechanically wrapped in a protective plastic film. All of the above operations are performed automatically and there is no hand contact with the food. Described are the operations performed by each of the machines, storage conditions and holding times of all food items, clean-up measures that have been instituted, and the sanitary significance of the systems' operation. It is concluded that inherent in the system is the potential for a higher level of sanitation than frequently is obtained in conventional restaurants of this type.

Comparisons of Mastitis Screening Test Results from Quarter, Bucket and Bulk Milk Samples, D. S. Postle, Dept. of Veterinary Service, University of Wisconsin, Madison — Milk from four dairy farms in southern Wisconsin was examined over a period of one year in a study that was undertaken to: (*a*) determine the agreement between results of mastitis screening tests when applied to bulk, bucket and quarter milk samples; (*b*) determine the relative efficiencies of five mastitis screening tests using direct microscope leukocyte counts as a standard, and (*c*) examine the quality, as determined by leukocyte content and screening test results, of the milk from all quarters contributing to the bulk tank on each farm.

Most screening tests examined, when applied to quarter milk samples, gave a higher correlation with direct microscope leukocyte counts than when applied to either bucket or bulk milk samples. Similarly, efficiency ratings of screening tests applied to quarter samples were higher than those for the same tests applied to bulk samples. Three of the four farms examined maintained bulk tank milk screening test scores that failed to suggest the presence of milk from a substantial number of quarters that were shedding abnormal numbers of leukocytes.

Minimum Standards for Milk for Manufacturing and Its Production and Processing Recommended for Adoption by State Regulatory Agencies, F. E. Fenton, Standardization Branch, Dairy Division, Consumer and Marketing Service, U. S. Department of Agriculture, Washington, D. C. — Slightly more than 35 billion pounds of manufacturing grade milk was delivered to plants and dealers in 1965. This was about 31 percent of the volume of milk delivered. Manufactured dairy products continue to be an important segment of the dairy industry. However, the adoption by state regulatory agencies of recommended uniform minimum standards for milk for manufacturing purposes and its production and processing has been slow. Reasons are given for a joint effort by industry and state agencies to aggressively deal with the problem of variable quality of milk used in manufactured dairy products. The program suggests: (*a*) a realistic standard, (*b*) adequate and efficient enforcement, and (*c*) industry cooperation.

Mastitis, What Can We Do About It? K. J. Peterson, Dept. of Veterinary Medicine, Oregon State University, Corvallis — Bovine mastitis is a very complex and costly disease. Animal resistance as well as predisposing causes and etiologic agents vary from herd to herd. Prevention, control and treatment programs must therefore be carefully planned for each herd. The disease can be controlled on most dairies without undue hardship or great expense by: (*a*) following recommended sanitation and milking practices; (*b*) using properly installed and properly functioning milking equipment; (*c*) minimizing udder and teat injuries; (*d*) adhering to a treatment program supervised by the herd veterinarian; (*e*) culling chronically infected cows; and (*f*) milking heifers first, older, non-infected cows next and infected cows last. The dairyman will experience many benefits from such a program. Milk production will be markedly increased, cow turnover will be reduced, and drug and veterinary costs minimized.

The quality of milk and milk products will be improved and the dairy industry will be in a much more advantagous position to compete with the many milk substitutes now being marketed.

The New 12th Edition of Standard Methods for the Examination of Dairy Products, William G. Walter, Dept. of Botany and Microbiology, Montana State University, Bozeman — This edition includes standard or reference methods in the main section and relegates screening or auxiliary technics to the appendices. Other miscellaneous but useful information not pertinent to the standard method per se also appears in the appendix thus making it easier for the laboratory analyst to follow the detailed procedures.

Specific changes include acceptance of plastic pipettes and petri dishes, and incubation at 32 C only for the agar plate method; incubation of plates for psychrophilic bacteria at 7 C for 10 days; incubation of dry milk plates at 32 C for 48 hr; acceptance of the Levowitz-Weber stain only for direct microscopic counts; incubation for reduction methods stipulated at 36 C $\mp$ 1 C and inclusion of both the "triple reading" and "one hour" resazurin tests.

Attempts were made to recognize one standard method but the modified Scharer, the 1-hr Cornell, and the dialysis tests for phosphatase were added to the modified Scharer test retained from the previous edition.

Many of the *Official Methods of Analysis* of the AOAC previously included are referenced. Likewise methods relating to testing of water are referencd to the 1965 edition of *Standard Methods for the Examination of Water and Wastewater.*

Radionuclides in Milk is a new chapter and includes a modified method suitable for routine monitoring of four radionuclides and a simplified method for determining iodine - 131.

Four appendices relate to culture media and preparation, miscellaneous microbiological control methods, chemical screening methods, and screening technics for detection of abnormal milk.

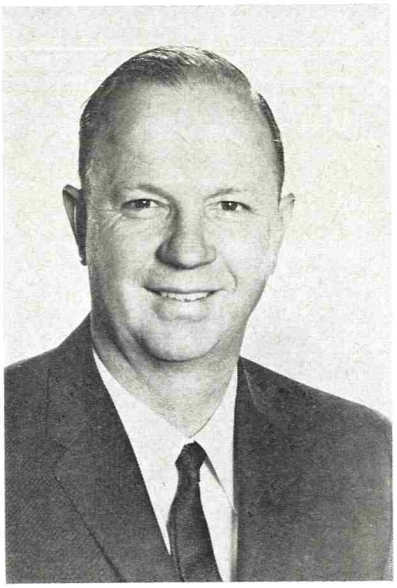
Forty eight subcommittee members from industry, control agencies and universities and many other interested scientists assisted in the present revision and their contributions are acknowledged.

Water Quality Act of 1965, Impact on the Dairy and Food Industry, H. G. Harding, Research and Development Division, National Dairy Products Corp., Glenview, Ill. — Under the Water Quality Act of 1965 the States are required to establish quality standards on interstate waters and a plan for implementation and enforcement which is acceptable to the Secretary of the Interior or he will do so. These standards are to enhance the quality of the water and to be subject to periodic review and revision. It is expected that at least secondary treatment of all industrial and municipal wastes will be required before discharge to a watercourse. Dairy wastes preferably should be treated with municipal wastes in a combination treatment plant. Where this is not practical, dairy wastes can be treated by land irrigation, lagooning, trickling filters, or modifications of the activated sludge process. Costs of treatment are dependent upon the local situation.

Sterilization Requirements for Space Exploration, J. J.

McDade, Jet Propulsion Laboratory, Pasadena, Calif.; M. S. Favero, Communicable Disease Center, Phoenix Field Station, SHEW, Phoenix, Arizona; and L. B. Hall, Planetary Quarantine Office, Code SB, Bioscience Programs, NASA, Washington, D. C. — Planetary landing space hardware is required to be sterilized. The probability of obtaining sterile space hardware is enhanced considerably when the level of microbial contamination of the hardware is kept very low prior to terminal sterilization. Such control requires constant and efficient monitoring of the hardware and the intramural environments where flight hardware is assembled, tested, and encapsulated before terminal sterilization. This study demonstrates that the levels and types of microbial contaminants recovered from space hardware, or from test surfaces exposed within assembly areas, depend upon the degree of environmental and personnel control. Operating personnel was the chief source of contamination. However, the intramural environment may become a reservoir of contamination, especially when environmental control measures are inadequate. It appears that one of the best means for maintaining microbial contamination at a low level is by use of vertical laminar flow clean rooms.

MEET OUR NEW PRESIDENT



Dr. Paul R. Elliker

Dr. Paul R. Elliker, a member of the Oregon Affiliate, received the gavel symbolic of ascendency to the Presidency of IAMFES from outgoing President Fred E. Uetz during the closing ceremonies of the annual banquet Wednesday evening August 17, 1966. Dr. Elliker is a native of Wisconsin and received the BS, MS and PhD from the University of Wisconsin. He is Chairman of the Department of Microbiology at Oregon State University, Corvallis having occupied that position since 1947. Prior to that time he was Professor of Dairy Microbiology at Purdue University, and during WW II served at the biological warfare laboratories at Camp Detrick, Maryland.

In 1952 Dr. Elliker was the recipient of the Borden Award for outstanding research. He is the author of the book *Practical Dairy Bacteriology.*

Dr. Elliker has traveled extensively. In 1959, 1962 and 1966 he attended the International Dairy Congress in London, Copenhagen and Munich, respectively. At the last two Congresses he attended as an official U. S. delegate. Also in 1959 he served as dairy ambassador and technical director of the USA exhibit at the Spanish International Trade Fair, Madrid.

Dr. Elliker has long been active in IAMFES and has been a frequent contributor of research papers to the Journal of Milk and Food Technology as well as other Journals. His chief interests, professionally, have been dairy and food sanitation and the microbiology of cultured products.

Dr. and Mrs. Elliker, daugher Susan Elizabeth, sons David Karl and Donald Paul, live at 800 White Oak Drive, Corvallis, Oregon 97330.

MILTON HELD ELECTED SECOND VICE-PRESIDENT

Milton Held

Results of mail balloting by Association members revealed that Milton Held was the successful candidate for election as Second Vice-President of IAMFES.

"Milt" was born and reared on a farm near Sioux City, Iowa where he graduated from high school. He attended Iowa State University and graduated with a B.S. degree in Dairy Science. He then spent

four years in the market milk processing and four years in the market milk production industries in Iowa.

He has been in public health work on the local, state, and federal levels for the past 25 years beginning in St. Louis, Missouri in 1940. He then served as Chief Milk Sanitarian in the Sioux City, Iowa Health Department until accepting a position as Milk Sanitarian for the Iowa Department of Health in 1943. In 1945 he was placed in charge of milk and food sanitation in that department.

In 1950 he left the Iowa Department of Health to participate in a research study sponsored and conducted by the National Research Council of the National Academy of Sciences, Washington, D. C., under the late Dr. A. C. Dahlberg. This involved a detailed study of milk sanitation programs in Birmingham, Alabama; Boston, Massachusetts; Houston, Texas; Louisville, Kentucky; Minneapolis, Minnesota; Rochester, New York; Sacramento, California; and Washington, D. C. The report of this research project was published in 1953 as "Sanitary Milk Control —It's Relation to the Sanitary, Nutritive, and Other Qualities of Milk."

Since 1951 he has been employed by the U. S. Public Health Service, first in Washington, D. C., followed by eight years as Regional Milk and Food Consultant in the Kansas City, Missouri Regional Office, and for the past five years in the same capacity in the San Francisco, California Regional Office.

Milt has been a member of the International for 25 years. He is a Charter member and was the second president of the Iowa affiliate. He then served as secretary-treasurer until leaving Iowa. He has been a member of the Farm Methods Committee of the International for a number of years.

He is married, has three sons, one in his second year of dental college, one in his second year of college, and one a junior in high school; and lives in San Carlos, California.

KARL JONES RE-ELECTED SEC.-TREAS. OF IAMFES

Karl K. Jones

Karl K. Jones, Chief of the Retail Food Section, Division of Food and Drugs, Indiana State Board of Health was re-elected to succeed himself as Secretary-Treasurer of IAMFES. Election this year as last was by mail ballot.

Mr. Jones has been active in Public Health work for 15 years, beginning as a regional sanitarian in southwestern Indiana. From 1952-57 he served as State Retail Survey Officer and in 1957 was appointed to his present position. He is a charter member of the Indiana affiliate and is a member of the American Public Health Association. Also he is a member of the Indiana State Board of Registration for Professional Sanitarians. He and his wife Shirley live in Indianapolis.

NOTICE TO MEMBERSHIP

The following proposed amendment to the By-Laws, as published in the June 1966 issue of the Journal was adopted by unanimous vote of the membership at the business meeting at the 53rd Annual Meeting of the Association in Minneapolis, Minnesota, August 17, 1966.

The Executive Board IAMFES, Inc. proposes that the By-Laws of the Association be amended as follows:

Article 1, Section 2. The annual membership dues payable to the Association on or before January first of each calendar year shall be determined by a majority vote of the Executive Board. Such determination shall be predicated on the financial needs of the Association as disclosed in the current annual audit by a Certified Public Accountant.

Not less than sixty (60) days prior to such vote a notice to that effect shall have been published in the Journal of Milk and Food Technology.

Provided further, that any dues adjustment shall become effective only on January first of the year following that in which the Executive Board has voted such change.

FRED E. UETZ, President

The Executive Board meeting in executive session following the annual meeting voted unanimously to set the dues at $8.00 for affiliate and $10.00 direct membership as of January 1, 1967.

PAUL R. ELLIKER, President

HOLDERS OF 3-A SYMBOL COUNCIL AUTHORIZATIONS ON AUGUST 20, 1966

0101 Storage Tanks for Milk and Milk Products, as Amended

97 Beseler Steel Products, Inc. (3/24/58)
417 East 29th, Marshfield, Wisconsin

116 Jacob Brenner Company, Inc. (10/ 8/59)
450 Arlington, Fond du Lac, Wisconsin

28 Cherry-Burrell Corporation (10/ 3/56)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

102 Chester-Jensen Company, Inc. (6/ 6/58)
5th & Tilgham Streets, Chester, Pennsylvania

1 Chicago Stainless Equipment Corp. (5/ 1/56)
5001 No. Elston Avenue, Chicago 30, Illinois

2 CP Division, St. Regis (5/ 1/56)
1243 W. Washington Blvd., Chicago 7, Illinois

117 Dairy Craft, Inc. (10/28/59)
Holdingford, Minnesota

76 Damrow Brothers Company (10/31/57)
196 Western Avenue, Fond du Lac, Wisconsin

115 DeLaval Company, Ltd. (9/28/59)
113 Park Street, So., Peterborough, Ont., Canada

109 Girton Manufacturing Company (9/30/58)
Millville, Pennsylvania

21 The J. A. Gosselin Co., Ltd. (9/20/56)
P. O. Box 280, Drummondville, Quebec, Can.

44 The Heil Company (10/26/56)
3000 W. Montana Street, Milwaukee, Wisconsin

114 C. E. Howard Corporation (9/21/59)
9001 Rayo Avenue, South Gate, California

127 Paul Mueller Company (6/29/60)
1616 W. Phelps Street, Springfield, Missouri

143 Portersville Stainless Equipment Div., (5/16/63)
Gibson Industries, Inc.
Portersville (Butler County), Pennsylvania

39 Stainless & Steel Products Co. (10/20/56)
1000 Berry Avenue, St. Paul 14, Minnesota

31 Walker Stainless Equipment Co. (10/ 4/56)
Elroy, Wisconsin

0204 Pumps for Milk and Milk Products, Revised, as Amended

29R Cherry-Burrell Corporation (10/ 3/56)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

147R R. S. Corcoran Co. (1/ 8/64)
132 E. Jefferson Street, Joliet, Illinois

63R CP Division, St. Regis (4/29/57)
1243 W. Washington Blvd., Chicago 7, Illinois

180R The DeLaval Separater Co. (5/ 5/66
Poughkeepsie, N. Y.

65R G & H Products Corporation (5/22/57)
5718 52nd Street, Kenosha, Wisconsin

145R Jabsco Pump Company (11/20/63)
1485 Dale Way, Costa Mesa, California

26R Ladish Co., Tri-Clover Division (9/29/56)
2809 60th Street, Kenosha, Wisconsin

148R Robbins & Myers, Inc. (4/22/64)
Moyno Pump Division
1895 Jefferson Street, Springfield, Missouri

163R Sta-Rite Products, Inc. (5/ 5/65)
234 South 8th Street, Delavan, Wisconsin

72R L. C. Thomsen & Sons, Inc. (8/15/57)
1303 53rd Street, Kenosha, Wisconsin

183R Ulrich Mfg. Co. (5/20/66)
204 W. Husseman St., Roanoke, Ill.

175R Universal Milking Machine Div., (10/26/65)
National Cooperatives, Inc.
First Avenue at College, Albert Lea, Minnesota

52R Viking Pump Company (12/31/56)
406 State Street, Cedar Falls, Iowa

5R Waukesha Foundry Company (7/ 6/56)
Waukesha, Wisconsin

0402 Homogenizers and High Pressure Pumps of the Plunger Type, As Amended

87 Cherry-Burrell Corporation (12/20/57)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

37 CP Division, St. Regis (10/19/56)
1243 W. Washington Blvd., Chicago 7, Illinois

75 Manton-Gaulin Mfg. Co., Inc. (9/26/57)
44 Garden Street, Everett 49, Massachusetts

0506 Stainless Steel Automotive Milk Transportation for Bulk Delivery and/or Farm Pick-up Service, As Amended

131 Almont Welding Works, Inc. (9/ 3/60)
4091 Van Dyke Road, Almont, Michigan

98 Beseler Steel Products, Inc. (3/24/58)
417 East 29th, Marshfield, Wisconsin

70 Jacob Brenner Company (8/ 5/57)
450 Arlington, Fond du Lac, Wisconsin

118 Dairy Craft, Inc. (10/28/59)
Holdingford, Minnesota

63 Dairy Equipment Company (5/29/57)
1919 So. Stoughton Road, Madison 14, Wisconsin

43 Damrow Brothers Company (10/25/56)
196 Western Avenue, Fond du Lac, Wisconsin

123 DeLaval Company, Ltd. (12/31/59)
113 Park Street, South, Peterborough, Ont., Can.

121 The J. A. Gosselin Co., Ltd. (12/ 9/59)
P. O. Box 280, Drummondville, Quebec, Canada

45 The Heil Company (10/26/56)
3000 W. Montana Street, Milwaukee 1, Wisconsin

93 Pennsylvania Furnace & Iron Co. (2/ 6/58)
316 Pine Street, Warren, Pennsylvania

85 Polar Manufacturing Company (12/20/57)
Holdingford, Minnesota

144 Portersville Stainless Equipment Div., (5/16/63)
Gibson Industries, Inc.
Portersville (Butler County), Pennsylvania

71 Progress Industries, Inc. (8/ 8/57)
400 E. Progress Street, Arthur, Illinois

80 C. Richardson & Company, Ltd. (11/24/57)
Wellington Street, So., St. Marys, Ont., Canada

40 Stainless & Steel Products Company (10/20/56)
1000 Berry Avenue, St. Paul 14, Minnesota

47 Standard Steel Works, Inc. (11/ 2/56)
16th & Howell Streets, North Kansas City 16, Mo.

25 Walker Stainless Equipment Co. (9/28/56)
New Lisbon, Wisconsin

0800-07 Fittings Used on Milk and Milk Products Equipment, and Used on Sanitary Lines Conducting Milk and Milk Products and Supplements 2, 3, 4, 5, and 6, As Amended

79 Alloy Products Corporation (11/23/57)
1045 Perkins Avenue, Waukesha, Wisconsin

138 A.P.V. (Canda) Equipment, Ltd. (12/17/62)
103 Rivalda Rd., Weston, Ont., Canada

82 Cherry-Burrell Corporation (12/11/57)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

124 Delaval Company, Ltd. (2/18/60)
113 Park Street, South, Peterborough, Ont., Canada

184 The Delavel Separator Co. (8/ 9/66)
Poughkeepsie, New York

67 G & H Products Corporation (6/10/57)
5718 52nd Street, Kenosha, Wisconsin

105 Girton Manufacturing Company (7/25/58)
Millville, Pennsylvania

89 Burton Klemp Corporation (3/24/60)
6613 28th Avenue, Kenosha, Wisconsin

34 Ladish Co., Tri-Clover Division (10/15/56)
2809 60th St., Kenosha, Wisconsin

149 Q Controls (5/18/64)
Occidental, California

73 L. C. Thomsen & Sons, Inc. (8/31/57)
1303 43rd Street, Kenosha, Wisconsin

151 Tubular Components, Inc. (11/18/64)
Butternut Drive, East Syracuse, New York

86 Waukesha Specialty Company (12/20/57)
Walworth, Wisconsin

0902 Thermometer Fittings and Connections Used on Milk and Milk Products Equipment and Supplement 1, As Amended

32 Taylor Instrument Companies (10/ 4/56)
95 Ames Street, Rochester 1, New York

1001 Milk and Milk Products Filters Using Disposable Filter Media, As Amended

35 Ladish Co., Tri-Clover Division (10/15/56)
2809 60th Street, Kenosha, Wisconsin

1102 Plate-Type Heat Exchangers for Milk and Milk Products, As Amended

20 A.P.V. Company, Inc. (9/ 4/56)
137 Arthur Street, Buffalo 7, New York

30 Cherry-Burrell Corporation (10/ 1/56)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

14 Chester-Jensen Co., Inc. (8/15/56)
5th & Tilgham Streets, Chester, Pennsylvania

38 CP Division, St. Regis (10/19/56)
1243 W. Washington Blvd., Chicago 7, Illinois

120 Delaval Company, Ltd. (12/ 3/59)
113 Park Street, South, Peterborough, Ont., Can.

17 The Delaval Separator Company (8/30/56)
Poughkeepsie, New York

15 Kusel Dairy Equipment Company (8/15/56)
100 W. Milwaukee Street, Watertown, Wisconsin

1202 Internal Return Tublar Heat Exchangers, As Amended

103 Chester-Jensen Company, Inc. (6/ 6/58)
5th & Tilghman Street, Chester, Pennsylvania

96 C. E. Rogers Company (3/31/64)
8731 Witt Street, Detroit 9, Michigan

152 Sanitary Processing Equipment Corporation (11/18/64)
Butternut Drive, East Syracuse, New York

1303 Farm Milk Cooling and Holding Tanks—Revised, As Amended

99R Henry C. Bergmann, Inc. (3/28/58)
4350 W. Artesia St., Fullerton, California

19R Brown Equipment Mfg. Company (9/ 1/56)
418 Kearns Bldg., Salt Lake City, Utah

11R CP Division, St. Regis (7/25/56)
1243 W. Washington Street, Chicago 7, Illinois

119R Dairy Craft, Inc. (10/28/59)
Holdingford, Minnesota

4R Dairy Equipment Company (6/15/56)
1919 S. Stoughton Road, Madison 14, Wisconsin

92R Delaval Company, Ltd. (12/27/57)
113 Park Street, South
Peterborough, Ontario, Canada

49R The Delaval Separator Company (12/ 5/56)
Poughkeepsie, New York

94R Esco Cabinet Company (2/ 6/58)
West Chester, Pennsylvania

10R Girton Manufacturing Company (7/25/56)
Millville, Pennsylvania

95R Glove Fabricators, Inc. (3/14/58)
7744 Madison Street, Paramont, California

179R Heavy Duty Products (Preston), Ltd. (3/ 8/66)
635 Laurel St., Preston, Ont., Canada

51R C. E. Howard Corporation (12/20/56)
9001 Rayo Avenue, South Gate, California

61R James Mfg. Co., Sani-Kool Division (4/ 2/57)
104 W. Milwaukee Avenue, Fort Atkinson, Wisconsin

41R Mojonnier Bros. Company (10/22/56)
4601 W. Ohio Street, Chicago 44, Illinois

12R Paul Mueller Company (7/31/56)
1616 W. Phelps Street, Springfield, Missouri

112R Nichols Refrigeration Company (2/23/59)
P. O. Box 357, Medina, Ohio

58R Schweitzer's Metal Fabricators (2/25/57)
806 No. Todd Avenue, Azusa, California

50R Emil Steinhorst & Sons, Inc. (12/20/56)
612-616 South Street, Utica 3, New York

134R Universal Milking Machine Division (5/19/61)
National Co-operatives, Inc.
First Avenue at College, Albert Lea, Minnesota

182R Vacooler Co. (5/20/66)
700 Gaylord Ave., Elyria, Ohio

42R VanVetter, Inc. (10/22/56)
2130 Harbor Avenue S.W., Seattle, Washington

18R Whirlpool Corporation, St. Paul Division (9/20/56)
850 Arcade Street, St. Paul 6, Minnesota

55R John Wood Company, (1/23/57)
Superior Metalware Division
509 Front Avenue, St. Paul 17, Minnesota

170R The W. C. Wood Co., Ltd. (8/ 9/65)
5 Arthur Street, South, Guelph, Ont., Canada

16R Zero Manufacturing Company (8/27/56)
Washington, Missouri

1400 Inlet and Outlet Leak Protector Plug Valves for Batch Pasteurizers

122 Cherry-Burrell Corporation (12/11/159)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

69 G & H Products Corporation (6/10/57)
5718 52nd Street, Kenosha, Wisconsin

27 Ladish Co. - Tri-Clover Division (9/29/56)
2809 60th Street, Kenosha, Wisconsin

78 L. C. Thomson & Sons, Inc. (11/20/57)
1303 43rd Street, Kenosha, Wisconsin

1500 Manually-Operated Bulk Milk and Milk Products Dispensers Multi-Service Milk Containers, and Dispensing Mechanisms

74 American Industries, Inc. (9/11/57)
Box 5580, Minneapolis, Minnesota

23 Monitor Dispenser Co., Inc. (9/27/56)
West Main Street, Stroudsburg, Pennsylvania

62 Norris Dispensers, Inc. (4/ 8/57)
2720 Lyndale Avenue, South, Minneapolis 8, Minnesota

108 Stevens-Lee Company (8/12/58)
822 W. 59-1/2 Street, Minneapolis 19, Minnesota

1602 Evaporators and Vacuum Pans, As Amended

132 A.P.V. Company, Inc. (10/26/60)
137 Arthur Street, Buffalo 7, New York

111 Blaw-Knox Company, (2/12/59)
Dairy Equipment Division
750 E. Perry, Buffalo, N. Y.

110 Arthur Harris & Company (11/10/58)
210-18 North Aberdeen Street, Chicago 7, Illinois

128 Mojonnier Bros. Co. (7/ 6/60)
4601 W. Ohio Street, Chicago 44, Illinois

164 Mora Industries, Inc. (4/25/65)
112 South Park Street, Mora, Minnesota

107 C. E. Rogers Company (8/ 1/58)
8731 Witt Street, Detroit 9, Michigan

1702 Filers and Sealers of Single Service Containers, As Amended

139 Exact Weight Scale Company (4/15/68)
538 East Town Street, Columbus 15, Ohio

137 Ex-Cell-O Corporation (10/17/62)
P. O. Box 386, Detroit 32, Michigan

140 General Films, Inc. (4/23/63)
Covington, Ohio

153 Mantes Scale Co. (1/ 6/65)
489 Sixth Street, San Francisco, California

142 Polygal Company (4/15/63)
Div. of Inland Container Corp.
6343 E. Westfield Blvd., Indianapolis, Indiana

1901 Batch and Continous Freezers, As Amended

141 CP Division, St. Regis (4/15/63)
1243 W. Washington Blvd., Chicago 7, Illinois

146 Cherry-Burrell Corporation (12/10/63)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

2200 Silo-Type Storage Tanks for Milk and Milk Products

168 Cherry-Burrell Corporation (6/16/65)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

154 CP Division, St. Regis (2/10/65)
1243 W. Washington Blvd., Chicago 7, Illinois

160 Dairy Craft, Inc. (4/ 5/65)
Holdingford, Minnesota

181 Damrow Brothers Company (5/18/66)
196 Western Ave., Fond du Lac, Wisconsin

156 C. E. Howard Corporation (3/ 9/65)
9001 Rayo Avenue, South Gate, California

155 Paul Mueller Co. (2/10/65)
1616 W. Phelps Street, Springfield, Missouri

165 Walker Stainless Equipment Co. (4/26/65)
New Lisbon, Wisconsin

2300 Equipment for Packaging Frozen Desserts, Cottage Cheese and Milk Products Similar to Cottage Cheese in Single Service Containers

174 Anderson Bros. Mfg. Co. (9/28/65)
1303 Samuelson Road, Rockford, Illinois

178 John A. Carrier Corporation (2/18/66)
Middlesex Turnpike, Burlington, Iowa

2400 Non-Coil Type Batch Pasteurizers

161 Cherry-Burrell Corporation (4/ 5/65)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

158 CP Division, St. Regis (3/24/65)
1243 W. Washington Blvd., Chicago 7, Illinois

177 Girton Manufacturing Co. (2/18/66)
Millville, Pennsylvania

166 Paul Mueller Co. (4/26/65)
1616 W. Phelps Street, Springfield, Missouri

2500 Non-Coil Type Batch Processors for Milk and Milk Products

162 Cherry-Burrell Corporation (4/ 5/65)
2400 Sixth Street, S.W., Cedar Rapids, Iowa

159 CP Division, St. Regis (3/24/65)
1243 W. Washington Blvd., Chicago 7, Illinois

167 Paul Mueller Co. (4/26/65)
1616 W. Phelps Street, Springfield, Missouri

2600 Sifters for Dry Milk and Dry Milk Products

171 Entoleter, Inc. (9/ 1/65)
Subsidiary of American Mfg. Co.
1187 Dixwell Avenue, Hamden, Connecticut

173 Food & Chemical Equipment Div. (9/20/65)
Blaw-Knox Company
1325 S. Cicero Avenue, Chicago, Illinois

185 The Orville-Simpson Co. (8/10/66)
1230 Knowlton St., Cincinnati, Ohio

172 Southwestern Engineering Co. (9/ 1/65)
6111 E. Bandini Blvd., Los Angeles, California

176 Sprout, Waldron & Co., Inc. (1/ 4/66)
Munsy, Pennsylvania

NEWS AND EVENTS

FOOD TECHNOLOGY SEMINAR AT DFISA EXPOSITION

A seminar on the technology of the food supply, with five authorities as panelists, will occur on two afternoons of the week of the Dairy and Food Industrial Exposition in Atlantic City, October 23-28.

Entitled "The Technology of the Food Supply: Management Looks at Current Resources," the seminar will take place from 2 to 4 p.m. on October 25 and 27 in the Grand Ballroom of the Shelburne Hotel. Admission will be free but limited to those badged for admission to the Dairy and Food Industrial Exposition, or badged for any of the conventions meeting concurrently in Atlantic City.

The speakers and their subjects for Tuesday afternoon, October 25, will be: E. E. Howe, Ph.D., Director of Nutrition of the Merck Institute for Therapeutic Research, Rahway, N. J., "World Protein Needs and How They May be Implemented." Dr. Howe serves on several food and nutritional advisory committees, has authored or co-authored 50 scientific papers, and holds approximately 15 U. S. patents in such areas as proteins and amino acids, antibiotics, cholesterol, and world nutritional problems.

Edward S. Josephson, Ph.D., Associate Director for Food Radiation, Food Division, and Director of the U. S. Army Radiation Laboratory, U. S. Army Natick Laboratories, Natick, Mass., "The Present General Outlook for Radiation Processing." Active in government research for the last 22 years, Dr. Josephson interrupted his work in 1961 to participate in a one-year resident course at the Industrial College for the Armed Forces. Here, he received three commendations for contributions to the course and was one of a few students whose scientific paper was selected for outside publication. He is also the author of more than 60 articles in scientific journals.

On Thursday afternoon, October 27, the speakers and their topics will be: John C. Ayres, Ph.D., Professor in charge of Food Technology in the Department of Dairy and Food Industry, Iowa State University, Ames, Iowa, "A Management Briefing on the Newer Knowledge of the Microbiology of the Food Supply." Dr. Ayres has also distinguished himself as a research technician in private industry, is an active member of various food study committees, and has authored or co-authored some 150 scientific publications in the field of antibiotics, microbiology, packaging, and poultry and meat products technology.

J. M. Coon, Ph.D., M.D., Professor and Head of the Department of Pharmacology, The Jefferson Medical College of Philadelphia, "Naturally Occurring Food Toxicants and Their Meaning to Food Industry Management." Dr. Coon is the author or co-author of about 60 scientific papers in the fields of pharmacology and toxicology. Further, his concern for food safety is reflected in his chairmanship of the Toxicology Subcommittee of the Food Protection Committee of the National Academy of Sciences-National Research Council.

W. M. Urbain, Ph.D., Professor, Food Science Department, Michigan State University, East Lansing, will serve as moderator and chair both days' sessions. In addition to his professorial duties, Prof. Urbain serves as Scientific Editor of journals of the Institute of Food Technologists and as consultant to the Division of Isotope Development of the Atomic Energy Commission. He is a 1962 recipient of the Army's Outstanding Civilian Service Medal and a 1963 recipient of the Industrial Achievement Award of the Institute of Food Technologists. Prior to joining MSU, Dr. Urbain had spent several decades with Swift & Company, stepping down as Director of the Engineering Research Department.

The seminar will be sponsored by Dairy and Food Industries Supply Association, which also sponsors the Exposition.

1966 "MILK FACTS" NOW AVAILABLE

The current issue of "Milk Facts", the Milk Industry Foundation's informative and convenient annual compilation of important statistics and significant facts on the milk industry, is ready for distribution.

For many years MIF member companies, as well as students, teachers, editors and others, have found

this handy little booklet a highly useful reference piece. The 1966 issue shows that dairy products continue to be of major economic importance — ranking second only to cattle and calves as a source of farm income, and constituting 16.6% of the total food industry.

Among the interesting figures in "Milk Facts" is an indicated 33% increase since 1961 in the consumption of low-fat fluid products. As a whole, per capita consumption of whole milk and cream has remained stable in recent years, the figures show.

The Milk Association has worked out a schedule of charges for quantity distribution of the 1966 "Milk Facts," at differing rates for MIF members, nonmembers, educators, etc. Inquiries should be addressed to: Milk Industry Foundation, 910 Seventeenth Street, N. W., Washington, D. C. 20006.

CHEMICAL AND BIOLOGICAL DEFENSE TRAINING COURSES SCHEDULED

A chemical and biological defense training course, sponsored by the U. S. Public Health Service, Division of Health Mobilization, has been scheduled for October 10-14, 1966; February 27 through March 3, and May 22-26, 1967. The 5-day sessions will be conducted in cooperation with the U. S. Army Chemical Center and School at Fort McClellan, Alabama.

The course is designed to train public health and medical personnel in the development of chemical and biological defense programs within states, counties, and principal municipalities. Personnel of government agencies at these levels and of other agencies concerned with civilian health are eligible. Security clearance is not required and there is no tuition fee.

The students will be instructed in the development of chemical and biological defense planning and training as well as in the development of postattack programs. The following subjects will be covered: public health aspects of chemical and biological warfare; detection, identification and current capabilities of chemical and biological agents; defensive techniques and the care and use of defensive equipment; survey and deliniation of contaminated areas and decontamination techniques; first aid and other treatment of casualties; and the psychological aspects of chemical and biological weapons.

Dr. W. Fulton Abercrombie, Deputy Chief of the Division of Health Mobilization Training Branch, suggested that this course will be of particular value to representatives of health departments, faculty members of schools affiliated with the Medical Education for National Defense Program, and representatives of Veterans Administration and Public Health Service. Enrollment forms are available from Dr. Abercrombie, Training Branch, Division of Health Mobilization, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C. 20201. Application should be made to the same office, with an alternate choice of dates indicated.

1966 NAMA CONVENTION AND TRADE SHOW AT CHICAGO

More than 134 companies have signed up to exhibit at the National Automatic Merchandising Association's 30th Anniversary Convention and Trade Show according to Robert Thomson, chairman of the Trade Show Advisory Committee. This year's trade show will utilize 60,000 square feet of exhibit space, more than ever before," Thomson said. The largest previous show was in 1964.

N A M A's 30th Anniversary Convention and Trade Show of Automatic Merchandising will be held October 29 to November 1, at McCormick Place, Chicago, Ill. The exhibit which began in 1947, has been named the "30th Anniversary Show" in honor of the Association's 30th birthday which is being celebrated this year.

Manufacturers of vending machines and firms which supply components or equipment to the vending industry, as well as companies which manufacture products sold through vending machines, are invited to exhibit in the trade show.

NEW BIOCHEMICAL PRODUCT HELPS TO SOLVE MILK WASTE PROBLEMS

A new biochemical product for waste treatment processes produced under license as a development product by Monsanto Company improved the performance of a total oxidation activated sludge plant treating milk wastes, according to a report recently released.

The product, a bacterial enzyme system developed by Pacific Enzyme Products, Inc. of Honolulu, achieved a significant improvement in effluent quality by improving the mixed liquor settling and compaction characteristics, and resulted in an appreciable increase in the allowable solids loading to the clarifier. The report is the result of studies conducted over a sixteen week period at a Pet Milk Company plant in Belleville, Wisconsin, under the direction of Drs. G. A. Rohlich, W. C. Boyle, and L. B. Polkowski

of the University of Wisconsin, Department of Civil Engineering. The studies were jointly sponsored by Pet Milk Company, Monsanto Company and Japan-Missouri Development Corp. of St. Louis, which holds sales rights to the product in waste disposal applications.

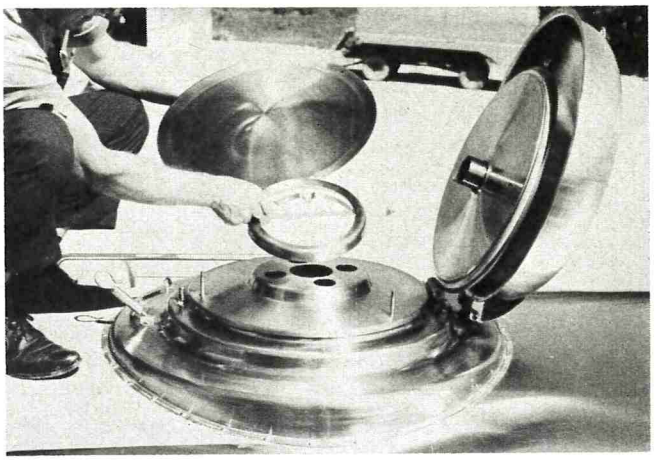
In summarizing the results of these studies, the report noted that on three separate occasions in each of the two independent treatment plants, addition of the enzyme product reduced the biological oxygen demanded (BOD), suspended solids (SS) and chemical oxygen demand (COD) of composite effluent samples, dropped the level of the clarifier solids blanket, and appreciably increased the allowable solids loading to the clarifier. The tests were complicated by intermittent power failures. Dosage of the biochemical material during the tests was maintained at 1 lb. per 130 lbs. of BOD-5 per day. Following a week of intermittent electrical problems, the dosage was increased to 1 lb. per 29 lbs. BOD-5/day resulting in immediate recovery of the unit. In addition, an apparent inertial and "anamaestic" effect of the enzymes was observed after discontinuance, suggesting that less than daily application might be feasible.

"The most apparent effect of the enzyme on the treatment plant operation," said the report, "was the marked improvement in mixed liquor settling and compaction characteristics." The enzyme probably effect changes in the mixed liquor density although sludge density itself was not measured." The improvement in settling characteristics with addition of the enzyme was evidenced by a reduction of effluent suspended solids from the range of 200-2,000 ppm to the range of 5-50 ppm, with comparable reductions in BOD and COD.

Of particular interest to the authors of the report was the fact that these results were not accompanied by an increase in air requirements of the aeration tanks, nor was there an increase in the soluble BOD of the effluent, which might be expected from the hydrolytic action of the enzyme system. "Oxygen uptake rates of the mixed liquor and the soluble BOD of the effluent were not noticeably influenced by the enzyme addition" they reported.

In its introduction, the report observed that the concensus of previous investigations of enzyme additives was "that the preparations were of no significant value in waste treatment processes." However, in its conclusion the report stated that the data collected from these studies "strongly supports further investigation of the efficacy of the proteolytic enzyme preparation produced (as a development product) by Monsanto Company."

Currently a study to carry out additional investigations of the product, specifically in the treatment of domestic sewage, has been initiated at the University of Wisconsin, according to a spokesman for Japan-Missouri Development Corp. of 3741 Washington Avenue, St. Louis, Missouri.



NEW PORTABLE SANITARY MANHOLE VENT PROTECTS TANKER CONTENTS AGAINST DUST, INSECTS AND FOREIGN MATTER WHILE UNLOADING

In compliance with the requests of sanitarians and the United States Public Health Service, Walker Stainless Equipment Co., Inc., New Lisbon, Wisconsin, has recently developed a stainless steel lightweight, portable manhole vent assembly that provides sanitary protection for tanker contents even when the manhole is completely open. The new unit marketed under the name "WALKER FILTER-FLO" actually filters all air entering the tank through the manhole during unloading operations. The manhole is sealed against foreign matter and provides complete protection against hazard of internal vacuum while unloading, but permits passage of adequate amounts of air to handle 3" pump. The new sanitary manhole vent takes only seconds to attach. Fits manholes up to 19" in diameter on all makes of tankers and accepts standard 9½" replaceable filter pads. A spun dome cover protects filter pad against water or rain drops when in use. All stainless steel sanitary construction, the new sanitary vent is ideal for plant unloading operations. A single unit can be moved from tank to tank without loss of unloading time. Cost is $160.00.

The WALKER "FILTER-FLO" Sanitary Manhole Vent will be publicly shown for the first time at the

D.F.I.S.A. Exposition, October 23-28, Booth No. 171, Atlantic City, N. J. Further information available from: Walker Stainless Equipment Co., Inc., New Lisbon, Wisconsin.

PUBLIC HEALTH TRAINING COURSE AT SYRACUSE UNIVERSITY

A specialized training program for health officials, the first of its kind, was held at the Microbiological and Biochemical Center of the Syracuse University Research Corporation at Syracuse, New York. Dr. Ralph Russell, Manager of the Food Protection Program, was responsible for this training of some 40 Health Officers and sanitarians for the four-day period beginning August 29. Dr. Russell was assisted by Dr. Richard Moore.

Dr. Russell received his B.S., M.S., and Ph.D. in Botany and Bacteriology from Syracuse University. He has served as Director of Research, National Paperboard Assn.; Associate Director, Microbiological and Biochemical Center; Paper Technologist, Bureau of Scientific Standards and Evaluations, Division of Food Standards and Additives, Washington, D. C.; and Deputy Director, Research Bureau of States Services, Division of Environmental Engineering and Food Protection, Dauphin Island, Alabama, before becoming Manager of Food Protection Laboratory, Microbiological and Biochemical Center, Syracuse University Research Corporation.

The Center, together with Syracuse University, has developed a number of training programs where individuals both from private industry and public health participate in seminars to increase their competence in the field of plant sanitation and to provide them with direction in the conduct of the food-protection services. The training programs are a part of the Food Protection Program which extends over the past twenty years. The program began and grew as a cooperative effort of the food-packaging industry, public health officials at the federal, state and local levels, and Syracuse University.

This special four-day course has been made possible by a grant from the United States Public Health Service and was of interest to regulatory personnel responsible for the inspection of single-service container fabrication plants. The course covered the fabrication of all types of single service containers for milk and milk products.

Topics included: Discussion of the 1965 Grade A Pasteurized Milk Ordinance as It Relates to Single Service Containers; Guidelines for the Sanitary Standards for Fabrication of Single Service Containers; Production of Single Service Container Materials, paper, paperboard, plastics, and metal foils and Microbiological Testing of Single Service Containers. Lectures were supplemented by visual aids, two laboratory periods, and a field trip to a single service container fabrication plant.

The course was open to Certified State Sanitation Milk Rating Officers and local Sanitarians who are responsible for inspection of single service container fabricating plants. Instructors for this course included: Dr. Ralph T. Russell, Manager, Food Protection Services, SURC.; Dr. Richard B. Moore, Ass't. Manager, Food Protection Services, SURC.; John H. Nair, III, Analytical Services, SURC.; Dr. Fred W. O'Neil, N. Y. State College of Forestry; and Darold W. Taylor and Robert B. Carson, U. S. Public Health Service.

The M-B Center leads in the development and presentation of special training programs for industry and state and local health departments to protect our nation's health. These programs cover broad aspects of health protection with emphasis on the food preparation and packaging industries.

The food packaging requires continuity of the type which can be provided only by having in each plant a trained staff member with competence to anticipate and identify sanitation and health problems both long range and those which occur on a day-to-day basis and recommend the proper steps to relieve them. Maximum benefit of the program and the full realization of its objectives is accomplished only if operating and supervisory personnel in a plant are apprised of the program in some detail and motivated to contribute to its maximum efficiency.

In 1946, with the encouragement of several public health officials, Dr. E. Reed, then Chairman of the Department of Plant Sciences at Syracuse University, established a laboratory to serve those requirements of manufacturers of paper containers for wet and moist food devolving upon them because of public health concern and the laws which govern such products. At that time, he formed a Public Health Advisory Council which included Public Health Officials at various levels to assist him in directing the program toward public health thinking and legal requirements. This Council has made many valuable contributions to the program.

The present SURC training programs grew out of the long SURC association with food health protection activities. Other programs, similiar to the Syracuse course, will be presented in Chicago, San Francisco, Dallas, and Atlanta for public health training in these areas.

PHS GRANT FOR STUDY RETENTION OF PESTICIDES IN HUMAN BODIES

The Public Health Service's Office of Pesticides Intelligence System, a medical information center on pesticides and other toxic contaminants, has awarded a $59,500 grant to the Midwest Research Institute in Kansas City, Mo. to develop the first national monitoring system for the purpose of measuring the amounts of pesticides in the general population.

During the six-month study the PHS will be responsible for the network's operation and the Institute will establish the operating criteria for the system. Ten urban center stations will be chosen initially to collect human tissues and body fluids for pesticide analysis. Eventually, 135 such stations will be established throughout the country.

The primary objective is to provide continuous scientific data on the kinds and amounts of pesticides retained in the tissues and organs of persons from both the food they eat and the air they breathe. Physicians and hospitals will be asked to cooperate in providing samples of fatty, liver, kidney and brain tissues and blood and urine to be used in the analyses. A history of those persons sampled will be kept and correlated with other toxocological research findings to identify any existing or potential dangers.

Dr. J. Earl Barney II, head of analytical chemistry at Midwest Research Institute, said the study is designed to provide a basis for determining better and safer uses of pesticides. "In view of the large and increasing use of pesticides in agriculture and around the home, and the possibility that human body concentrations might under certain conditions be detrimental, health authorities believe it essential to conduct a broad study of pesticides in people," he said.

NRA BULLETIN PROMOTES COOPERATION WITH HEALTH OFFICER

"Know Your Health Officer" is a new technical bulletin about the health officer and food service operations developed by the National Restaurant Association. It is issued as a business and technical advisory service of NRA for its members in all phases of the quantity food service industry.

The bulletin discusses the duties and responsibilities of the health officer and his staff of sanitary engineers, sanitarians and laboratory personnel at the federal, state and local level. It undertakes to explain to restaurant operators and employees a typical health department operation in regulating restaurant sanitation programs to insure food protection. The brochure reviews some of the limitations placed on the health officer and his staff and the difficulties brought about by the great diversity of food service operational types.

Pointing out the operator's responsibility, the bulletin states: "The food service operator who lacks a basic knowledge of the food protection and restaurant sanitation requirements necessary to the adequate protection of his customers and who is not aware of the importance of good restaurant sanitation to his business success, further hampers the health officer's effectiveness. It becomes necessary therefore that the food service operator share the health officer's load. And it is right and proper that he should do so, for the food service operator also has responsibilities to the dining public."

The bulletin concludes by emphasizing the joint responsibility of the operator and the health officer. "Effective food protection requires complete understanding between health department and food service operator as to exactly what must be accomplished and why. Cooperative development of regulations and food protection programs is essential to achieving this goal."

According to Vernon E. Cordell, Director, Public Health and Safety for NRA, the publication has been mailed to the NRA food service membership, schools and colleges teaching food service management and to over 1500 state and local health departments. Permission has been given the latter groups to reproduce all or part of the bulletin. Printed copies in multiples of 100 may be ordered at $5.00 per hundred from the National Restaurant Association, 1530 Lake Shore Drive, Chicago, Ill. 60610.

WINNERS OF JUDGING CONTESTS NOT FROM LEADING DAIRY PRODUCTS STATES

The Dairy and Food Industries Supply Association which, with the American Dairy Science Association, sponsors the Collegiate Students' International Contest in Judging Dairy Products at the biennial Dairy and Food Industrial Exposition has released an interesting and somewhat surprising story about past winners of the various events making up the contest.

DFISA points out that according to the records representatives of states leading in the production of specific dairy products are not always the best judges of these products. For example, Wisconsin is the top cheddar cheese state but Wisconsin student teams have provided the best judges only twice in the 49 year history of the contest. Minnesota leads in butter

manufacturing but students from its university have won only five of the contests. Large fluid mild and ice cream producing states take a back seat to less populous mid-western states.

The five categories of products in which judging takes place are cheddar cheese, butter, fluid milk, vanilla ice cream and cottage cheese. More than 30 colleges and universities are expected to send three-man teams to Atlantic City for the 1966 contest on October 23 and each contestant is required to taste and record on standardized score cards his judgements. Student evaluations are then compared with ratings of professional judges.

Team awards in the form of cups are made to winners in each of the five categories and a sixth award of a $2500 cash fellowship goes to the institution whose team places first in the "All Products Bowl."

In the cheddar cheese group Ohio State is the leader with seven cups and Iowa State follows with six cups. Iowa State is far out in front in butter judging with eleven wins. South Dakota State ties Minnesota for second with five butter cups.

The big population states of New York, Pennsylvania and California with many large fluid milk processing plants might expect their universities to produce the most expert judges of these products. Yet the midwest boasts the best judges. Ohio State has won nine times and Iowa State five times.

A similar story hold in the judging of vanilla ice cream. Iowa State has six cups and Ohio State five. In the populous eastern states three-time winners are Cornell and the Universities of Connecticut and Massachusetts.

There is no outstanding school as yet in the cottage cheese category since this contest was inaugurated only in 1962 and no school has won the cup more than once.

As might be expected from the records of the contests in the individual groups, the leaders in the All Products competition are Ohio State with twelve wins and Iowa State with ten wins. A challenging University of Illinois is third with six victories, all of which have come within the last ten years.

FALL CONFERENCE OF RESEARCH AND DEVELOPMENT ASSOCIATES

The Fall Military-Industry Conference sponsored by Research and Development Associates, Inc. is scheduled for October 18-19, 1966 at the U. S. Army Natick Laboratories, Natick, Mass. The general theme Conference will be "Food From the Sea".

Registration information can be obtained from Harlan J. Wills, Executive Secretary, at the U. S. Army Natick Laboratories, Natick, Mass. 01760.

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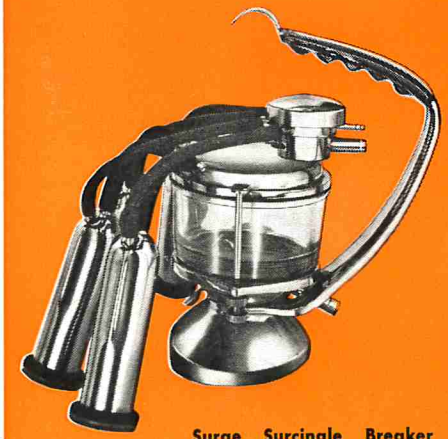

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