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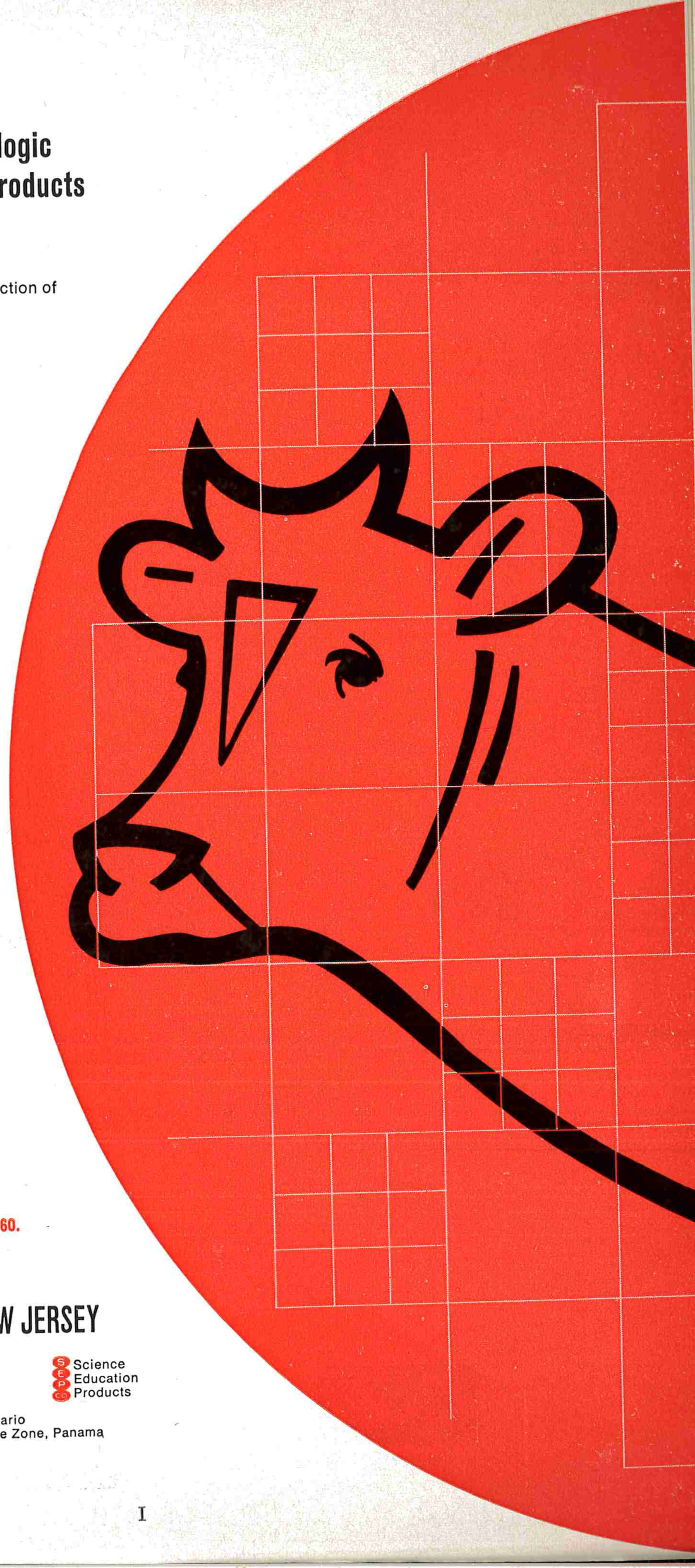

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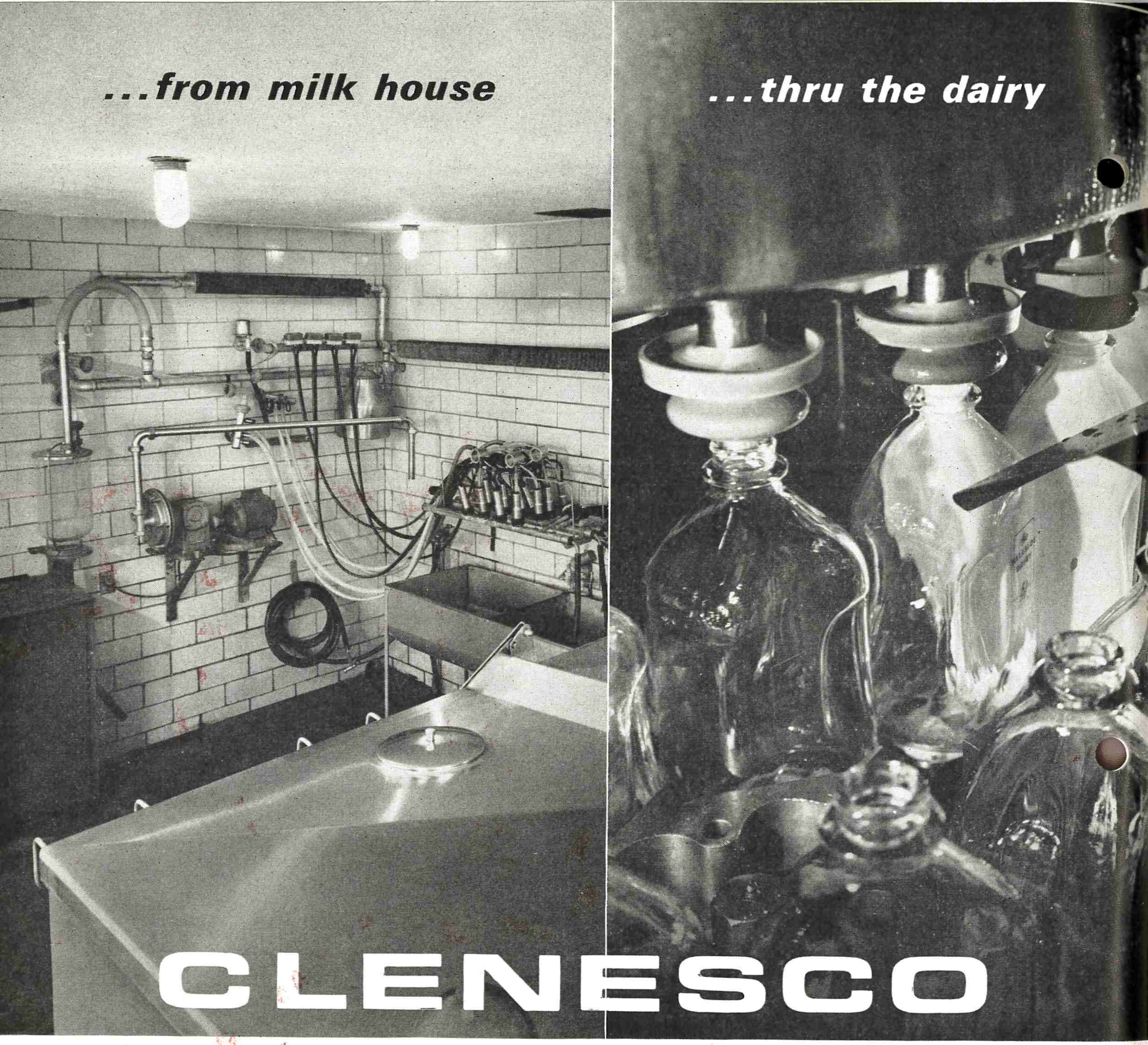

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Volume 27 June, 1964 Number 6

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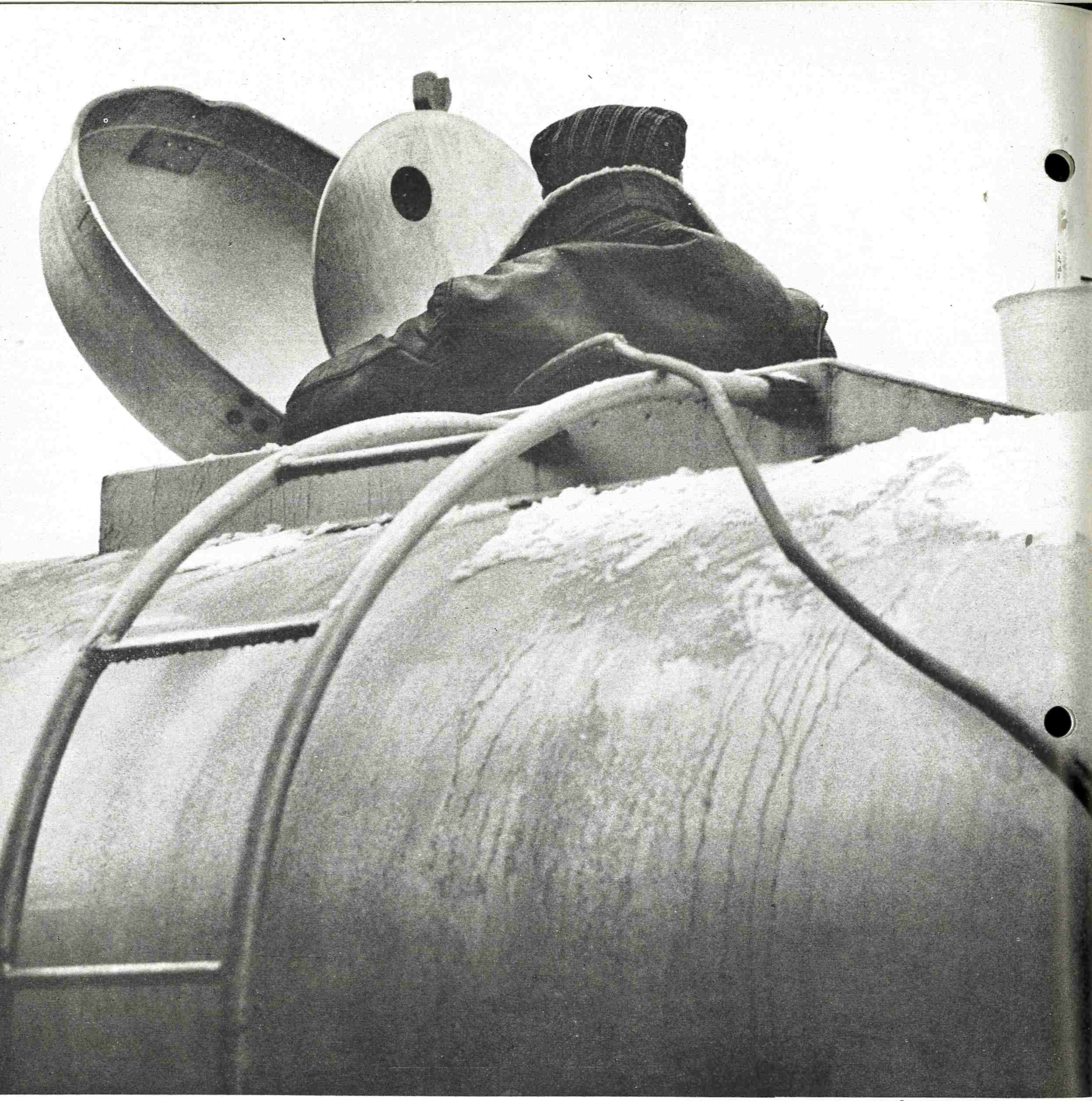

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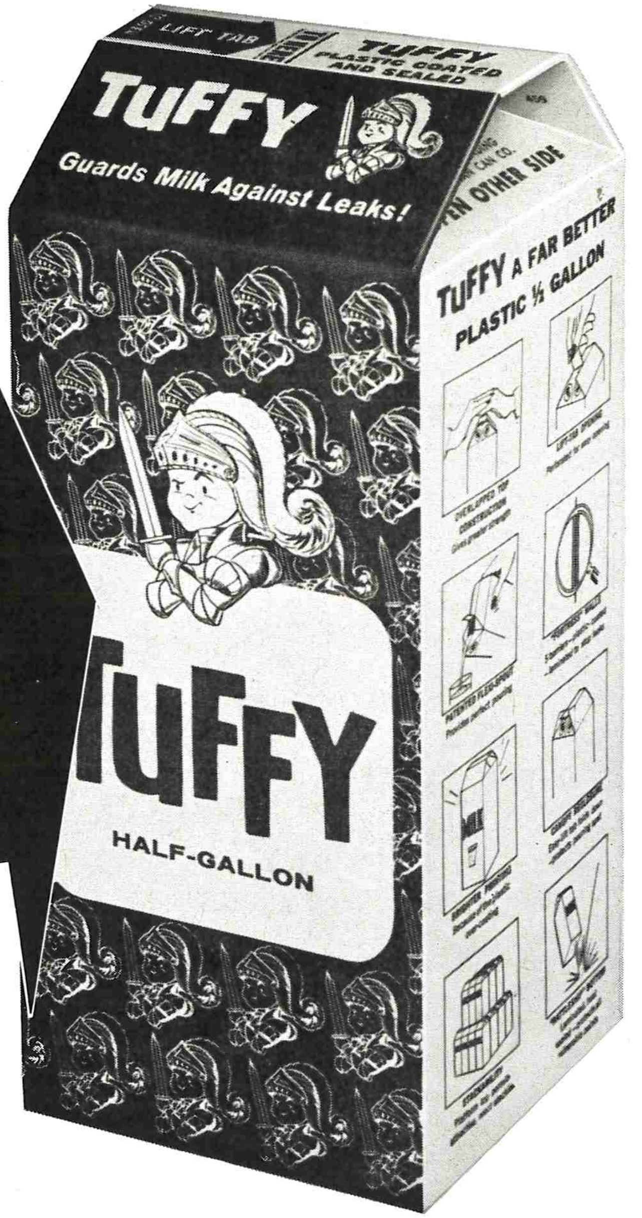

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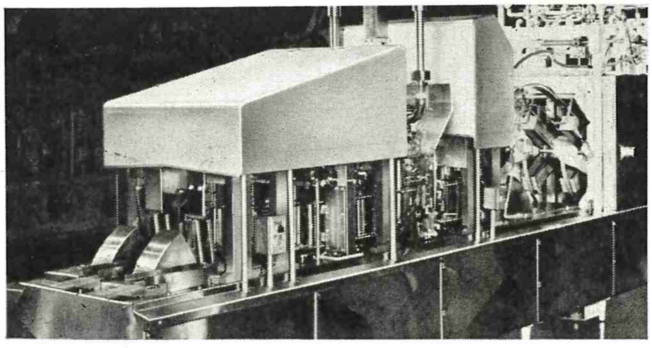

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COMPARATIVE DESTRUCTION OF LACTIC STREPTOCOCCUS BACTERIOPHAGES ON VARIOUS SURFACES BY GERMICIDAL AEROSOLS[1, 2]

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(Received for publication November 21, 1963)

Summary

A comparison was made of destruction by various germicidal aerosols of lactic streptococcus bacteriophages on a number of different types of representative building surfaces and stainless steel. With the exception of the stainless steel the surfaces were coated either with enamel or epoxy resin. Surfaces were contaminated by fogging with a phage suspension in a test chamber. After 15 min, germicide was fogged into the chamber and phage recovered from surfaces by scrubbing with inactivator solution.

Chlorine compounds as represented by dichloroisocyanuric acid (DCCA) and sodium hypochlorite (NaOC1) were markedly superior to quaternary ammonium compound (QAC) and phosphoric acid wetting agent (PAWA). Porosity of surface greatly influenced rate of phage inactivation. Aerosols appeared to be most effective on surfaces in the horizontal as compared to the vertical position. Complete inactivation of phage was not realized with either QAC or PAWA at all concentrations tested. However, fogging levels of 2000 ppm DCCA and NaOC1 attained 100% of destruction of bacteriophage on horizontal building surfaces and 500 to 1000 ppm accomplished this on stainless steel.

Dairy plants, particularly those that manufacture cultured products, have many surface areas where viable bacteriophage particles may accumulate. These may include rooms constructed of various building materials, large vats, process and holding tanks and utensils. Presently, sanitizing of large surfaces for bacteriophage destruction is accomplished by spraying or fogging with germicidal solutions; however, there has been no effort to determine the type or concentration of germicide most suitable for the particular surface to be sanitized.

Two previous reports present the methods for infecting and sampling air of a test chamber and comparison of effectiveness of different germicides applied as aerosols *(2, 3)*. The present study represents a series of tests using different germicidal aerosols on typical representative surfaces by a modification of a method described in a previous paper *(2)*. The surfaces were tested in various positions in respect to spatial relations. Surfaces of building materials were coated with either typical dairy enamels or special epoxy resin coatings. Comparative results were determined using varying concentrations of representative types of germicides with *Streptococcus cremoris* 144F phage as the test agent.

Experimental

Selection of surfaces was based on what would typically be found in a dairy plant. Wood, plaster, cement block, floor tile and glazed tile were used as representative building materials. Stainless steel in the form of a stainless tray 10x14x2 in. was used as the material that would be representative of vats, process and holding tanks and utensils. The building surfaces were cut to a dimension of 6x9x¾ in. and had an exposed surface of approximately 134 in^2. These surfaces were painted with either a dairy enamel or coated with an epoxy resin (Epi-Gard 60, Detroit Graphite Co.) finish. In preparation for a given germicidal aerosol run, the surfaces were either sterilized by autoclaving or sanitized by chemicals. The latter involved aseptically dipping the surface into a 25 ppm chlorine solution for 5 min, rinsing with a thiosulfate inactivator solution, then purging with generous amounts of sterile water and finally drying with sterile gauze. The surfaces then were positioned either upright or placed flat on sterile glass rod supports (Figure 1) in a sterile stainless tray. Trays containing the surfaces then were placed in a definite area in the test chamber. These positions were maintained in all ensuing trials with experimental germicides.

Application of the infection mixture of phage and of germicide was as described in an earlier paper *(2)*, except the timing sequence was altered; after infection, a 15-min period was permitted to allow the phage to settle upon the surfaces. This was followed by a 45-sec application of the experimental germicide. Another 5-min period then was permitted to insure contact of the aerosol with the infected surfaces before their removal from the chamber. The tray containing the test surface then was aseptically removed from the test chamber. Any manipulations of the test surfaces outside of the test chamber were done with sterile rubber gloves. Using a sterile stiff-bristled brush, the viable phage was dislodged from the entire test surface into the tray by gently scrubbing while inactivator solution was being applied to

[1]Technical Paper No. 1746 Oregon Agricultural Experiment Station.

[2]This work was supported in part by a grant from Klenzade Products, Incorporated.

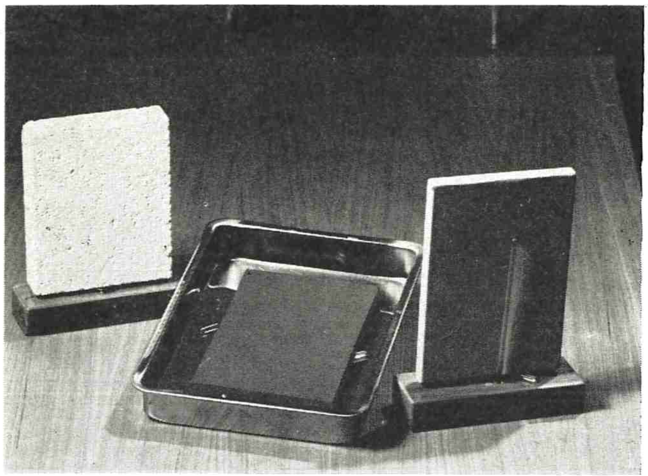

Figure 1. Mounting and positioning of surfaces in test chamber showing from left to right: upright positioned epoxy resin coated cement block on glass rod supports; horizontally positioned floor tile supported by glass rods and contained in stainless steel tray; upright positioned painted wood supported by glass rods.

the brush. A total of 50 ml of inactivator was found to be adequate to scrub the entire surface. After this procedure, the tray was tilted slightly to allow drainage of the surface for approximately 5 min. Aliquots then were removed and appropriate dilutions made for assaying of phages by the plaque count technique. Total numbers of phages collected for any given surface were reported.

Effect of surface texture or finish on virucidal activity of germicidal aerosol was also a factor considered. These ranged from a porous rough surface in the case of cement and floor tile, a nonporous semirough surface represented by glazed tile, a semiporous semismooth surface represented by painted wood and plaster and finally to a nonporous smooth surface represented by stainless steel. Coating surfaces with epoxy resin finish greatly diminished the porosity of many of these surfaces. Figure 2 illustrates types, texture and coating of some representative surfaces used.

Dichloroisocyanuric acid (DCCA) and sodium hypochlorite (NaOCl) were used in this study as representative chlorine-releasing compounds; other germicides used were quaternary ammonium compound (QAC) and phosphoric acid wetting agent (PAWA).

To promote adverse conditions in favor of phage survival, USDA water of 500 ppm hardness was used to dilute the experimental germicide *(5)*. Phages to be inoculated on surfaces were suspended in sterile whey and necessary dilutions made in sterile whey to insure phage survival.

RESULTS

Destruction of 144F phage on surfaces by various concentrations of chlorine-containing aerosols.

DCCA and sodium hypochlorite (NaOCl) were used as representative chlorine-releasing compounds in this series of experiments. A control run using USDA water of 500 ppm hardness instead of germicide was used as the reference standard. Table 1 indicates the results obtained using varying concentrations of germicide. Effective inactivation of 144F phage was noted at all concentration levels using chlorine-releasing compounds. A definite advantage was noted, however, with smooth surfaces that were the least porous. Stainless steel being nonporous and smooth offered the best surface for inactivation of surface-borne phage. Aerosol applied from a 500 ppm solution of DCCA or 1000 ppm NaOCl was effective in inactivating 144F phage on stainless steel. Floor tile, the most porous surface, was found to retain the greatest numbers of viable phage. Coated wood and plaster which had a texture porosity between floor tile and stainless steel retained decreasing numbers of particles with increasing concentrations of aerosol. Complete inactivation of phage particles was not obtained on floor tile, coated wood and coated plaster until a 2000 ppm solution of DCCA or NaOCl was applied as an aerosol.

Positioning of the various surfaces to simulate actual conditions where surfaces are to be found was felt to be important. Table 2 illustrates the effect of DCCA aerosol on upright surfaces. These building surfaces included wood, plaster, cement and glazed tile. With the exception of glazed tile, all surfaces were coated with an epoxy resin finish. The rough side of glazed tile was covered with aluminum foil

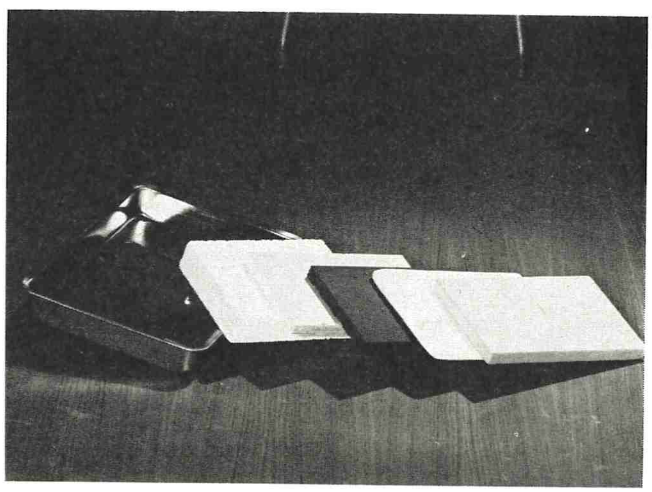

Figure 2. Representative surfaces used in evaluating effectiveness of germicidal aerosols on surface-borne phage, showing from left to right: stainless steel, epoxy resin coated cement block, glazed tile, floor tile, epoxy resin coated plaster, and painted wood.

TABLE 1. DESTRUCTION OF 144F PHAGE ON SURFACES BY VARIOUS CONCENTRATIONS OF CHLORINE-CONTAINING AEROSOLS

Germicide	ppm solution	Total number and percent inactivation[a] of phage particles following treatment of different inoculated surfaces[b]			
		Wood	Plaster	Tile	Stainless steel
		(No./surface)	(No./surface)	(No./surface)	(No./surface)
Control[c]	0	8.95x10^7	7.35x10^7	1.70x10^7	2.65x10^8
DCCA	500	5.50x10^2 (99.999)	2.50x10^2 (99.999)	1.65x10^3 (99.990)	0 (100.000)
	1000	1.35x10^3 (99.998)	1.25x10^3 (99.998)	4.50x10^2 (99.997)	1.50x10^2 (99.999)
	2000	0 (100.000)	0 (100.000)	0 (100.000)	5.00x10^1 (99.999)
NaOC1	500	1.00x10^2 (99.999)	1.00x10^2 (99.999)	1.22x10^4 (99.928)	3.50x10^2 (99.999)
	1000	4.00x10^2 (99.999)	1.75x10^3 (99.998)	5.00x10^1 (99.999)	0 (100.000)
	2000	0 (100.000)	0 (100.000)	0 (100.000)	0 (100.000)

[a]%phage inactivation in parentheses.

[b]Surfaces were positioned horizontally.

[c]Total phage particles collected when USDA water 500 ppm hardness was used instead of germicide.

TABLE 2. EFFECT OF DCCA AEROSOL ON 144F PHAGE CONTAINED ON UPRIGHT SURFACES

Germicide	ppm solution	Total number and percent inactivation[a] of phage particles following treatment of different inoculated surfaces[b]			
		Wood[a]	Plaster[a]	Cement[a]	Glazed tile
		(No./surface)	(No./surface)	(No./surface)	(No./surface)
Control[b]	0	1.10x10^7	1.10x10^7	2.65x10^7	1.15x10^5
DCCA	500	1.50x10^4 (99.864)	9.75x10^3 (99.911)	1.12x10^4 (99.958)	9.50x10^2 (99.182)
	1000	1.20x10^4 (99.891)	4.50x10^3 (99.959)	9.00x10^3 (99.966)	6.00x10^2 (99.478)
	2000	3.50x10^2 (99.997)	8.50x10^2 (99.992)	5.00x10^2 (99.998)	5.00x10^1 (99.956)
Exposed surface		130.5 in.^{2}	131.3 in.^{2}	137.6 in^2	51.75 in.^{2}

[a]Surfaces coated with epoxy resin enamel.

[b]Total phage particles collected when USDA water 500 ppm hardness was used instead of germicide.

Note: % phage inactivation in parentheses under each total phage particles collected.

so that the only exposed part was the glazed surface. The results indicate that 99% of the phages residing on the above mentioned surfaces were inactivated with DCCA aerosol applied from a 500 ppm solution; however, viable phages were found even after application of an aerosol from a 2000 ppm solution. A level of 2000 ppm DCCA approached the soluble limits of this compound, therefore, higher concentrations were not attempted. In comparing the destruction of 144F phages by DCCA aerosols in different positions, the results further indicated that aerosols were most effective on surfaces in the horizontal position.

Destruction of 144F phage on surfaces by various concentrations of PAWA and QAC aerosols.

To compare the virucidal activity of germicidal aerosols on surface-borne phage, a series of trials was run using different concentrations of PAWA and QAC. It was of interest in this section to determine whether PAWA and QAC aerosol, found ineffective on air-borne phage, would be effective on surface-borne phage. Since contact between germicide and the agent to be destroyed was facilitated in these surface studies, it was felt that virucidal activity would be enhanced. The surfaces used in this study were identical with those used in surface trials with chlorine compounds, and testing was done in the same manner.

Table 3 gives the results of a series of trials using PAWA and QAC aerosols applied from solutions of varying concentrations. Surface-borne phage 144F on wood and plaster was quite resistant to QAC aerosol; however, 99% inactivation was noted on tile and stainless steel using 2000 ppm QAC. The merits of a smooth nonporous surface were again illustrated with QAC aerosols. When 500 ppm QAC was administered on 144F phage contained on stainless steel, a 99% inactivation was attained. PAWA was found to be a better inactivator of surface-borne phage than air-borne phage. Results indicated that 99% inactivation of 144F phage on all surfaces occurred using 500 ppm PAWA. However, viable phage was collected from all the surfaces tested even when PAWA aerosol was increased four times. Complete inactivation of phage was not realized with either QAC or PAWA at all concentrations tested.

DISCUSSION AND SUMMARY

The chlorine compounds were found to be superior to other germicides tested in inactivating bacteriophages in all concentrations and under all conditions studied. In a previous study *(3)* a concentration of .097 ppm available chlorine in the test chamber attained with 2000 ppm available chlorine in the solution applied, destroyed all air-borne phages. At this same level of application DCCA and NaOC1 were found to be completely effective on all surfaces tested in a horizontal position. An inactivation level of 99.9% or better was attained on upright surfaces at this same concentration. Particular interest was shown in DCCA as the result of earlier findings *(3)* in which it was shown that this product was the least corrosive of all chlorine-containing compounds. A relatively noncorrosive compound of this nature would be especially desirable for sanitizing surfaces such as stainless steel.

Aerosols of PAWA and QAC were more effective in destruction of phages on surfaces than when the test agents were suspended in the air. However, it was apparent that these two germicides were less effective than chlorine for surface disinfection and were completely ineffective for destruction of air-borne phage. The increased efficiency in inactivating phages on surfaces was probably due to the physical environment enabling the germicide to come in con-

TABLE 3. DESTRUCTION OF 144F PHAGE ON SURFACES BY VARIOUS CONCENTRATIONS OF PAWA AND QAC AEROSOLS

Germicide	ppm solution	Total number and percent inactivation[a] of phage particles following treatment of different inoculated surfaces[b] — Wood	Plaster	Tile	Stainless steel
		(No./surface)	*(No./surface)*	*(No./surface)*	*(No./surface)*
Control[c]	0	8.95×10^7	7.35×10^7	1.70×10^7	2.65×10^8
PAWA	500	2.60×10^5 (99.710)	2.30×10^5 (99.690)	3.30×10^4 (99.806)	2.50×10^4 (99.991)
	1000	1.10×10^5 (99.877)	9.00×10^4 (99.878)	4.90×10^3 (99.971)	9.05×10^4 (99.966)
	2000	9.85×10^4 (99.890)	1.40×10^4 (99.809)	3.15×10^4 (99.815)	2.75×10^4 (99.990)
QAC	500	5.52×10^7 (38.200)	5.85×10^7 (20.500)	1.30×10^6 (92.360)	4.85×10^5 (99.817)
	1000	3.20×10^7 (64.300)	3.80×10^7 (48.300)	3.45×10^5 (97.970)	1.85×10^5 (99.931)
	2000	3.30×10^7 (63.100)	1.15×10^7 (84.350)	5.00×10^4 (99.760)	2.05×10^4 (99.992)
Exposed surface		76.5 in.^{2}	74.0 in.^{2}	76.5 in.^{2}	161.0 in.^{2}

[a]%phage inactivation in parentheses.

[b]Surfaces were positioned horizontally.

[c]Total phage particles collected when USDA water 500 ppm hardness was used instead of germicide.

tact with the phage particle on the surface of a given material. Results suggested that greater inactivation occurred on horizontal surfaces similar to floors and bottoms of vats, rather than the same types of surfaces that are vertical such as sides of tanks and walls. In considering these results, it must be recognized that germicidal aerosols have a tendency to fall out and accumulate on surfaces that are horizontal with respect to the fall out cloud. Aerosols undoubtedly deposit on all other surfaces; however, the quantity of germicide on vertical surfaces might be considerably less than on horizontal surfaces.

The effects of different textures were illustrated by increased virucidal activity on stainless steel (a smooth nonporous surface) in contrast to the reduced activity on porous surfaces such as floor tile. Stainless steel exhibited the best characteristics for effective phage inactivation, however, the coarseness of these surfaces apparently influenced the retention of organisms. This also was demonstrated by Futschik *(1)* who found that coarse finished steel retained more organisms than smooth, hot or cold rolled stainless steel. Thus it appears that porous floor tile, coated wood and plaster retained viable phages and provided more protection against all germicidal aerosols. An important aspect related to practical control of phage contamination has been suggested by Stedman et al. *(4)* who indicated that the routine practice of disinfecting porous surfaces would increase the efficiency of subsequent disinfections. If such a practice were maintained, as for example by routine chlorine application, it would be conceivable that phages could be controlled on these porous surfaces.

Although no comparative study was made on inactivation of phage on the same structural materials with different coatings, the results with surfaces of different porosity (Table 1) suggest that the smooth surface provided by epoxy resins and similar coatings should facilitate phage destruction. The epoxy coating of the cement block, definitely showed porosity advantages over uncoated cement. Wood and plaster surfaces also were improved by epoxy coating. Special coatings should therefore be considered for walls and ceilings of culture propagation and cultured products manufacturing rooms.

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THE NEW YORK STATE MILK CONTROL PROGRAM

FIFTY YEARS OF PROGRESS

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State of New York, Department of Health, Albany

and

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This paper describes the development of the New York State Health Department milk program leading to the present cooperative in-state official agency-industry supervision of milk quality. The control program in-state is decentralized; out-of-state it is centralized. The part played by the State, a state district office and a county health department is described.

The State Health Department Program

Program development

In 1913 the Public Health Council of New York State adopted a Milk Code to control the milk supplies of the State. Seven grades of milk were established based upon the dairy farm score and bacterial count of the milk.

Routine inspection of pasteurization plants began in 1917. A peak number of 1475 pasteurizing plants was reached in 1941. In 1936 the State Legislature enacted the Import Milk Inspection Law and out-of-state milk inspection began July 1, 1937. A major change in the State Sanitary Code, effective January 1, 1959, instituted a cooperative program of official agency-industry prepasteurized milk control within the State. Today there is only one grade of pasteurized milk and all milk is required to come from herds free from tuberculosis, brucellosis and mastitis.

Table 1 shows that roughly 15 million quarts of milk from 50,000 dairy farms are processed for all purposes in New York State each day. Of this, 52% comes from New York City supervised in-state farms, 27% comes from out-of-state farms under the New York State Health Department import program, 14% comes from farms supervised by city and county health departments, and 7% from farms supervised by State district offices. The milk is processed in 307 prepasteurization plants and 658 pasteurization plants. About half of the milk is used for manufactured products.

Making this huge supply of milk safe and wholesome is primarily the responsibility of the New York State Department of Health including the city and county health departments. Reaching this goal requires that the Department concern itself with milk at three points: (*a*) as delivered to the consumer, (*b*) at the pasteurizing plant, and (*c*) at the dairy farm.

Table 1. The New York State Milk Program Work Load — 1962

	Dairy farms		Processing plants	
	Number	Production per day (qts)	Prepast. plants	Past. plants
In New York State	36,816[a]	11,082,000	639	202
Under N. Y. State inspection	10,771	3,242,000	600[c]	27[d]
Under N. Y. City inspection	26,045	7,840,000	39[e]	175
Out of New York State	13,556	4,080,000	19	119
Under N. Y. State inspection	13,556	4,080,000	13	14
Under N. Y. City inspection			6	105
Total	50,372	15,162,000[b]	658	307

[a]Does not include approximately 1630 dairy farms shipping out-of-state or producing milk only for manufacturing purposes.
[b]Average of 301 quarts per farm per day.
[c]Includes 28 plants at State and County Institutions. There are 298 pasteurization plants under State district office supervision, 44 under city health departments, and 230 under county health departments.
[d]21 are plants selling raw milk under permit.
[e]Does not include 63 plants with pasteurizing equipment used for manufactured products including sour cream, storage cream, ice cream, condensed milk, powdered milk, cheese curd.

The Department's success in its mission is best shown by the fact that since 1949 there have been no outbreaks of milk-borne disease in New York State. The public today correctly assumes that the milk they drink is safe and that the era of disastrous milk-borne epidemics is past. Public support for the almost universal application of pasteurization has helped achieve this goal. Practically speaking, nearly all milk consumed in New York State today has been pasteurized and is in conformance with standards established in the public interest.

Survey of operational practices

Recent technological advances have introduced new hazards of undetermined potential to milk. Chief among these are pesticides, radioactive particles, antibiotics, detergents and other exotic chemicals. These newer contaminants must be prevented from entering milk at the dairy farm. Automation on farms and in dairy processing plants has increased, making inspection work more exacting. Small dairy farms and pasteurization plants are being replaced by larger farms and plants; thus many more consumers are served from a single processing plant than formerly. Breakdowns in sanitation at a large farm or plant could affect thousands more consumers than previously.

In view of these developments, a decision was made in 1956 to resurvey the then existing system of sanitary milk control. Primary responsibility for inspecting farms had been placed on city and county health departments and on town and village part-time health officers.

The survey revealed that 41% of the dairy farms in counties served by State Health Department district offices had substandard facilities for milk quality control. Fewer farms had substandard facilities in areas served by city and county health departments; these percentages were 25% and 19%, respectively.

The low performance rating of farms in areas served by district offices was not too surprising. Milk inspection in these areas was ostensibly handled by part-time health officers, but these persons, usually practicing private physicians, seldom had time to inspect dairy farms. A few communities in these areas hired a local inspector to do this work.

Another index of quality control on dairy farms is the bacterial count of milk before it has been pasteurized. In 1956, bacterial counts of mixed prepasteurized milk produced on farms in state health district areas showed only 59% compliance with established standards. Considerably better compliance was reported in city and county health department jurisdictions.

A new approach indicated

The 1956 survey clearly indicated the need to develop a new control system which would produce milk, which was not only safe but was of topmost quality. After thorough study of the problem, the Department's milk sanitation experts developed a joint health department-industry program which included the following major points:

1. Inspection of pasteurization plants by health department personnel to ensure continued safety of New York's milk supply.

2. Inspection of dairy farms by health department staff and qualified inspectors employed by industry to ensure the quality of milk reaching pasteurization plants.

As the system developed, industry played an expanding role in the routine inspection process with department personnel conducting annual spot-checks and follow-up inspections. In support of the cooperative program, the New York State Public Health Council amended Part 3 of the State Sanitary Code to provide for this new and expanded quality control role by industry. The new system went into effect January 1, 1959.

Progress under the cooperative health department-industry inspection system

Five years of experience have accumulated using the cooperative system of inspections of dairy farms. Today's program requires the processor to inspect at least annually each dairy farm supplying milk directly to his plant and to followup on items not in compliance with the State Sanitary Code. Industry inspectors, whose qualifications are approved by the health department, must be used. It is also required that the milk from each dairy farm be sampled at not less than 3-month intervals, with follow-up inspections where indicated. Prepasteurized milk from other processing plants and from each tank truck collecting milk from farms having bulk milk installations are sampled monthly. The result is that fewer official agency man hours are needed to control prepasteurized milk. The official agency can now devote greater attention to special problems at the pasteurization plant. It can provide more consultation and training service to industry, more effectively supervise industry inspection personnel and review sanitation records, exercise greater surveillance made necessary by technological development, and continue its evaluations of the entire milk program with emphasis on safety and quality without increased manpower. It should be pointed out that dairy farm inspections include completion of a uniform State approved industry endorsed score sheet and that samples are required to be examined in an approved laboratory. The work of some laboratories can be considered acceptable for only gross screening at best and will have to be brought up to standard or eliminated. The compliance of dairy farms with quality control standards for prepasteurized milk has consistently improved since the cooperative health department-industry inspection system went into effect.

One local health department began the cooperative inspection system in 1956. At that time 74% of the prepasteurized milk it sampled met quality control standards. Surveys made in 1961, 1962, and 1963 show that most city and county health departments and district offices in New York State have shifted responsibility for the control of prepasteurized milk to industry. Two local programs are described below.

A STATE HEALTH DEPARTMENT DISTRICT OFFICE PROGRAM

Prepasteurized Milk control

In the Binghamton District of the New York State Health Department, the milk processing plant operators have the primary responsibility for the routine inspection of the dairy farms of their producers. This work is performed by qualified industry inspectors. It includes all regular semi-annual or annual inspections and such reinspections as may be necessary to secure improvement in conditions at the farms revealed by the results of bacterial tests, sediment tests, Modified Whiteside Tests and tests for antibiotics. Reports of such inspections are placed on file at the respective plant.

Official inspections are made of all new dairies or transfer dairies coming from markets not under health department supervision. Annual inspectional surveys are also made with each industry inspector of some of the producers for each processing plant. In the case of larger plants, a proportionately larger number of dairy farms are surveyed. However, plants having 1 to 9 producers have all their farms officially inspected at present. The work of each industry inspector is judged by the level of compliance of the dairy farms under his inspection.

Samples for quality control tests are taken by the plant operator. The operator usually hires a private laboratory to make bacterial tests and tests for detection of antibiotics, unless the milk company has its own laboratory. Although bacterial tests of producers' milk are required only once every 3 months, industry samples all plants in the Binghamton District at least monthly; the large plants check producers' samples semi-monthly. Samples are collected for the producer-dealer and small processor by the District Office representative. Copies of reports of all bacterial, Whiteside and antibiotics tests are sent to the District Office and the sanitarian checks to see that unsatisfactory results are followed up promptly in accordance with the Sanitary Code requirements. The total work load and quality of prepasteurized milk in 1962 are shown in Tables 2 and 3.

TABLE 2. DAIRY FARM SUPERVISION, BINGHAMTON DISTRICT, NEW YORK STATE HEALTH DEPARTMENT

Item	Number
Dairy farms under supervision	635
Re-inspection by industry inspectors (in addition to 638 routine annual inspections)	209
Official inspections (including 30 special refrigerated bulk milk farm tank surveys)	107
Quarts of milk produced per day	265,000

Table 3 shows the level of quality control work performed by the industry on producers' and prepasteurized milk supplies as compared to official sampling. The limited official prepasteurized milk sampling has been adequate to show the true compliance or noncompliance of milk supplies with Code requirements and the need for improved industry laboratory work. Repetitious routine sampling has been discouraged as being a waste of money. Effort is being redirected toward higher quality and more dependable industry laboratory work supplemented by intelligent follow-up.

A number of meetings have been held in cooperation with industry quality control personnel and county farm extension representatives on various topics pertinent to improving milk production methods and milk quality. In an 18-month period, five such meetings were held in the Binghamton area on the following topics:

TABLE 3. OFFICIAL AGENCY AND INDUSTRY PREPASTEURIZED MILK QUALITY, BINGHAMTON DISTRICT OFFICE, NEW YORK STATE DEPARTMENT OF HEALTH

	Official		Industry[a]	
Tests	No. of samples	Percent compliance	No. of samples	Percent compliance
Direct Microscopic Counts	81	53.0	6233	96.9
Raw-Standard Plate Counts	81	74.2	3232	89.8
Pasteurized-Standard Plate Counts (Thermoduric)	81	89.0	5718	98.0

[a]Modified Whiteside tests, sediment tests and antibiotic tests are also routinely made.

Demonstration and Explanation of the Modified Whiteside Test.

Discussion of Sediment Testing of Farm Bulk Milk Using New Methods.

School for Farm Bulk Tank Operators and Pick-up Truck Drivers.

Discussions and Demonstrations on Proper Milking Methods and Practices.

Flavor School for Industry Inspectors & Farm Co-op Leaders.

The meetings were promoted by the Distict Office for the producer segment and industry fieldmen. Each meeting was well attended by a representative number of the interested groups for which the respective topics were planned.

For 1962, nine qualified industry inspectors, in addition to their other duties, collected the required samples and made the inspections of 638 dairy farms serving 18 processing plants under permit in the District.

An estimated 86 man-days of District Office time were devoted to field work in the overall control of prepasteurized milk samples. This included spot-check inspectional surveys of dairy farms, receiving deck test at processing plants, examination of new refrigerated bulk milk farm tank installations, and review of the results of various tests made on pre-pasteurized milk at the processing plant. In addition, an estimated 55 man-days were used in the administrative office work portion of the program.

Pasteurized milk control

There are 20 processing plants under the supervision of the Binghamton District Office, including 2 institutional (county) and 7 producer-dealer plants. In addition to making complete annual inspections, partial inspections and sampling surveys are made routinely at each processing plant during each quarter of the year by the sanitarians of the District Office. An effort is made to combine special inspections with partial inspections insofar as possible. Each partial inspection includes examination of pasteurization charts as well as operational items affecting proper pasteurization depending on the time of a visit. Follow-up inspections of all unsatisfactory sample results or plant conditions are made as promptly as possible.

TABLE 4. PASTEURIZATION PLANT SUPERVISION, BINGHAMTON DISTRICT OFFICE, NEW YORK STATE HEALTH DEPARTMENT

Item	Number
Number of pasteurizing plants	20
Quarts processed per day	124,300
Number of inspections, including quality control record review	88
Sampling visits (includes sampling visits to 5 distributing plants)	96

The pasteurization plant workload, work done and results are shown in Tables 4 and 5. Approximately 108 man days are devoted by two District Office sanitarians to the inspectional and sampling coverage of pasteurization plants.

Plant operators are encouraged to practice effective self-inspection and to keep maintenance records for equipment. These objectives are, of course, more often fully achieved in the case of large plants where the duties of personnel are more clearly defined.

TABLE 6. COMPARISON OF STREET SAMPLES 1956-1962, RENSSELAER COUNTY HEALTH DEPARTMENT, TROY, NEW YORK

	Number of		Per cent satisfactory			
Year	Plants	Samples	SPC[a]	DMC[b]	Coli[c]	Phos[d]
1956	24	434	74	67	84	99
1957	24	397	78	72	82	99.5
1958	24	388	81	69	81	100
1959	19	322	83	72	84	100
1960	17	326	84	68	82	100
1961	13	250	86	72	84	99.6
1962	12	176	84	73	88	100

[a]standard plate count; [b]direct microscopic count; [c]coliform count; [d]phosphatase test

Industry sampling of finished products is carried out on at least a monthly basis in the case of all plants except those operated by producer-dealers. Two plants sample their finished products semimonthly and one large plant makes daily tests of all finished products. Several plants also run tests on process samples. Whenever results of official samples are unsatisfactory, it is the policy to require the plant to have a set of samples tested prior to collecting official recheck samples.

A LOCAL HEALTH DEPARTMENT PROGRAM

Program work-load

Rensselaer County Health Department has been promoting the intent of the 1959 changes to Part 3 of the New York State Sanitary Code since 1956. Review of the results and efficiency of this milk program is useful in guiding administrative direction of the program.

In 1956 there were 24 pasteurizing plants in operation as compared to 12 at the end of 1962. The amount of milk processed increased from 38,000 quarts of milk per day to 58,000 during the same period (see Table 6). This trend toward large operations has been influenced by the U. S. Department of Agriculture administered laws of 1957 and 1958 including the milk marketing orders.

A similar trend has also been experienced in raw milk production. Pipeline milkers, cold wall tanks, and the introduction of modern milking equipment

TABLE 5. OFFICIAL AND INDUSTRY SAMPLING, BINGHAMTON DISTRICT, NEW YORK STATE HEALTH DEPARTMENT

			Percent compliance					
	Number of samples		Official			Industry		
Product	Official	Industry	SPC[a]	Coli[b]	Phos[c]	SPC	Coli	Phos
Pasteurized milk	338	2118	88.2	93.8	100.0	96.0	94.7	100.0
Pasteurized cream	154	1457	89.6	92.3	99.3	95.8	93.8	100.0
Pasteurized milk products	96	761	91.7	85.5	100.0	98.6	86.4	100.0

[a]standard plate count; [b]coliform count; [c]phosphatase test

and methods on the farms have made it necessary that the producer also operate on a large volume. The number of producing farms is being constantly reduced while the production of milk on the remaining farms is constantly increasing. This is well exemplified in Rensselaer County where in 1956 there were over 450 dairy farms producing milk for the Rensselaer County Milk Shed as compared to 218 at the end of 1962.

Prepasteurized milk control

The official farm inspection work as shown by Figure 1 and Figure 2 has been drastically reduced since 1956 but approximately 20 to 25% of the raw milk sources are still inspected. Industry's participation in the control of the prepasteurized milk supply is also utilized by having all official high counts investigated by the industry inspector and recheck samples collected by them. Only on rare occasions do official agency sanitarians work on high counts at farms. Every effort is made to have

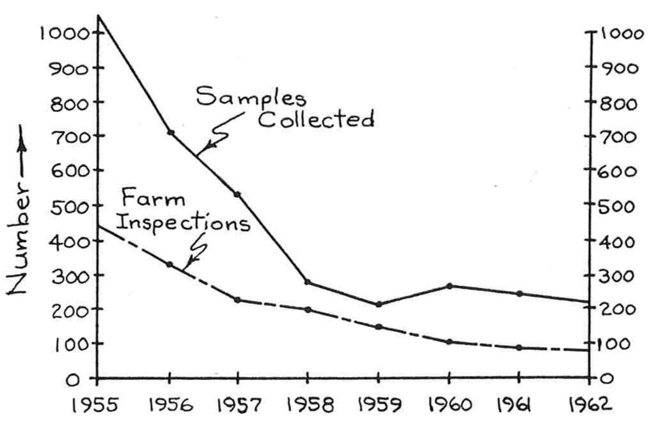

Fig. 1. Raw milk samples collected and farm inspections, Rensselaer County Health Department, Troy, N. Y. Note: Number of dairy farms reduced from 452 in 1956 to 218 in 1962.

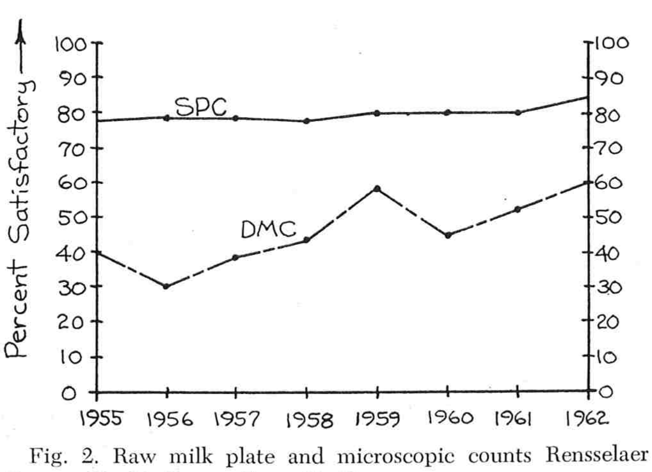

Fig. 2. Raw milk plate and microscopic counts Rensselaer County Health Dept., Troy, N. Y.

industry improve the quality of the milk which they purchase. Through an effective liaison set up between the health department and the industry representatives, and the coordination of field follow-ups, samplings, and related activities, the industry quality control programs has taken a firm hold in Rensselaer County.

Pasteurized milk control

Monthly street samples from each pasteurization plant in the county are collected routinely. In addition to this, and not included in Table 6 are process samples at each plant collected at least quarterly. Until 1961, additional sets of process samples were collected at plants if results from street samples indicated that a problem existed. However, the present approach is to call in the quality control representative to follow up any problems that may be indicated from results of sample analyses. The objective is to extend the original intent of the State Sanitary Code Part 3 changes to include the processing operations as well. This explains the reduction in the 1962 street samples; although official sampling is reduced, industry sampling is stepped up, especially when problems develop. Thus, the plant operator assumes greater responsibility for the quality of his pasteurized milk. Quality control services relative to raw milk production and pasteurization operations are also maintained by two processors who are receiving prepasteurized milk exclusively from their own herds. Under Regulation 14 and 16 of the State Sanitary Code such processors are exempt from the requirements. As can be seen, a good deal of the control activity is concentrated on the control of pasteurization plant practices. These practices provide for the final line of defense against unsanitary milk processing practices.

Private laboratory reports—a problem

The chief weakness of the county program has been the lack of confidence in reports by some private laboratories. The success of the quality control program by industry depends greatly on the reliability and accuracy of bacterial determinations by their laboratory. The laboratory and the industry qualified inspector reports on the flavor, odor, bacteriological quality, temperature, and sediment of the raw product. Laboratory reports guide the field men to locating conditions that may be responsible for an unsatisfactory raw milk quality.

On several occasions industry reports from out-of-county have been found to conflict with official county health department laboratory reports on samples collected at about the same time. Although the correlation on direct microscopic counts and standard plate counts cannot be expected to be perfect, invariably the industry counts were low. This has been a serious impediment to the success of the program. The processor receiving such industry reports is unaware of the poor quality of the milk he is purchasing; he becomes complacent and labors under a false sense of security. Inevitably, a state of confusion results when official reports on similar samples are at variance with the industry report. For example a private laboratory examined 206 milk samples from three plants and reported 93% of the samples in compliance with the standard plate count (SPC) standard. Seventy-four official milk samples collected from the same plants showed 78% compliance.

The health department's 1960 Annual Report on all official producer samples collected for the year showed 80% compliance on SPC which compares favorably with the 78% compliance indicated above. As a matter of fact, from 1956 to 1960 percentage compliance on SPC has only varied from 74 to 80% (80 to 84% in 1961 and 1962), yet this same out-of-county laboratory showed an exceptional 93% compliance. It can only be concluded that the private laboratory's reports were questionable on all work done from 1956 to 1960. This resulted in processors seeking more reliable laboratory services.

On another occasion the county health department caused another out-of-county industry laboratory to change its procedures and techniques because its results were misleading and incorrect. In a third instance, an out-of-county processor changed its laboratory service because results reported were shown to be always unrealistically low.

The county milk control program

The county health department milk control program is summarized as follows:

1. The quality control supervision by industry as required by changes in the State Sanitary Code effective January 1, 1959 is valuable as a supplement, not a substitute, to official control. The program must be a joint health department-industry cooperative effort if true quality control in milk production is to be realistically maintained.

2. The success of a milk quality control program is seriously jeopardized by inferior work of some private laboratories. It is imperative that substandard laboratories be eliminated.

3. The success of a quality control program depends upon: (*a*) qualified, reliable fieldmen, (*b*) a close liaison between industry and the health department to promote a good working relationship to accomplish the common objective of producing high quality raw milk, and (*c*) a proper field audit program by state and local health departments.

4. To further the intent of these changes, the next logical step would be to extend the program to include processing operations. This would be the ultimate goal of the milk sanitation program.

DISCUSSION

As noted before, new potential hazards to milk have been introduced since 1955. The effect on health of these relatively new potential hazards are still being assessed by the Public Health Service and other health agencies. Meanwhile, the only safe course of action is to maintain control over the milk supply from the dairy farm to the consumer. The State Health Department together with 30 city and county health departments and 13 district health offices maintain continual control and surveillance over the milk supply. The staff in these offices includes professional full-time health officers, sanitary engineers, veterinarians, and sanitarians. This trained manpower is continually on the alert to detect and promptly eliminate or control any significant dangers to the public health through milk.

The absence of recognizable disease, effective pasteurization, and low bacterial counts are effective indicators of high quality milk supplies. Supplemental surveillance measures include tests for chemicals, toxins, antibiotics, viruses, radioactive contaminants, and quality of field inspection and laboratory work.

Experience to date has turned up some weaknesses in the industry inspection system that need to be overcome. Closer cooperation among dairy plants, better laboratory work, greater industry support of their qualified inspectors, and more technical assistance to the producers will do much to achieve progress.

The training of industry inspectors is being intensified by having health agency personnel work closely with these persons. The Health Department helps to train industry inspectors engaged in the Interstate Milk Shippers Program; this also improves industry inspection in general throughout the State. The first of a series of 11 one-half day annual training sessions conducted by the State Health Department in cooperation with Cornell University was completed in 1963. A second series has been scheduled for the Fall of 1964 in addition to other special training courses.

Industry inspectors need refresher courses to keep them interested in their work and up-to-date on acceptable standards. To train and supervise industry inspectors on a continual basis, health agencies need to maintain staffs of adequate size and skill.

CONCLUSIONS

A safe milk supply for New York State is ensured by the almost universal pasteurization of milk consumed within the State. There have been no milk-borne disease outbreaks in New York State since 1949.

Careful review of experience to date indicates that the present cooperative system of health department-industry inspection and sampling of prepasteurized milk, in addition to pasteurized milk, is effective in providing a safe supply of wholesome milk for the people of New York State.

To strengthen the cooperative health department-industry inspection system without adding to its cost, the State Health Department will:

1. Continue to train and certify qualified industry milk inspectors.

2. Make clear that certified industry inspectors who fail to perform up to standard will have their certification revoked.

3. Assist and evaluate more intensively the State district office and local health department total milk programs including industry farm inspection and laboratory work.

4. Keep state district health offices properly staffed to ensure continued improvement of the milk quality control program; city and county health departments are generally staffed satisfactorily, and these staffs should be kept strong enough to handle new problems in milk quality control.

5. Continue to provide official laboratory service for milk and water analyses in the Department's Division of Laboratories and Research, and support approved local health department laboratories.

6. Routinely carefully survey and assist private laboratories to ensure reliable reporting.

Eventually, the inspection system can, with the concurrence of the dairy industry, be broadened to include greater industry self-inspection in pasteurization plants. This is now being done on a voluntary cooperative basis in some local health units.

The net result of the cooperative official agency-industry supervision is a stimulation of interest in milk quality control which produces a greater return than the sum of individual efforts operating separately. This relatively new approach to milk control is fostered by the fact that in New York State there is basically only one milk control sanitary regulation.

INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC. COMMITTEE REPORTS

REPORT OF THE 3-A SANITARY STANDARDS SYMBOL ADMINISTRATIVE COUNCIL—1963

The International Association of Milk, Food, and Environmental Sanitarians constitutes one of the three members of the 3-A Sanitary Standards Symbol Administrative Council. It names four of the eight members of the Board of Trustees of the Council. It is in order, therefore, that a report of the activities and affairs of the Council be presented at annual business meetings of the Association.

Only one meeting of the Board of Trustees (March 11, 1963) has been held since the 1962 Annual Meeting of this Association, but decisions on several matters of policy were reached by mail balloting.

In the course of its nearly seven-and-one-half years of active functioning, the 3-A Symbol Council has issued 144 serially-numbered authorizations to use the 3-A symbol on specifically-named models and capacities of sixteen of the eighteen types of dairy equipment for which 3-A Sanitary Standards have been published. (No applications for authorizations covering weigh-cans and can-type strainers have ever been received).

Of these 144 serially-numbered and annually-renewed authorizations, 27 have been relinquished or have not been renewed upon expiration, as is indicated in the following tabulation:

3-A SYMBOL COUNCIL AUTHORIZATIONS ISSUED AND CURRENTLY IN EFFECT OCTOBER 15, 1963

Equipment	Number Issued	Number In Effect
0100 Storage Tanks	25	20
0200 Pumps	8	7
0300 Weigh Cans	0	0
0400 Homogenizers	3	3
0500 Automotive Tanks	24	20
0600 Electric Motors[a]	2	0
0700 Can-Type Strainers	0	0
0800 Piping Fittings	13	11
0900 Thermometer Fittings	1	1
1000 Pipe-Line Filters	1	1
1100 Heat Exchangers—Plate	8	7
1200 Heat Exchangers—Tubular	2	2
1300 Farm Tanks	36	25
1400 Leak Protector Valves	4	4
1500 Bulk Milk Dispensers	5	5
1600 Evaporators	6	5
1700 Fillers and Sealers	5	5
1900 Freezers	1	1
	144	117

[a]3-A Sanitary Standards rescinded.

In all instances the relinquishments of authorizations have been voluntary on the part of the holders, because of discontinuation of fabrication of the type of equipment covered, because of merger with another concern making similar equipment, or because of discontinuation of business.

The adoption of 3-A Sanitary Standards for "silo" tanks, ice-cream and cottage cheese package fillers, and batch pasteurizers and processors, which may be expected to become effective late in 1964, will unquestionably restore the average number of authorizations in effect to 120 or above.

The adoption of 3-A Sanitary Standards for Multiple-Use Rubber and Rubber-Like Materials Used as Product-Contact Surfaces, and of 3-A Sanitary Standards for Multiple-Use Plastic Materials Used for Product Contact Surfaces, has been assumed, by many sanitarians, to presage the appearance of the 3-A symbol on all equipment parts, and presumably on other forms and shapes, made of materials conforming to the provisions of these two sanitary standards.

The complexities of the mechanics of such an undertaking, by an organization staffed by one individual, serving on a voluntary, part-time basis, and the potentially misleading implications of the appearance of the 3-A symbol on one or several small parts of a unit of equipment, or on a tube, container, or other substitution of rubber or plastic for glass or 18-8 stainless steel, are of magnitudes unrealized by those sanitarians who look for and anticipate a package take-over of certain of their administrative responsibilities. Several serious obstacles to the extension of the identification by the 3-A symbol, to rubber and plastic parts which conform to the respective 3-A Sanitary Standards for material composition and physical characteristics, present themselves:

1. An object and purpose of the 3-A Symbol Council, stated in its By-Laws, is: "To grant authority for the use of the said symbol on dairy equipment which is approved, upon application, as complying with applicable 3-A Sanitary Standards." For over seven years we have interpreted this to mean units of equipment covering which standards of design, conformation, dimensions, and, various pertinent sanitation features, have been adopted.

2. It has been reported above that 117 authorizations are now in effect. These are renewable annually, and the certificates of the authorizations list the model numbers covered. In a number of instances the models exceed 20 to 25 in number, and models of fittings may number several hundred. Most of the holders of authorizations are members of the Dairy Industries Supply Association, or of the National Association of Dairy Equipment Manufacturers, and have participated, directly or indirectly, in the drafting of 3-A Sanitary Standards, and are familiar with and support the 3-A program. That relationship is not shared by manufacturers of rubber and plastics, and the numerous molders of parts made of these materials. The number of applicants for authorization to use the 3-A symbol on rubber or plastic dairy equipment parts cannot accurately be estimated at this time; but the potential catalogs of models to be covered by each authorization issued, and renewed annually, is appalling. Listing of models is merely stenographic mechanics; but checking of ingredients and their F&DA clearance, at least on initial applications, is not a function, once undertaken, which may become perfunctory. Such checking, however, can and will be conducted on rubber and plastic parts included in equipment covered by authorizations covering equipment now in effect, and to be issued.

3. It is conceivable that rubber or plastic parts, identified by the 3-A symbol, might be installed in equipment which does not conform to the pertinent 3-A Sanitary Standards. This could readily occur in equipment for which 3-A Sanitary Standards have not yet been adopted. In either instance, the obvious inference would be misleading.

4. To avoid confusion resulting from such situations it has been proposed that a modification of the 3-A symbol be developed to indicate only conformance to 3-A Sanitary Standards for Material.

Negotiations for acquiring and registering the 3-A symbol extended over a period of more than three years. Design and registration of a suitable modification for use to indicate only material composition and characteristics may be expected to require at least several years. It is obvious, therefore, that certifications of conformance of such parts to sanitary standards for materials by means of such a modified 3-A symbol is not effectable to be applicable to rubber, the 3-A Sanitary Standards for which became effective on April 18, 1963, nor to plastics, the 3-A Sanitary Standards for which become effective July 24, 1964.

Consequently, the Board of Trustees of the 3-A Symbol Council has adopted the policy that the Council is not in position — at least currently — to undertake the identification of materials which conform to 3-A Sanitary Standards limited to provisions for composition and/or physical characteristics. This decision has been reached after careful review of the concept of identification of conforming materials, and the By-Laws have been amended, by adding to the provision quoted above, the following text: ". . . but not to grant authority for the use of the said symbol solely because of conformance to 3-A Sanitary Standards for material."

Fiscally, the 3-A Symbol Council is in a sound position, as has been reported to the Executive Board. This is due to the fact that there are no expenditures for office furniture and equipment, except two steel filing cases, and stenographic and mimeographing service involves no expense other than the stationery and paper.

This report is concluded with a statement appended with some degree of self-conscious embarrassment. The only reports concerning misuse of the 3-A symbol received in over a year pertained to two silo-type storage tanks, for which 3-A Sanitary Standards were not adopted until early this month. Both 3-A symbols were affixed due to prevailing custom in the fabricating shops, and both symbols were promptly removed when the occurrance was called to the attention of the fabricators. But these were the only complaints of non-conformance of equipment bearing the 3-A symbol registered since the 1962 Report was presented. That statement is embarrassing, because it may be interpreted as self-praise for the administrative efficiency of the Council. It is, instead, a compliment to the seventy or more holders of authorizations, who abide by their obligations. Or, and this may be the true explanation, sanitarians are not carefully checking new equipment against the pertinent 3-A Sanitary Standards. Perfection, with respect to conformance to 3-A Sanitary Standards, among some 3000 models, marketed throughout a whole year, if substantiated, is a real achievement!

INTERNATIONAL ASSOCIATION REPRESENTATIVES ON THE BOARD OF TRUSTEES:

K. G. Weckel — M. R. Fisher
D. C. Cleveland — C. A. Abele, *Secy.-Treas.*

INTERIM REPORT OF THE COMMITTEE ON APPLIED LABORATORY METHODS—1963

GOALS FOR THE PRESENT 2-YEAR COMMITTEE

1. To provide assistance wherever possible in the preparation of the 12th Edition of *Standard Methods* and to serve as a sounding board for the IAMFES membership in regard to the nature and organization of material to be included in *Standard Methods*.

2. To be well informed on the subject of media certification and the programs suggested for implementing certification, and to provide an expression of the feelings of IAMFES where and when pertinent.

3. To evaluate the needs of IAMFES for an Applied Laboratory Methods Committee and establish if possible the areas where the best opportunities for committee contributions now exist. To restate the charge to the committee and provide some specificity to the general objectives if necessary.

PROGRESS

Most of the members of the Applied Laboratory Methods (ALM) Committee are serving in some capacity in the preparation of the 12th Edition of *Standard Methods.* Two are co-vice chairmen of the APHA Standard Methods Subcommittee and others are members of the reference subcommittees responsible for the various chapters, including chapters 1, 4 and 5, 6, 10, 12, 18 and 20. Other members of IAMFES who currently are not on the ALM Committee are also serving on the above and other chapter reference subcommittees. Consequently the views of IAMFES should be reflected, however unofficially, in the preparation of the new edition.

Media certification is proceeding slowly on the basis of APHA committee action. The course of developments in this program is well described in the 1962 and 1963 reports of the Public Health Committee of the American Dairy Science Association (J. C. Olson, Jr., Chairman). There has been no evident need for the ALM Committee to represent the International in this regard.

In the coming year, it is hoped that some consideration will be given to the nature of activities of the ALM Committee and what the responsibilities of the committee should be in terms of present day circumstances. Difficulties encountered in the past few years in establishing a well organized and sustained program have not been due to lack of interest or effort by the chairman of this committee. Apparently the problems are more complicated. There are some basic questions as to how this committee should serve. Should it be an action or referee group that actually engages in gathering data to evaluate laboratory procedures? Or, should the group serve in an advisory-interpretive role? In this latter capacity, should the committee be summoned *ad hoc,* regularly appointed as it now is, or a standing committee available to officers and board as necessary? It is hoped that the present ALM Committee can come to some agreement as to the purposes of the group and to a delineation of the bounds of responsibility. This could result in a suggestion for changes in the composition and organization of the committee, in the statement of committee objectives, and in the mechanics of committee action.

The committee solicits the comments of IAMFES members relative to any of the above described activities.

COMMITTEE MEMBERS

J. J. Jezeski, *Chairman*
Dept. of Dairy Industries
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St. Paul, Minnesota 55101

A. R. Brazis
Robert A. Taft Sanitary Eng. Center
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L. G. Harmon
Dept. of Food Science
Michigan State University
East Lansing, Michigan

B. Heinemann
Producers Creamery Company
Springfield, Missouri

F. E. Nelson
Dept. of Dairy Science
University of Arizona
Tucson, Arizona

D. I. Thompson
Wisconsin Laboratory of Hygiene
Madison, Wisconsin

REPORT OF THE COMMITTEE ON COMMUNICABLE DISEASES AFFECTING MAN—1963

This is submitted as an interrim report. In accordance with the report of the committee for 1962 and instructions from the president IAMFES, this committee is in the process of preparing a revised edition of the booklet "Procedure for the Investigation of Foodborne Disease Outbreaks". Since it has not been feasible for the committee to meet as a group to discuss the project collectively, there has been considerable individual effort. The committee chairman has utilized travel for other reasons to have individual conference with the president, executive secretary, Associate Editor of the Journal IAMFES as well as with several members of the committee.

Letters have been written to a large number of persons outside our membership soliciting their comments and recommendations regarding revision of the "Procedure". The response to our letters has been outstanding and many suggestions have been received. It seems significant that no one has questioned the usefulness of the booklet.

Work on the revision is being continued. Association members and others who have used the "Procedure" are invited and urged to submit suggested changes to the committee.

COMMITTEE MEMBERS

Stanley L. Hendricks, *Chairman*
State Department of Health
Des Moines, Iowa 50319

Robert K. Anderson
School of Veterinary Medicine
University of Minnesota
St. Paul, Minnesota

John Andrews
State Board of Health
Raleigh, North Carolina

H. L. Bryson
Vancouver Health Department
Vancouver, British Columbia, Canada

Charles Hunter
Hillcrest Medical Center
Tulsa, Oklahoma

Dwight D. Lickty
Palm Beach Health Department
Palm Beach, Florida

E. R. Price
Mo. Dept. of Public Health
Jefferson City, Missouri

Calvin E. Sevy
Milk & Food Program, HEW
Washington, D. C.

P. N. Travis
Jefferson County Health Dept.
Birmingham, Alabama

INTERIM REPORT OF THE COMMITTEE ON FROZEN FOOD SANITATION—1963

This Committee has selected two projects for study during the 1963-1964 period. A full report will be made at the 1964 Annual Meeting.

The public is exposed to a great deal of misinformation regarding the safety, wholesomeness and nutritional value of our food supply. Much of this material is presented in a sensational manner calculated to raise serious doubts as to the effectiveness of the programs and activities of the regulatory agencies. This Committee proposes to develop a pamphlet or an appropriate informational document which will emphasize the respective roles of the sanitarian and the industry in building up and maintaining the quality and wholesomeness of our food supply. We believe that it is important to give emphasis to the positive actions that contribute to the safety of our foods to counteract some of the adverse publicity and misinformation that is being peddled to the consuming public.

The new freeze-dry method of food preservation is bringing more new and special problems. This method of preparation actually concentrates the bacterial population in the food and little or no killing action occurs during the preparation steps. While there is a great deal of technical information available concerning this process, there is little or no inspectional information in the literature. We will attempt to collect direct inspectional information concerning the actual operation of freeze-drying plants and the bacterial loads in the finished product together with any other collateral information available.

Frank E. Fisher, *Chairman*	Eaton E. Smith
Glen C. Slocum	A. C. Leggatt
H. P. Schmitt	J. L. Adame
G. L. Hays	George E. Prime

INTERIM REPORT OF THE COMMITTEE ON FOOD EQUIPMENT SANITARY STANDARDS—1963

The objectives of the International Association of Milk, Food and Environmental Sanitarians Committee on Food Equipment Sanitary Standards are to participate with health organizations and industries in the formulation of sanitary standards and educational materials for the fabrication, installation, and operation of food equipment and to present to the membership those standards and educational materials which the Committee recommends be endorsed by the Association.

This Committee has been instructed by the Executive Board to prepare an interim report for 1963 and develop a comprehensive one for presentation at the 1964 meeting. Therefore, the following progress report will only briefly outline the Committee's activities this year in working with two health and industry organizations (National Sanitation Foundation's Joint Committee on Food Equipment Standards and the National Automatic Merchandising Association's Automatic Merchandising Health-Industry Council) and progress in meeting its objectives. It is expected these organizations will be the two groups that the Committee will work with during the coming year.

The NSF Joint Committee on Food Equipment Standards as well as the NAMA Automatic Merchandising Health-Industry Council are to be commended, as they both reserved approximately one-half day prior to the start of their official annual meetings for the public health representatives to review technical aspects of the programs and to discuss public health objectives and policies to be followed in their work with the entire membership of the Committee and Council. This was a valuable experience for the Association's representative and enabled the public health members to coordinate and clarify their views, thereby expediting the work of the two groups.

NATIONAL SANITATION FOUNDATION (NSF)

The members of this Committee, believing that the NSF Joint Committee on Food Equipment Standards would function better and more efficiently under a set of written policies and procedures, recommended to the NSF that such be developed. The first draft of a proposed set of policies and procedures for the Joint Committee was reviewed by this Committee and comments were submitted to the NSF. The second draft was presented for discussion at the 1963 meeting of the Joint Committee and with minor changes was given tentative approval at that time.

The NSF requested that the public health member organizations of the Joint Committee take a definite position on incorporating safety features in the Standards. These organizations generally agreed that the Standards and Criteria should relate specifically to sanitary features; but if safety devices were installed in or on food equipment, they should comply with applicable sanitary provisions of these guidelines.

The Joint Committee recommended that Standard No. 7 on Food Service Refrigerators and Freezers be revised changing the floor area of walk-in refrigerators and freezers from product zone to splash zone. The public health organizations represented on the Joint Committee are presently studying the advisability of continuing to designate walls and ceilings of walk-in boxes as product zone, as is now specified by Standard No. 7.

At the Joint Committee meeting, preliminary drafts of the proposed revision of Standard No. 1 and the proposed new Standard for Ice-Making Equipment were discussed. Suggestions for alterations, revisions, and additions were incorporated prior to mailing the second drafts to the member organization's committees. This Committee has reviewed the second draft of the proposed standard for Ice-Making Equipment and submitted comments to the NSF. It is hoped that this Standard will stimulate the ice-making equipment industry to develop sanitary equipment which will dispense measured amounts of ice mechanically thereby minimizing manual handling of ice. Comments on the proposed revision of Standard No. 1 will also be offered to the Foundation staff after the Committee has completed its review of the proposal.

Since the Joint Committee meeting, a preliminary draft of a criterion for silverware washer-dryer was submitted to the members of this Committee for review, and comments were offered to the Foundation staff on this particular type of equipment. It provides for a special machine to wash, sanitize and dry silverware.

It is anticipated that all of these proposals will be reviewed at least once more by the Committee prior to being presented at the 1964 Joint Committee meeting for final review and, with necessary modifications, adoption.

Some minor changes in wording and definition were made in the Basic Criteria C-1, Vending of Foods and Beverages; Standard No. 2, Food Service Equipment; Standard No. 7, Food Service Refrigerators and Freezers; and Standard No. 8, Powered Food Preparation Equipment. Authorization was given in 1963 for the first time by the NSF to use the Seal of Approval on equipment complying with Standard No. 8.

NATIONAL AUTOMATIC MERCHANDISING ASSOCIATION (NAMA)

The Committee participated in two annual meetings of the NAMA Automatic Merchandising Health-Industry Council during the past year and commented on several proposals for revision of the Council's Vending Machine Evaluation Manual and on suggestions to the Public Health Service for amending the 1957 Recommendations of the Public Health Service on the Vending of Foods and Beverages. Several current and previous recommendations of this Committee for improvement of the Manual and PHS document were reviewed and accepted by the Council.

A few changes were made in the NAMA-AMHIC Vending Machine Evaluation Program and Policies including plans for evaluation of auxiliary equipment such as ice-making or other components and awarding a letter of approval on those items complying with the applicable provisions of the Manual.

The vending industry and the NAMA machine evaluation agencies are planning a self-policing program to evaluate new and used machines for the purpose of determining compliance with the NAMA-AMHIC Vending Machine Evaluation Manual. This procedure will include spot checking of vending machines in the field to determine if production models continue to be in compliance with the Evaluation Manual. Implementation of this program should be of interest to all public health personnel as well as the members of the industry.

Most of the vending machines are sold in interstate commerce and many are also operated in interstate commerce so that proper and uniform labeling of the product is recognized as essential for free flow of trade. Therefore, a special committee composed of public health and industry representatives of the Council has been instructed to prepare a Report on Product Labeling for the Vending Industry and have it reviewed by appropriate authorities prior to submitting it to the Council at the 1964 meeting. This report should prove to be of much value to the vending industry and regulatory agencies.

At the 1963 meeting of the AMHIC, the Chairman of IAMFES Food Equipment Committee was elected Co-Chairman of the Council to represent the public health group.

Recommendations

1. The Association reaffirms its support of the National Sanitation Foundation and the National Automatic Merchandising Association and continue to work with these two organizations in developing acceptable standards and educational materials for the food industry and public health.

2. The Association urges all sanitarians to obtain a complete set of the National Sanitation Foundation's Food Equipment Standards and Criteria and a copy of the National Automatic Merchandising Association-Automatic Merchandising Health-Industry Council's Vending Machine Evaluation Manual; to evaluate each piece of food equipment and vending machine in the field to determine compliance with the applicable sanitation guidelines; and to let the appropriate agency know of any manufacturer, installer, or operator failing to comply with these guidelines.

3. The Association urges all sanitarians and regulatory agencies to support the work of the Association's Committee and subscribe, by law or administrative policy, to the Standards, Criteria, and Evaluation Manual for food equipment and vending machines.

Committee Members

Karl K. Jones, *Chairman*
(Indiana Association),
Indiana State Board of Health,
Indianapolis, Indiana

James W. Bell
(International Association),
National Canners Association,
Washington, D. C.

R. L. Cooper
(Kentucky Association),
Calloway County Health Department,
Murray, Kentucky

Martin Donovan
(Florida Association),
Dade County Health Dept.,
Miami, Florida

Edward J. Puscas
(Tennessee Association),
Oak Ridge Health Dept.,
Oak Ridge, Tennessee

Jerome Schoenberger
(New York Association),
New York Health Dept.,
New York, New York

Eaton E. Smith
(Connecticut Association),
State Dept. of Consumer Protection,
Hartford, Connecticut

Harold Wainess
(Illinois Association),
Harold Wainess and Associates,
Chicago, Illinois

COMMITTEE ON EDUCATION AND PROFESSIONAL DEVELOPMENT

(1 year appointment)

Objectives

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

Membership

Gilbert L. Kelso, *Chairman*, Chief, Field Training Unit, Community Services Training Section, CDC, PHS, Atlanta, Georgia.

Professor Harold S. Adams, Department of Public Health, Indiana University, Medical Center, Indianapolis 7, Indiana.

E. M. Causey, Jr., South Carolina State Department of Health, Columbia, South Carolina.

Carroll E. Despain, State Sanitarian Supervisor, Engineering and Sanitation Division, Idaho Department of Health, Boise, Idaho.

John Patillo, Richmond City Health Department, Richmond 34, Virginia.

Raymond Summerlin, Director, Food Division, Georgia Department of Agriculture, Atlanta, Georgia.

Darold W. Taylor, Sanitarian Director, Sanitarian Liaison Officer, Office of the Surgeon General, PHS, Washington, D. C.

J. E. Watt, D.V.M., D.V.P.H., Supervisor, Environmental Sanitation, The Local Board of Health, City of Oshawa, Ontario, Canada.

PLAN NOW to attend the Sanitarian's Convention

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ATTEND THE 51st ANNUAL MEETING

I. A. M. F. E. S. for 1964

HILTON HOTEL Portland, Oregon—Aug. 18-21

PROGRAM

FIFTY-FIRST ANNUAL MEETING
INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC.

In Cooperation With

THE OREGON ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC.

August 18-21, 1964

Hilton Hotel **Portland, Oregon**

REGISTRATION

Tuesday, August 18—1:00 P.M.—5:00 P.M.
Wednesday, August 19—8:00 A.M.—6:00 P.M.

Registration Fee—$5.00

Ladies Registration—$5.00

IAMFES OFFICERS

President: J. H. Fritz, Washington, D. C.
President-Elect: Dr. W. C. Lawton, Minneapolis, Minnesota
First Vice-President: F. E. Uetz, New York, New York
Second Vice-President: Dr. P. R. Elliker, Corvallis, Oregon
Secretary-Treasurer: K. K. Jones, Indianapolis, Indiana

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JOURNAL OF MILK AND FOOD TECHNOLOGY

Associate Editor: Dr. J. C. Olson, Jr., St. Paul, Minnesota
Managing Editor: H. L. Thomasson, Shelbyville, Indiana

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F. E. Uetz	K. K. Jones

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Registration — J. Gray
Finance — J. Nudelman
Arrangements — V. N. Simmons
Publicity — C. H. Crandall
Door Prizes — J. F. Nesbitt
Entertainment — J. J. McAllister
Ladies Activities — Mary Curry and Mary Cole

SUNDAY, AUGUST 16, 1964

3:00 p.m.–Executive Board Meeting, President's Suite

6:00 p.m.–Dinner

8:00 p.m.–Executive Board Meeting, President's Suite

MONDAY, AUGUST 17, 1964

8:00 a.m.–Executive Board Meeting, President's Suite

12:00 Noon–Lunch

1:30 p.m.–Executive Board Meeting, President's Suite

6:00 p.m.–Dinner

8:00 p.m.–Executive Board Meeting, President's Suite

TUESDAY, AUGUST 18, 1964

1:00 - 5:00 p.m.–Registration, Convention Lobby

SPECIAL MEETINGS

8:00 a.m. - 12:00 Noon–Executive Board, President's Suite

1. Report on Local Arrangements
2. Report of Executive Secretary
3. Report on Sanitarians Joint Council

12:00 Noon–Lunch

1:30 - 5:00 p.m.–Executive Board, President's Suite

1. Report of Journal Management Committee
2. Regular Agenda

1:30 - 5:00 p.m.—Individual Committee Meetings (See Bulletin Board)

5:00 p.m.—Dinner

7:00 - 8:30 p.m.—Affiliate Council Meeting — Parlor C

7:00 p.m.—Executive Board, President's Suite

1. Meet with Past Presidents
2. Committee Chairmen and Committee Members
3. Report of Affiliate Council Chairman

WEDNESDAY, AUGUST 19, 1964

MORNING—GENERAL SESSION BALLROOM B

Dr. W. C. Lawton, *President-Elect*, IAMFES, *Presiding*

8:00 a.m.—REGISTRATION

9:30 a.m.—INVOCATION

9:35 a.m.—WELCOME
Mr. T. D. Schrunk, Mayor of Portland

9:50 a.m.—PRESIDENTIAL ADDRESS
Mr. J. H. Fritz, *President*

10:15 a.m.—THE SANITARIANS' ROLE IN THE FUTURE
Dr. J. J. Jezeski, Professor, Department of Dairy Industries, University of Minnesota, St. Paul, Minnesota

11:00 a.m.—INDUSTRY AND HEALTH DEPARTMENT COOPERATION FOR BETTER SANITATION
Mr. E. L. Peterson, Executive Director, Milk Industry Foundation, Washington, D. C.

11:45 a.m.—CHARGE TO THE NOMINATING COMMITTEE
President Fritz

WEDNESDAY, AUGUST 19, 1964

AFTERNOON—MILK SANITATION SECTION BALLROOM B

Mr. Cameron Adams, *Presiding*

1:30 p.m.—Door Prize Drawing

1:45 p.m.—THE REVISED MILK ORDINANCE AND CODE
Mr. E. L. Ruppert, Chief, Milk and Food Branch, U.S.P.H.S., Washington, D. C.

2:30 p.m.—A PRACTICAL CONTROL PROGRAM FOR MASTITIS
Mr. R. T. Olson, Sanitarian Supervisor, Spokane Health Department, Spokane, Washington

3:15 p.m.—Break

3:30 p.m.—PREPASTEURIZATION STANDARDS FOR FLUID MILK AND CREAM
Mr. M. E. Held, Chief, Milk and Food Section, Regional Office, U.S.P.H.S., San Francisco, California

4:15 p.m.—ADAPTATION OF AUTOMATION TO DAIRY PROCESSING AS RELATED TO SANITATION
Mr. L. J. Fox, Manager, Milk Department, Safeway Stores, Inc., Oakland, California

5:00 p.m.—SANITATION IN CULTURED PRODUCTS PRODUCTION
Mr. B. M. Mayer, Research Department, Knudsen Creamery Company, Los Angeles, California

WEDNESDAY, AUGUST 19, 1964

AFTERNOON—ENVIRONMENTAL SANITATION SECTION PARLORS D AND E

Mr. C. E. Walton, Past President, *Presiding*

1:30 p.m.—Door Prize Drawing

1:45 p.m.—AIR POLLUTION CONTROL
Mr. P. W. Hildebrandt, Technical Director, Air Sanitation and Radiation Control Section, State of Washington Department of Health, Seattle, Washington

2:30 p.m.—HOSPITAL AND REST HOME SANITATION
Dr. T. L. Meador, Health Officer, City of Portland, Oregon

3:15 p.m.—Break

3:30 p.m.—AN EFFECTIVE HEALTH DEPARTMENT HOUSING PROGRAM
Mr. J. H. Beck, Advisory Sanitarian, State of Washington Department of Health, Olympia, Washington

4:15 p.m.–ENVIRONMENTAL SANITATION IN NATIONAL PARK AREAS
Mr. G. F. Whitworth, Regional Chief of Maintenance, National Park Service, San Francisco, California

5:00 p.m.–THE SANITARIANS' RESPONSIBILITY IN TOTAL ENVIRONMENTAL SANITATION PROGRAMS
Mr. V. C. Reierson, Chief, Environmental Sanitation, Oregon State Board of Health, Portland, Oregon

WEDNESDAY EVENING, AUGUST 19, 1964

7:30 - 9:30 p.m.–EVENING DISCUSSION GROUPS
These discussion groups are for the benefit of our members who have special questions or problems which they wish to discuss informally with others. Selected individuals have agreed to answer questions and otherwise assist in discussions.

7:30 p.m.–MILK SANITATION – LABORATORY AND MILK PROCESSING
Parlors D and E–L. O. Tucker, Chairman; E. L. Sing, B. M. Mayer, W. E. Sandine, and W. K. Moseley

7:30 p.m.–EQUIPMENT STANDARDS AND SANITARY REQUIREMENTS FOR MILKING MACHINES
Ballroom B–D. B. Whitehead, Moderator; Participants: D. J. Norton, H. Y. Heiskell, W. T. Pickavance, D. E. Galoy, L. Boume

7:30 p.m.–FOOD AND ENVIRONMENTAL SANITATION
Parlor C–K. K. Jones, Chairman; V. C. Reierson, G. G. Slocum, R. D. Bovey

THURSDAY, AUGUST 20, 1964

MORNING—GENERAL SESSION
BALLROOM B

Mr. F. E. Uetz, *Presiding*

8:15 a.m.–Door Prize Drawing

8:30 a.m.–BIO-DEGRADATION OF SYNTHETIC DETERGENTS
Mr. G. M. Cook, Assistant to the President, Oronite Division, California Chemical Company, San Francisco, California

9:15 a.m.–WATER QUALITY CONTROL PROBLEMS IN THE PACIFIC NORTHWEST
Mr. C. M. Everts, Director, Pacific Northwest Water Laboratory, Corvallis, Oregon

10:00 a.m.–Break

10:15 a.m.–Door Prize Drawing

10:30 a.m.–ANNUAL BUSINESS MEETING

1. Report of Executive Secretary
2. Report of Secretary-Treasurer
3. Committee Reports
4. 3-A Symbol Council Report
5. Sanitarians Joint Council Report
6. Report of Resolution Committee
7. Old Business
8. New Business
9. Election of Officers
   Announcements

AFTERNOON—GENERAL SESSION

1:30 - 5:30 p.m.–TOUR SAFEWAY PLANT

THURSDAY EVENING, AUGUST 20, 1964

6:30 p.m.–Social

7:00 p.m.–ANNUAL AWARDS BANQUET
Ballroom B, Mr. J. H. Fritz, *Presiding*

INVOCATION

INTRODUCTION OF OREGON DAIRY PRINCESS
Master of Ceremonies, Mr. A. Larsen

PRESENTATION OF AWARDS

1. Past President's Award
2. Citation Award
3. Honorary Life Membership
4. Sanitarian's Award*

INSTALLATION OF OFFICERS
BANQUET SPEAKER
"Professor" M. D. Gustafson

*The Sanitarian's Award is sponsored jointly by the Diversey Corporation, Klenzade Products, Inc., Oakite Products, Inc., Olin Mathieson Chemical Corporation, and Pennsylvania Salt Company; and is administered by the International Association of Milk, Food and Environmental Sanitarians.

FRIDAY, AUGUST 21, 1964

MORNING—GENERAL SESSION
BALLROOM B

Dr. W. C. Lawton, *Presiding*

8:30 a.m.—Door Prize Drawing

8:45 a.m.—U.S.D.A. MILK GRADING STANDARDS—INTERRELATIONS BETWEEN GRADING METHODS
Dr. J. C. Olson, Jr., Professor, Department of Dairy Industries, University of Minnesota, St. Paul, Minnesota

9:30 a.m.—SYMPOSIUM—FOOD INTOXICATION AND INFECTION
Moderator—Dr. J. J. Jezeski, Professor, Department of Dairy Industries, University of Minnesota, St. Paul, Minesota

STAPHYLOCOCCI IN FOOD
Dr. Thomas Bartram, Chief, Bacteriological Branch, Division of Microbiology, Food and Drug Administration, Washington, D. C.

SALMONELLAE IN FOOD
Dr. E. J. Bowmer, Director, Health Branch, Division of Laboratories, Vancouver, British Columbia, Canada

CLOSTRIDIUM BOTULINUM FOOD POISONING
Dr. E. M. Foster, Professor, Department of Bacteriology, University of Wisconsin, Madison, Wisconsin

LABORATORY METHODS FOR ISOLATION AND IDENTIFICATION OF ORGANISMS ASSOCIATED WITH FOOD INTOXICATION AND INFECTION
Dr. R. Angelotti, Chief, Food Microbiology, Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio

FRIDAY, AUGUST 21, 1964

AFTERNOON—FOOD SANITATION SECTION
BALLROOM B

Mr. J. H. Fritz, *Presiding*

1:30 p.m.—Door Prize Drawing

1:45 p.m.—SANITATION IN FROZEN FOOD PRODUCTION AND HANDLING
Mr. R. P. Elliot, Chemist, Poultry Laboratory, U.S.D.A., Albany, California

2:30 p.m.—SANITATION IN SEAFOOD PRODUCTION AND DISTRIBUTION
Dr. J. Liston, Associate Professor, Food Science, University of Washington, Seattle, Washington

3:15 p.m.—Break

3:30 p.m.—SANITARY DESIGN OF FOOD PRODUCTION EQUIPMENT
Mr. E. S. Doyle, Head, Sanitation and Technical Education, National Canners Association, Berkley, California

4:15 p.m.—SANITARY DESIGN AND EVALUATION OF FOOD SERVICE EQUIPMENT
Mr. C. A. Farrish, Executive Director, National Sanitation Foundation, Ann Arbor, Michigan

5:00 p.m.—U.S.P.H.S. RECOMMENDED PROCEDURE FOR THE EVALUATION OF FOOD SERVICE SANITATION PROGRAMS
Mr. W. F. Bower, Food Consultant, Milk and Food Branch, U.S.P.H.S., Washington, D. C.

6:00 p.m.—SALMON BAKE
Courtesy Oregon Association of Milk, Food and Environmental Sanitarians, Inc.

ENTERTAINMENT

Evening Entertainment for Men and Women

Entertainment for Women during Meetings

TUESDAY, AUGUST 18, 1964
7:00 p.m.—"No Host" social hour

WEDNESDAY, AUGUST 19, 1964
9:30 p.m.—Cheese Smorgasboard after evening meeting

THURSDAY, AUGUST 20, 1964
6:30 p.m.—Social
7:00 p.m.—Banquet

FRIDAY, AUGUST 21, 1964
6:00 p.m.—Salmon Bake

WEDNESDAY, AUGUST 19, 1964
10:00 a.m.—"No Host" Brunch — Mrs. Ivan Parkin — Report on World Tour
1:00 p.m. to 5:00 p.m.—Trip to Bonneville Dam and Columbia River Gorge

THURSDAY, AUGUST 20, 1964
10:00 a.m.—Tour of Lloyd Center
Noon Luncheon at Pacific Room, Sheraton Hotel and Jantzen Style Show

All the women's entertainment listed above except the "No Host" Brunch will be included in the $5 registration fee.

AFFILIATES OF
International Assn. of Milk, Food & Environmental Sanitarians

ARIZONA ASSOCIATION OF MILK AND FOOD SANITARIANS

Pres., Perry Klump ---------- Phoenix
Pres.-Elect, Mason Lang -----Phoenix
Sec.-Treas., Hiram Shouse ---- Room 430, State Office Bldg., Phoenix

Executive Board:
O. V. Cooper ---------- Phoenix
O. G. Bridgeman ------ Phoenix

ASSOCIATED ILLINOIS MILK SANITARIANS ASSOCIATION

Pres., John Dean ------------Chicago
Pres.-Elect, Henry Ellsworth --Chicago
1st Vice-Pres., Joseph Peterson--Chicago
2nd Vice-Pres., Harold Jensen-Winnetka
Sec.-Treas., James A. Meany, 8949 S. Laflin St., Chicago 20, Ill.

Auditors:
Don Coduto ------------Chicago
Wm. Waterman ------Woodstock

Executive Board:
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Robert Mannaberg --Delevan, Wis.
John Dean --------------Chicago
Henry Ellsworth --------Chicago
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NEWS AND EVENTS

CONNECTICUT ASSOCIATION HOLDS SPRING MEETING

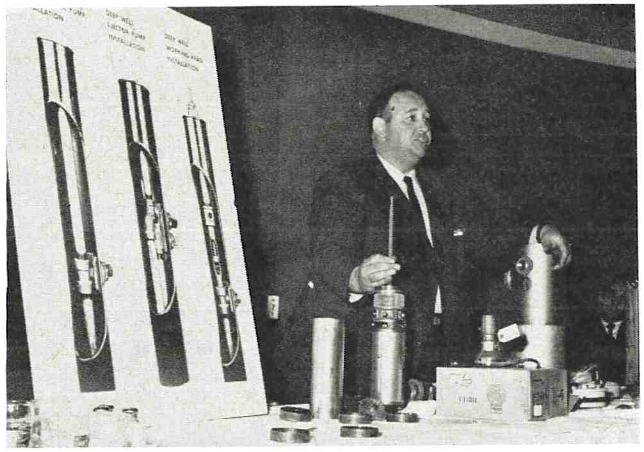
The Connecticut Association of Dairy and Food Sanitarians, Inc. held their spring meet May 13 at the Ambassador Restaurant, Hamden, Conn. Separate sessions were held for food and milk in the morning and a joint session was held in the afternoon.

In the food session meeting the following topics were presented: Changes in State Sanitary Code regarding Eating and Drinking Establishments, by Theodore Willerford; Handy Pantry, A New Method of Frozen Food Merchandising by Carl Strand; Food Additives, Nevis Cook; Freeze Drying of Foods, Dr. Philip Stiles.

Milk session; Panel Discussion; Connecticut Mastitis Control Program, John McGeeber, Moderator; Field operation, Jean Smith; Laboratory Practices and Procedures, Leander Williams; Consequences on Milk Quality Control, R. M. Parry; Summary of effect on herd health, Economics and Quality, Albert Pernice; Proposed Changes in the U.S.P.H.S. Ordinance and Code, Russell W. Waldo; Standard Methods, Earl Borman; 3-A Sanitary Standards, R. M. Parry; Promotion of Sales of Dairy Products, Robert D. C. Hughes.

Joint session; Regulations of the Board of Pesticide Control, Anthony Wallace; Chemical Compatibility of Water Supplies, A. K. Saunders.

Mastitis Exhibit—Left to right: Professor Leland Williams, Mrs. Arline Burdick, Dr. Jean V. Smith, Albert Pernice and Dr. Richard M. Parry.



Mr. Drietel discusses various types of water pumps, attachments and water treatment equipment.

INDIANA ASSOCIATION OF SANITARIANS HOLD FOURTEENTH ANNUAL MEETING

The fourteenth annual meeting of the Indiana Association of Sanitarians was held June 2, 3, 4 at the Indiana State Board of Health with about 200 in attendance.

The program was generally considered to be the best ever held and was highlighted by the banquet speaker, Dr. Carl Byers, General Motors staff speaker. Dr. Byers' topic was, "What's Showing Through Your Window". Indication of the tremendous impact Dr. Byers had on his audience was the standing ovation accord him at the close of his talk.

The meeting was divided into four sessions; General, Food, Milk and Environmental. Topics presented were: Public Relations, Howard B. Morris; Disposable Refuse Containers, A. B. Roebuck; Sanitarians Role in Radiation Control, James C. Everett, Jr.; Geologic Aspects of Water and Sewage Sanitation, William J. Wayne; Status of Water Pollution in Indiana, B. A. Poole; Coordination of Planning Commission and Environmental Sanitation, Albert Klatte and F. Ross Vogelgesang; Recent Developments in Insect and Rodent Control, Harry D. Pratt; The Fundementals and Application of Food Storage Equipment, Jack Haber, An Industry-Health Department Evaluation of Food Industry Advisory Committee, Siegel Osborn and Ferd Doll; Current Status of Vending Machine Sanitation, David E. Hartley; Sanitarians Responsibilities in Seizures, Embargoes and Condemnation, Frank Fisher; Effective Methods to Train Food Service Personnel, Hugh E. Eagan;

One Approach to Effective Food Service Sanitation, W. J. (Bill) Long; Free Stall Housing of Dairy Cattle, John C. Reed; Fingerprinting Quality by Sediment Testing, Richard E. Vaughn; How Types of Bacteria Have Affected Dairy Sanitation, C. A. Able; Thermophilics and Thermodurics in Dairy Products, W. K. Moseley; Some Recent Experiences With Added Water, John E. Abele; Interstate Milk Shipper Program, Karl Mohr.

Officers elected at the business meeting were: President, Ray Gauthier; President-Elect, L. C. Lukemeyer; First Vice-President, Karl K. Jones; Second Vice-President, J. W. Nix; Secretary, John M. Schlegel; Treasurer, James Goodpasture; Auditors, Eugene Blades, Muncie and William T. Teague, Evansville.

Ronald O. Brown senior President automatically retired from the Executive Board. Robert C. Nelson became immediate Past President and Tom Snider, Senior Past President.

MISSISSIPPI ASSOCIATION OF SANITARIANS HOLD THIRD ANNUAL MEETING

The third annual meeting of the Mississippi Association was held May 7, 8 at the King Edward Hotel, Jackson. The attendance was very good and an excellent program was presented consisting of the following topics: Public Relations, Clarence Jackson; Food Sanitation, Joseph F. O'Brien; Radiation and Milk, Dr. Melvin Carter; Responsibilities of Association Affiliates, H. L. Thomasson; Environmental Sanitation, Gladwin O. Unrau. Dr. A. L. Gray presided at the Banquet. The Honorable Ray Black, State Senator and a member of the Public Health Committee of the State Legislature was the banquet speaker. Officers of the Association are: President, J. L. Lary, Jr.; President-Elect, J. L. Knight; First Vice-President, P. L. Bradshaw; Second Vice President, L. J. Butler; Secretary-Treasurer, J. T. Mason; Past President, A. K. Monroe. All officers automatically move up to the next office and John T. Miller, Jr., Greenwood, was elected Second Vice President; James T. Mason was re-elected Secretary-Treasurer.

PUBLIC HEALTH SERVICE TRAINING COURSES

The Public Health Service will present consecutive one-week training courses beginning with Microbiological Examination of Milk and Milk Products, October 19-23, 1964, followed, October 26-30, by Chemical Analysis of Milk and Milk Products, both at the Robert A. Taft Sanitary Engineering Center in Cincinnati. They are offered for personnel in responsible positions in laboratories engaged in milk analysis and dairy products examination. Instruction in the first course enables the trainee to select the proper tests for measuring the sanitary quality of milk supplies and to interpret laboratory results; in the analysis course, to interpret dairy literature and to identify the chemical and physical procedures used to evaluate the quality of milk and milk products. They are conducted by personnel of the Division of Environmental Engineering and Food Protection.

More complete descriptions of the courses are given in the new *Bulletin of Courses* which is available on request. Applications or requests for information should be sent to the Director, Training Program, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Parkway, Cincinnati, Ohio, 45226, or to an appropriate PHS Regional Office. No tuition or registration fee is required.

HAROLD S. ADAMS RECEIVES AWARD

Harold S. Adams receives Tim Sullivan Award which is an award presented to an outstanding sanitarian each year by the Indiana Public Health Association. Left to right, Malcolm McLelland, Pres.-Elect I.P.H.A., Frank Fisher, Chairman, Awards Committee, Harold S. Adams, Dr. Brockmole, Pres. I.P.H.A.

AMERICAN SANITATION INSTITUTE ADDS TO STAFF

Leo Cramer, Roscoe Jordan, and Robert Stanley, retired from the Food & Drug Administration, have recently joined the Staff of the American Sanitation Institute, a division of the Huge' Company in St. Louis. Working in the capacity of Staff Sanitarians, they will consult with the Institute's Clientele, providing periodic unannounced sanitation audits aimed at helping the Client comply with Federal Regulations, and helping to correct any sanitation hazards encountered by developing preventive sanitation programs.

Having had a total of 92 years of FDA experience, they are well qualified for just such work, and are expected to augment significantly the already professional services of the Institute's Staff of inspectors-consultants.

Mr. Leo Cramer began his service in 1925 with the Division of Food & Dairies for the state of Nebraska. In 1931 he joined the Federal Food & Drug Administration in Chicago as an inspector and served in this capacity also in the Kansas City District from 1934 to 1938, when he returned to Chicago as Assistant Chief in the old District Food & Drug office there. In 1952 he became the Food & Drug Resident Inspector in Omaha, and in 1953 moved to St. Louis as the Chief Inspector. In 1957 he was transferred out to Denver as Chief Inspector and retired in 1960 with 30 years' service.

Mr. Roscoe Jordan graduated from the University of Missouri in 1928 with a Master's Degree in Agriculture. In 1929, he joined the FDA (then the Food, Drug, & Insecticide Administration, under the Dept. of Agriculture) as a Jr. Inspector, working in the Cincinnati District. He was transferred to Missouri in 1930, where he stayed until 1936, when he opened the Omaha, Nebraska Resident Inspection Station. 1939 found him again in Missouri, where he worked, concentrating on Dairy Products, until his retirement in 1959 after 30 years service.

Mr. Robert Stanley graduated from the University of Montana with a major in Chemistry and began his FDA service in Washington, D. C. in 1929. He was engaged in the analysis of insecticides and fungicides at the Insecticide Control Laboratory and was transferred to the St. Louis branch later that same year. From 1934 to 1959 he sojourned in Chicago where he became a drug specialist, after which he was transferred to the Denver District. Here he was named Import Officer. In addition he did all the work on Narcotics for the Bureau of Narcotics, which resulted in his appearance in several significant Narcotics cases. In 1961, after 32 years as a Food and Drug Chemist, he received his retirement.

The American Sanitation Institute's Staff of over 20 Sanitarians are located all over the U. S. and Mr. Cramer will be covering Denver and the surrounding area; Mr. Stanley will consult with clients in Idaho, Montana, and Utah's Salt Lake City area; Mr. Jordan's area includes New Mexico and Arizona.

WHAT ROLE CAN "SOFT" DETERGENTS PLAY?

by Henry Yuen, Babson Bros. Co.

During the past few months, newspapers in many parts of the country have been talking about "soft" detergents. Some of you milk and food technologists probably have read that some people can't use anything except a "soft" detergent because there will be a ban on the hard detergents.

What is a "soft" detergent? This is a natural question together with the question, "Why do we have to use something different than what we already have?" Here is the story in a nutshell.

The modern synthetic detergents are super surface-active chemicals. They provide wetting, penetrating and dispersing and detersive action, a lot of plus values in cleaning and sanitizing. They also make excellent washing compounds, but they do have one fault.

This is a lingering foam and they continue to give suds long after the washing solutions have gone down the drain. They are resistant to breakdown by the bacteria and sewage system.

As a result, the billowing foam on the stream surfaces has sparked a furor over the healthfulness of our water suppliers and possible pollution of our water resources. Authorities now want to do away with these hard detergents and are asking for "soft" detergents that will decompose readily and not leave a residue that remains active very long.

It is important to note that it is generally recognized that these detergent residues are *not* a health hazard at low concentrations.

The continued sudsing of the long-lasting detergents is, however, regarded as a nuisance and a headachy problem to the sanitation engineer.

Water is widely distributed in nature, but it is not abundant everywhere. There are actually water shortages in many areas of this country, and industrial and residential areas, and in urban and suburban areas.

This water shortage problem has become so critical in the last two decades that the Department of the Interior is currently spending some $10,000,000.00 for developing methods to desalt sea water and convert brackish water on a commercial basis for irrigation, industrial and domestic use. Heavy industries are recycling the water they use for processing and manufacturers of chemical and allied products are told not to dump chemical wastes into nearby creeks and streams.

All these things are being done in a concerted effort to preserve our water resources. In response to this call, the detergent industry has committed itself to make and sell only "soft" detergents after December, 1965.

All told, millions of dollars would have been spent on the conversions of plant facilities for making the new detergents. These will be readily digested by natural bacteria and will not pass into water supplies. They will further rid the streams and sewage systems of the foam nuisance for the engineers.

RESEARCH IN PROGRESS

Effect of Surface Active Agents On the Rate of Oxygen Transfer

At the meeting of the Water Pollution Control Federation in Seattle this past October, Dr. K. H. Mancy, who last year received his Ph.D. in the Department of Environmental Sciences and Engineering, reported on studies made under the supervision of Dr. Daniel A. Okun concerning the effect of anionic surfactants (Aerosol O.T.) on the rate of oxygen transfer. Reported studies on the effect of surface active agents (SAA) on aeration processes have given conflicting results, highly dependent on the aeration system. Early investigations in bubble aeration systems showed that the rate of gas transfer was greatly dependent on the hydro-dynamic activity of the bubbles. In this study, however, gas transfer processes were considered to be composed of two consecutive steps, the transfer across the liquid surface and the transfer in the bulk of the liquid. It was possible then to visualize a total resistance to gas transfer Rt(Rt=1/K1), composed of two resistances in series, the liquid surface resistance Rs and the liquid bulk resistance Rb. SAA were conceived to influence only Rs while Rb is dependent on the liquid hydro-dynamics characteristics.

Experimentally, it was possible to recognize three sets of conditions. At low rates of liquid mixing, Rb is much greater than Rs and the effect of SAA on Rs is masked so that there was no change in Rt. At higher rates of mixing, Rs is much greater than Rb and SAA causes a considerable increase in Rt. At even higher mixing conditions, the liquid surface is disturbed and Rt is dependent on surface renewal.

This study was made possible by the development of a galvanic cell oxygen analyzer in this laboratory. The analyzer was placed in a deaerated solution and the rate of oxygenation across a quiescent surface was determined for various conditions of mixing at various concentrations of SAA.

The above studies have been carried out with the aid of a research grant from the Division of Water Supply and Pollution Control of the Public Health Service.

Development of a Field Test for Free Chlorine

A new project, the development of a field test specific for free chlorine, is being pursued by Paul Lefcourt, Graduate Research Assistant, formerly associated with the Norwegian Institute of Water Research, and Robert Moseman, Research Trainee, under the direction of Dr. J. Donald Johnson, Assistant Professor of Environmental Chemistry. This research is being sponsored under a contract with the Army. The primary method of attack to date is to remove the interference of the chloramines from the common colorimetric methods while maintaining or improving their simplicity. In the coming months, new methods of attack on this problem will be used, such as color masking or screening as is done with acid-base mixed indicators such as methyl purple. With these and other techniques, a yes-no answer to water safety in terms of free chlorine residule should be given by this test.

Evaluation of the Performance of Ventilating Systems in Hospital Operating Rooms

A technique for the evaluation of the performance of the ventilation system used in hospital operating rooms has been developed by Dr. David Fraser, Associate Professor of Industrial Hygiene. The method consists of generating an aerosol of small uniformly sized sodium chloride particles at strategic points in the room to be tested. An aerosol generator suitable for this purpose was constructed. The distribution of the aerosol throughout the room as a function of time was determined, using a specially designed portable flame photometer. This instrument was sensitive to the mass concentration of sodium ions present in the atmosphere. The fallout pattern of the aerosol at various points in the room was determined by means of specially prepared strips of film which were sensitive to the chloride ion.

The performance of the ventilation system was evaluated on the basis of the rate of increase of the aerosol concentration at various points of the room and the fallout pattern of the aerosol particles which settled during the period of the test. Particular attention was given to these factors in the area occupied by the operating table. These observations were repeated after alterations had been made in the existing ventilation system. A comparison of these observations made it possible to determine which alterations of the ventilation system produced a minimum of deposition and the lowest concentration of the aerosol at the site of the operating table.

This test system was used by the author to evaluate the performance of the ventilation system installed in one operating room in the new operating wing of the clinical center of the National Institute of Health. The procedure has been used subsequently by personnel of the research services branch of the National Institutes of Health to evaluate the performance of the ventilation systems in several other operating rooms.

Work on this project was sponsored by the Environmental Services Branch, Division of Research Services, National Institutes of Health.

Nutritional Requirements of Enterotoxigenic Strains of Staphylococcus Aureus

Little is known about the nutritional conditions necessary for enterotoxin production by food-poisoning strains of *Staphylococcus aureus.* As a preliminary step in the investigation of enterotoxin production, the nutritional requirements of enterotoxigenic strains of *Staphylococcus aureus* were investigated.

Generally no essential nutritional differences were found between enterotoxigenic and non-enterotoxigenic strains. In a synthetic medium containing glucose, ammonium sulfate, other inorganic salts, thiamine and nicotinic acid, the minimum amino acid requirement was satisfied by cystine and arginine. Good growth comparable to that in non-synthetic media was attained with a synthetic medium containing eight amino acids, *viz* arginine, aspartic acid, cystine, glycine, valine, proline, histidine, and phenylanine.

Glucose concentrations from 1 to 50 grams per liter were favorable for growth. A pH range from 5.5 to 8.0 was suitable.

Investigations on enteroxtoxin production in synthetic media are in progress. Immunological methods are used for the detection and quantitative estimation of enterotoxin (type B).

These investigations are supported by the U. S. Army Medical Research and Development Command, Department of the Army, and conducted by Mr. Howard Peters, a doctoral candidate, under the direction of Dr. Fritz Sulzer, Associate Professor of Microbiology.

Effect of Combustion Variables on the Production of 3,4-Benzo(a)pyrene

A study was undertaken to determine what effect various conditions had on the production of benzo(a) pyrene during the burning of different fuel compounds. Benzo(a) pyrene is a cancer-causing chemical which is emitted to the air in smoke and exhaust from combustion processes. It has been found in the air wherever it has been sought, even in "clean" country air.

A special combustion apparatus was constructed, and in addition, a sensitive method for analysis of benzo(a) pyrene was developed in the course of this study. The variables in the experiment were type of fuel compound, the per cent of excess air, energy release rate, and rate of exhaust cooling. The flame quenching and heat release rate apparently had no effect on benzo(a)pyrene production. Only the amount of excess air and the molecular structure of the fuel compounds produced statistically significant differences in benzo(a)pyrene production.

The results of this study indicated that in any real combustion situation benzo(a)pyrene will be produced, but that an optimum air-full ratio can be found which will minimize the production of this cancer-causing substance.

This investigation, conducted by Dr. Richard W. Boubel under the supervision of Dr. Lyman A. Ripperton, Associate Professor of Air Hygiene, was carried out with the aid of a Predoctoral Fellowship granted to Dr. Boubel by the Division of General Medical Sciences, United States Public Health Service.

Anaerobiosis in the Activated-Sludge Process

It is commonly held that in the activated-sludge process the return of sludge from secondary settling should be as rapid as possible because anaerobic conditions seem detrimental. The few publications dealing with this subject, however, are not conclusive. This investigation was undertaken to determine the effects of anaerobiosis on the activated-sludge process.

Specific oxygen uptake (milligrams of oxygen utilized per gram of volatile sludge solids per hour) was used to characterize biological activity. The oxygen consumption was measured in closed, liquid-phase respirometers designed for this purpose. In the respirometer the change in oxygen concentration was determined by means of a silver-lead, membrane covered galvanic cell electrode system. The response of the oxygen-sensitive electrode was transmitted to strip chart recorders.

Samples of activated sludge from plants operated at high-rate, conventional and low-rate loadings were tested in the laboratory. After various periods of settling (up to 24 hours) without measurable D.O., oxygen uptake was measured under conditions of endogenous respiration as well as with nutrient added. Glucose, acetate and sterile sewage were used for these substrate respiration studies.

Two parallel pilot plants were built: one was eperated under completely aerobic conditions, while the other included a closed, unaerated holding tank in which return sludge was held with stirring, for a fixed period of anaerobiosis. Sludge from these plants was also studied in the laboratory as described above.

The results showed that anaerobiosis had little effect on the respiration rates. Statistical analyses of the respiration data as a function of the time period of anaerobic settling were made under the hypothesis that respiration rates are independent of period of anaerobiosis. For all conditions, except for the plant operated at high-rate loading without anaerobiosis, the hypothesis was confirmed, demonstrating that oxygen uptake is not affected by anaerobiosis periods up to 10 hours.

Operational data from the pilot plants showed that activated-sludge treatment at high-rate loading (above 100 pounds BOD per 1000 cubic feet of aeration tank capacity) with a 4.5-hour period of enforced anaerobiosis produced less sludge than the plant with completely aerobic conditions. Furthermore the sludge was more compact. At lower loading rates the waste sludge built up similarly in both plants, although again better compaction was obtained with the sludge exposed to 4.5 hours of enforced anaerobiosis.

These results indicate that prolonged anaerobiosis in activated sludge is not detrimental to the process and, under some conditions, less and more compact sludge will be produced. The process thus has a potential for providing management of return sludge by storage with an added advantage of volume and weight reduction of sludge to be handled.

The above investigations were carried out by Dr. W. C. Westgarth, Research Fellow, under the direction of Dr. F. T. Sulzer, Associate Professor of Microbiology, and Dr. Daniel A. Okun. This research was sponsored by the Chicago Pump Company.

[1]Reprinted from ESE Notes School of Public Health, University of North Carolina.

WISCONSIN ASSOCIATION OF MILK AND FOOD SANITARIANS APPOINT COMMITTEE ON EDUCATION

The Committee on Education, which was authorized at the last annual meeting and which has been designated to work with a corresponding committee of the Wisconsin Association of Sanitarians on the qualifications of sanitarians and the establishing of a course in the Sanitary Sciences at the University of Wisconsin, has now been appointed. President Dan Jindra has appointed Dr. K. G. Weckel, Mr. Edward R. Friday, and Mr. Stan Wittwer to serve on this joint committee. Dan will also represent our association in his capacity as president, coordinating his activities with those of Mr. Richard Rowley, who is President of the Wisconsin Association of Sanitarians. Clarence Luchterhand will act as Chairman of the joint committee.

Presently, a study is being carried out as requested by the Wisconsin Association of Sanitarians to determine the type of courses leading to a degree in the Sanitary Science, which are being offered by various schools throughout the United States. When this study is completed, the joint committee will meet to determine what action should be taken in developing a course toward a degree in the Sanitary Sciences. The committee hopes to present a report at the annual meeting of the Wisconsin Association of Sanitarians this spring and also the Wisconsin Milk and Food Sanitarians in the fall.

THE ROLE OF DAIRY PLANTS IN WISCONSIN'S NEW MASTITIS CONTROL PROGRAM

The basic purpose of the newly announced Wisconsin Mastitis Program is to control, on a statewide basis, one of Wisconsin dairymen's major milk production problems—bovine mastitis.

After much research and intensive study by a statewide committee it has been determined that this control will necessitate an orderly enforcement program on a statewide basis of (1) elimination of milk from infected animals from our milk supply, and (2) prevention of movement of infected animals from farm to farm.

Enforcement action will begin where the most serious infection exists as determined by statewide Catalase testing. While this testing, from necessity, will begin in a limited way, it is planned that each herd will be tested at least once a year, and follow-up investigation and milk and animal quarantine put into effect.

Dairy plants have two important roles to play if this team effort is to be successful. One is to conduct Catalase testing and an information program to help patrons improve their herd health programs and help them avoid possible regulatory action. The other role of plants lies in assistance in carrying out the regulatory program in herds where serious infection exists.

PLANT'S ROLE IN PATRON INFORMATION

It is strongly recommended by the state committee who developed this program that dairy plants carry on the following patron information program:

(1) Run the Catalase test on all patrons' herds. Many plants are doing this now. All other plants should begin immediately. Department representatives will assist in setting up and standardizing this test for plants.

(2) Work with farmers in their milking and herd management problems.

(3) Help inform farmers of the legal requirements of the state control program.

PLANT'S ROLE IN REGULATORY PROGRAM

Dairy plants, under this new program, have legal responsibilities under state law, and are being requested to assume these responsibilities to the best of their ability. This is necessary if the program is to be successful. These responsibilities as set forth in state law and regulations are as follows:

(1) Do not accept milk from animals found to be infected under the state control program.

This responsibility is set forth in the following excerpts from state laws and regulations:

> Milk and milk products are adulterated and their sale prohibited if, as provided in *Section 97.25 (2) (e)* "*. . . it is any part of the product of a diseased animal*, or the product of an animal that has died otherwise than by slaughter."

"Ag 30.03 Farm sanitary requirements. (1)

Cows. Milk and cream offered for sale shall be from clean, healthy cows."

"Ag 30.08 (1) Notice and rejection. Milk or cream which is found to be watery, flaky, stringy, bloody, thick, gargety or otherwise-adulterated or insanitary shall be rejected by the plant operator."

"Ag 80.07 Farm standards. (9) Milking. Abnormal milk shall be kept out of the milk supply and shall be so handled and disposed of as to preclude infection of the cows and contamination of milk utensils."

As stated before, each plant's milk supply will be sampled by our B.R.T. personnel at least once each year. These samples will be tested by the Catalase Test. Those producers having a high Catalase Test result will be visited by a state-employed veterinarian and a C.M.T. Test on each cow will be run. Where one of plant's producers has been so tested, the plant operator will be notified of the results by the enclosed form, "Mastitis Quarantine Notice and Field Record."

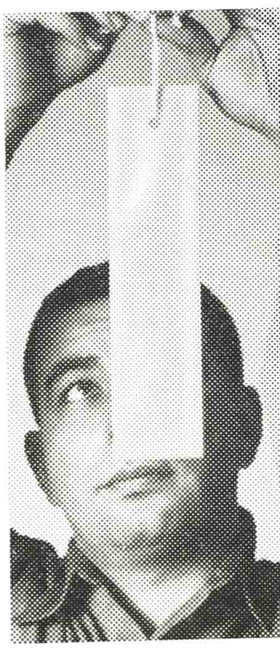
This form will inform the dairy plant operator as to which patron was visited and the animals that were quarantined. The milk from these infected animals *must* be withheld from the market. When each animal within this infected herd is released from quarantine by the producer's veterinarian, the plant operator will be notified by postcard. Wisconsin State Department of Agriculture Division of Dairy, Food and Trade Hill Farms State Office Bldg., Madison, Wisconsin 53702.

LABORATORY EXHIBIT AT WORLD'S FAIR

An exhibit at the New York World's Fair of interest to everyone associated with the dairy industry is that of Chr. Hansen's Laboratory, Inc. This pioneer producer of enzymes, cultures and vegetable colorants has a colorful miniature display located in the Wisconsin Building, which has as its feature attraction, the world's largest cheese.

The Hansen exhibit highlights the world-wide network of laboratories that have been established around the globe to serve the needs of every major area producing dairy products. There now are eight laboratories that carry the name Hansen's, and they are located in Argentina, Australia, Denmark, France, Great Britain, Italy, West Germany and the United States.

Hansen's Rennet and Dri-Vac Lactic Cultures were used by the maker of the world's largest cheese, and coincidentally, the New York World's Fair is being held in the same year that marks Chr. Hansen's ninetieth anniversary.



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NOTICE TO MEMBERSHIP

It is hereby officially proposed by the Executive Board of International Association of Milk, Food and Environmental Sanitarians, Inc. that the By-Laws of the Association shall be amended at the 51st Annual Business Meeting, August 20, 1964, Portland Hilton Hotel, Portland Oregon, as follows:

Article I, Section 2, The annual membership dues payable to the Association, January first of each calendar year shall be ten dollars ($10.00) for each member paying dues directly to the Association, and eight dollars ($8.00) for each member paying dues through an affiliate association.

KARL K. JONES

Secretary-Treasurer

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