

VOL. 22

No. 2

FEBRUARY, 1959

*Journal of*

# MILK and FOOD TECHNOLOGY

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*Official Publication*

International Association of Milk and Food Sanitarians, Inc.





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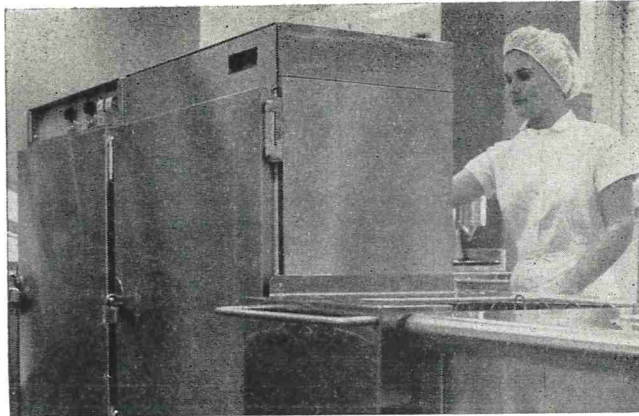
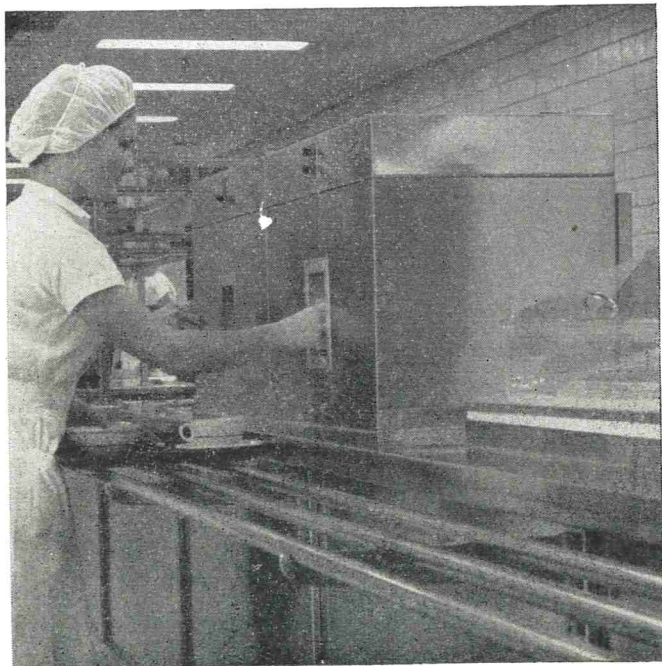


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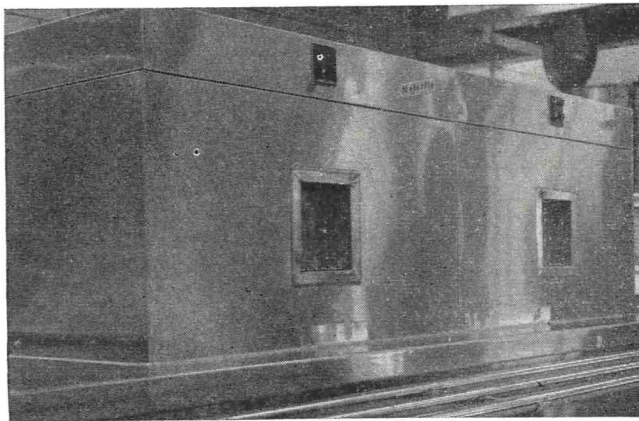
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TECHNOLOGY**

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AND MILK TECHNOLOGY

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International Association of Milk and Food Sanitarians, Inc.

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Vol. 22

February

No. 2

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(1) Standard Methods for the Examination of Dairy Products, ed. 10, New York, American Public Health Association, 1953. (2) Committee Report, Am. J. Pub. Health 42:1131 (Sept.) 1952. (3) Microbiological Methods, report at 66th Ann. Meet. Assn. Official Agricultural Chemists, Sept. 29, 1952: J. Assn. Official Agr. Chem. 36:91 (Feb.) 1953. (4) Standard Methods for Examination of Water, Sewage and Industrial Wastes, ed. 10, New York, American Public Health Association, 1955.

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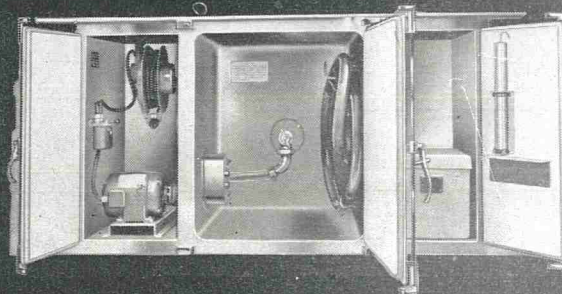
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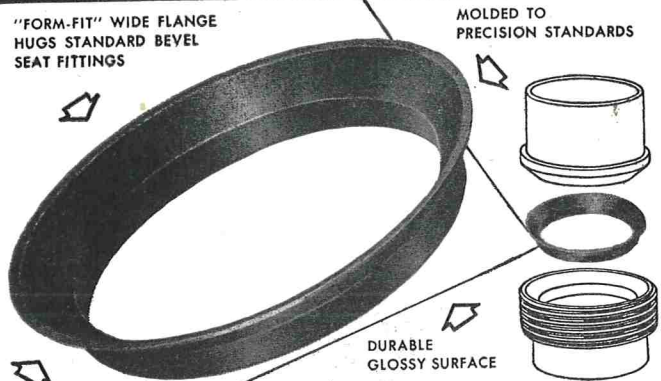
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# A SUGGESTED LABORATORY "USE TEST" FOR COMPARING THE CLEANABILITY OF VARIOUS MATERIALS<sup>1</sup>

O. W. KAUFMANN

*Department of Microbiology and Public Health,*

*Michigan State University,*

*East Lansing, Michigan*

The advent of new plastics and rubber-like materials for use in direct contact with milk has raised a question as to their cleanability with respect to removal of bacteria. Past experience has indicated that 18-8 stainless steel with a No. 4 finish can be cleaned satisfactorily with relative ease. This material, therefore, has become somewhat of a standard by which to gauge the cleanability of various new materials, but a standard "test" for evaluating the cleanability and making the comparison is not available.

Standard Methods For the Examination Of Dairy Products (1) does not specifically indicate the testing procedure to be followed but suggests a maximum tolerance of 12.5 colonies per square inch of surface when the Swab Contact Method is used to evaluate the cleanability of dairy equipment. This study, therefore, was undertaken to describe a soiling, cleaning, sanitizing, and testing procedure which could be used to make comparative cleanability studies on materials used in direct contact with milk. Emphasis was placed on simulating the operations as they might be carried out in ordinary plant practices.

## PROCEDURES

The test procedure described below evolved from a number of preliminary trials in which circular discs of the test material were compared with strips. Because of the manual and technical difficulties involved in manipulating the flexible strips in making swab counts, the more rigid discs were selected as test models; discs were also easier to handle on an agar plate for the direct plating of the flat surfaces. Soiling by spraying milk over the test surfaces and by immersing the materials in milk for 10-15 hours were compared. Since no difference in soiling was detected, the latter system was used as it was simpler. Circulation-type washing and hand-brushing were compared, but the former technique was inadequate under our specific laboratory conditions as even the stainless steel discs were unclean after treatment. Hand brushing was, therefore, adopted for the cleaning technique.

## *Test Panels*

Four rubber-like materials were used in this study. The test materials were made up in discs 1" diameter by 1/2" thick. Type 18-8 stainless steel discs with a finish equivalent to a No. 4 finish were used for comparative purposes. Prior to making the first test, all discs were thoroughly scrubbed using a commercial dairy cleaner at twice the level used throughout the study. This was undertaken to remove "shop soils" which often adhere to new surfaces.

## *Soiling*

All discs were boiled in water for five minutes before each soiling trial in order to standardize the initial bacterial load by eliminating environmental contaminants which might collect due to dust contamination while the materials were stored between trials. After boiling, the discs were placed in about a gallon of poor quality raw milk containing a few pieces of hay. The discs were allowed to soak in this milk for 10-15 hours at 60-90 F.

## *Cleaning and Sanitizing*

The soiled discs were rinsed free of milk by flushing with water at 100 F. for two minutes and immersed in a solution of chlorinated alkaline dairy cleaner at 125 F. The detergent<sup>2</sup> was used at one-half the minimum recommended level prescribed for circulation cleaning. Cleaning was accomplished by hand brushing each flat surface eight times with a circular motion using a twisted wire brush 0.5 inches in diameter. The pressure applied in cleaning was standardized as much as possible by the operator. After brushing the top and bottom surfaces, the side surface was cleaned by grasping the flat surfaces and rotating the brush around the disc using short 1-inch strokes; this was repeated once making a total of two brushings on the side. After scrubbing, the disc was replaced in a basket compartment suspended in the detergent tank to equalize the exposure period of all discs to the hot cleaning solution. Following washing, the discs were flushed thoroughly with water at 125 F.

<sup>1</sup> Michigan State Agricultural Experiment Station Journal Series No. 2283.

<sup>2</sup> The detergent used contained 43.0% total alkalinity (as Na<sub>2</sub>O), 4% available chlorine and no organic wetting agent.



and placed in clean tap water at room temperature until ready to sanitize and swab test. The discs were kept wet to prevent the destruction of residual bacteria by dessication. Sanitization was undertaken by immersing each panel individually for 1 minute in a solution of 100 ppm of chlorine.

#### Testing

The swab contact method was modified slightly to permit swabbing the smaller area involved. The swab stick was moistened with sterile nutrient broth, wrung out, and one flat surface was swabbed by constantly rotating the swab stick and rubbing it three times over the surface. The swab was then immersed and swirled in 10 ml of sterile nutrient broth, wrung out and the other flat surface swabbed in a similar manner. The swab stick was broken off in the nutrient broth and the tube shaken to insure mixing. Two milliliters of the swab solution were immediately plated in duplicate using plate count agar. Incubation was at 35° C for 48 hours. The bacterial count was calculated on the basis of 10 ml of broth. Since the total test area was 1.5 square inches the bacterial estimate should be converted to a 1 square inch basis for comparison with the maximum recommendation of 12.5 per square inches.

#### Impression plate

Following swabbing the flat surfaces of each disc were momentarily pressed against the surface of a Petri plate containing solidified plate count agar. In early trials the discs were allowed to remain on the agar surface, but they often slipped and smeared the plate making counting impossible. The colonies developing on the area of the impression, which was clearly visible on each plate, were counted and calculated on the basis of one square inch.

#### RESULTS AND DISCUSSION

The results obtained using the Swab Contact Method on the four rubber or rubber-like materials and 18-8 stainless steel are summarized in Table 1. Each sample investigated was tested 24 times; the range of the count over these 24 trials is given in parenthesis.

TABLE 1 — SWAB COUNT AFTER BRUSHING AND SANITIZING

Product	No. of trials	Actual count per 4 ml soln.		Calc. No. per sq. in. of surface	
		Range	Aver.	Range	Aver.
1	24	(0-3)	1.0	(0-5)	1.8
2	24	(0-13)	1.9	(0-23)	3.2
3	24	(0-3)	1.2	(0-9)	2.1
4	24	(0-6)	1.3	(0-14)	2.2
Stainless Steel	24	(0-4)	0.9	(0-7)	1.6

No correction was made for the counts obtained on the 58 agar control plates; the counts on these controls ranged from 0 to 2 colonies and averaged 0.5 per plate.

With product No. 2 a count of 23 per sq. in. was obtained only once; the next highest count was 10 per sq. in. on this material. With product No. 4 the highest count was 14 per sq. in. which only occurred once; the next highest count was 7. With the exception of these two instances, all counts were less than 12.5 per sq. in. when the swab contact method was used. With the impression plate procedure, the highest count obtained in any trial was 3 per sq. in. of surface; in most instances no recovery was possible.

It is impossible to duplicate exactly the soiling, cleaning and sanitizing techniques as they are carried out under field conditions, since all of the variables in every day plant practices cannot be duplicated in the laboratory. A complete evaluation of the cleanability of any surface should consider the advantages and disadvantages of the laboratory tests and "field" trials. The laboratory "use" tests described above represent a simple method for comparing the cleanability of one material with that of another under identical conditions of soiling, complete wetting, and cleaning. The soiling, hand brushing and sanitizing procedures are designed to approximate field conditions thereby making direct evaluation of data as feasible as possible.

#### REFERENCES

1. Standard Methods for the Examination of Dairy Products, 10th Edition, 1953, pp. 50.



## A PROGRESS REPORT ON THE 3-A SANITARY STANDARDS PROGRAM, AND THE ACTIVITIES OF THE 3-A SYMBOL ADMINISTRATIVE COUNCIL<sup>1</sup>

C. A. ABELE

*Chairman, Committee on Sanitary Procedure;*

*Secretary-Treasurer, 3-A Symbol Council*

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

The activities and accomplishments of the Committee on Sanitary Procedure, during the Association year here being completed, will be summarized, as are the other Committee Reports, this afternoon.

At the Louisville meeting, it was reported that the 3-A Sanitary Standards Symbol Administrative Council had, through September 30, 1957, issued 75 authorizations to use the 3-A Symbol. Between October 1, 1957, and August 1, 1958, inclusive, 33 additional authorizations have been issued, making the total number issued (through that date) 108. Approximately 75 dairy equipment fabricating concerns, in this country and in Canada, now hold authorizations pertaining to use of the Symbol on one or more types of equipment for which Sanitary Standards have been published. The 3-A Symbol Council is completely solvent.

### AUTHORIZATIONS ISSUED THROUGH AUGUST 31, 1958

Storage tanks	17	Plate heat	
Pumps	8	exchangers	7
Weigh cans	0	Tubular heat	
Homogenizers	3	exchangers	2
Auto. transp. tanks	17	Farm tanks	32
Electric motors	1	Leak-protector plug	
Strainers (can type)	0	valves	3
Piping fittings	9	Bulk milk	
Thermometer		dispensers	5
fittings	1	Evaporators	2
Filters	1		
		TOTAL	108

That completes the statistical phase of this discussion. The remainder will be devoted to an effort to acquaint members of this Association with the basic objectives of the 3-A Sanitary Standards and 3-A Symbol Administrative Council programs, with some of the obstacles being encountered, and with the means being considered, or adopted to overcome these obstacles.

Although the number of 3-A Sanitary Standards in effect has grown progressively during the past fifteen years, so that the term "3-A Sanitary Standards" has

become almost a by-word, it is also quite apparent to those who have explored the situation that sanitarians vary widely in their knowledge and understanding of the fundamentals of the 3-A Sanitary Standards and Symbol Administrative Council Programs. There still are some who assume a blank and non-committal expression when either subject is mentioned. Those at the other end of the range, who make frequent use of both programs, but who protest the time required to develop 3-A Sanitary Standards, or to amend or revise it, or who feel that the control of the use of the 3-A symbol should be more rigid, are probably unaware of the conditions under which these programs were launched and must continue to be conducted. The latter situation may be attributable—at least in part—to the failure to publicize effectively those aspects and features of these programs, an acquaintance with which is essential to true appraisals.

Fourteen consecutive Annual Reports of the Committee on Sanitary Procedure have been presented since the reorganization of the 3-A Sanitary Standards Committees in 1944; and the numbers of discussions of the 3-A Sanitary Standards program presented at State meetings of sanitarians, or published in the Journal and in trade publications, provide no basis whatsoever for an intimation of retiring modesty and self-effacement on the part of those actively engaged in that program. Furthermore, most of the Affiliate Associations have created Committees on Sanitary Standards. Incidentally, the achievements of the Committee on Dairy Industry Equipment, of the New York State Association of Milk Sanitarians, in the study of various features of 3-A Sanitary Standards and in making members aware that this is a major project of that Association, are outstanding. It must be conceded, however, that most of the publicity just enumerated has been devoted to WHAT has been and is being accomplished, and to the advantages and benefits accruing. Except for Harold Fielder's paper on the Principles of 3-A Sanitary Standards—and others predicated upon it—now either forgotten or never read by younger members, there has been comparatively little elucidation of WHY 3-A Sanitary Stand-

<sup>1</sup> Presented at the 45th Annual Meeting of the *International Association of Milk and Food Sanitarians, Inc.*, at New York, N. Y., September 8-10, 1958.



ards are as they are, nor of HOW they take form. The same can be said about publicity on the 3-A Symbol Administrative Council program.

In these circumstances it is not surprising that some dissatisfaction with the 3-A Sanitary Standards program, and some skepticism about the Symbol Administrative Council program are to be noted and heard. However, having diagnosed, I believe, the fundamental cause of these attitudes, this opportunity has been requested to acquaint members of the Association with some of the conditions under which 3-A Sanitary Standards, amendments, and revisions are forged out, and under which the Symbol Administrative Council program must be conducted; in other words, the WHY and the HOW of these programs.

#### FORMULATION OF 3-A SANITARY STANDARDS

Taking up first the manner in which the Committee on Sanitary Procedure participates in the formulation of 3-A Sanitary Standards:

##### *Make-Up of the Committee on Sanitary Procedure*

The geographical distribution of Committee memberships has ranged from California and Washington to Vermont and Connecticut, and from Wisconsin and Michigan to Texas, Mississippi and Florida. The membership consists of experienced sanitarians who are in constant contact with dairy equipment in the field, or whose approval must be obtained before equipment may be used in their regulatory jurisdictions. It would be difficult to effect a greater concentration of knowledge of the physical details and sanitation shortcomings of dairy equipment, in an equivalent number of individuals not engaged in the design or construction of the equipment. This reservoir of information is invaluable when the Committee meets to review drafts of Tentative Sanitary Standards.

##### *Predicated Upon Voluntary Collaboration*

It is fundamental to a correct appraisal of 3-A Sanitary Standards always to bear in mind that they are formulated through collaboration—by the manufacturers of dairy equipment, by the users of the equipment, and by sanitarians—the Milk and Food Program of the USPHS, and the Committee on Sanitary Procedure of this Association. Since this project of formulating 3-A Sanitary Standards came into being sometime prior to the organization of the United Nations, the term “veto power” is never used during meetings of the 3-A Sanitary Standards Committees. Nevertheless, there exists a mutual understanding that no two of the participating groups, acting in concert, can adopt a provision of a sanitary standard to which the third group is not, after thorough discussion, agreeable.

Any member of the Committee, and a majority of the regulatory sanitarians in this audience could, no doubt, without assistance, draft sanitary standards for specific types of dairy equipment which would, *in all respects*, satisfy him or them. 3-A Sanitary Standards, however, are not—and cannot be—formulated by one individual, nor even by any one group.

Intelligent and judicial appraisal of any 3-A Sanitary Standard, or of the work of the Committee on Sanitary Standards, or of the work of the Committee on Sanitary Procedure, must be predicated upon the knowledge that the formulation of 3-A Sanitary Standards began as, and must be maintained as a voluntary and collaborative program. When the development of sanitary standards for a specific type of equipment is decided upon, the Chairman of the DISA Technical Committee is requested to appoint a Task Committee consisting of manufacturers or fabricators of the type of equipment affected. With the assistance and advice of the Secretary of the 3-A Sanitary Standards Committees, the Task Committee drafts tentative sanitary standards. This draft is reviewed by the Sanitary Standards Subcommittee of the Dairy Industry Committee, consisting of users of the equipment. It is not until this latter group is satisfied with the draft that it is submitted to the sanitarians for review. The sanitarians, whenever referred to in this discourse, consist of the representatives of the Milk and Food Program of the USPHS, and the Committee on Sanitary Procedure.

##### *Mechanics of Review of Tentative Sanitary Standards*

Copies of tentative sanitary standards are distributed to the sanitarians approximately six weeks prior to joint-meetings. Those who cannot attend joint-meetings mail their comments to the chief or chairman, respectively, of their groups. At joint-meetings the sanitarians of both groups work as a unit, reviewing the tentative sanitary standards paragraph-by-paragraph, strengthening provisions, clarifying vague or ambiguous text, and adding provisions deemed necessary.

It is obvious that agreement on every provision of tentative sanitary standards must be reached by the caucus of sanitarians before the combined group is in position to press for the changes and insertions proposed in the subsequent general discussion with the committees of fabricators and users. What may be deemed essential in New England may not be wanted on the equipment in use in California; or vice versa. Discussion is sometimes rather extended, and sometimes a ballot is necessary to reach a decision. But agreement is reached, or a satisfactory compromise—not detrimental to essential sanitation—is effected.

The caucus of sanitarians is now prepared to discuss



details of the tentative draft, and additions, with the Task Committee of manufacturers. Some of the changes proposed are readily accepted. Others may involve major modification of design and fabrication mechanics on the part of several manufacturers. If a proposal of the sanitarians affects all manufacturers, so that costs of equipment units would be materially increased, some other way to achieve the sanitation objective is sought, or the proposal is reappraised.

In any event, the discussions in the caucus are frequently time-consuming (sessions have occupied parts of two days and much of a night); conferences with representatives of the Task Committee may be necessary (sometimes sandwiched between caucus discussions on other tentative sanitary standards). All of the manufacturers of the type of equipment involved are rarely in attendance at the joint-meeting, and the Task Committee may wish to consult the absent members before agreeing to all of the proposals of the sanitarians. Consequently, those incomplete tentative sanitary standards are placed on the agenda for the next joint-meeting of the 3-A Sanitary Standards Committees, six months hence, when some of the discussion may be repeated by Committee members who did not attend the preceding joint-meeting.

These details of the deliberations of caucuses of the sanitarians at joint-meetings of the 3-A Sanitary Standards Committees are cited to account for the slow rate at which 3-A Sanitary Standards are developed, and to make it clear that EVERY detail of design and fabrication prescribed (and, in most instances, others not prescribed) has been discussed, pro and con, at some length. Actually, the rate at which the formulation of sanitary standards proceeds is governed by the readiness with which the committees of users and fabricators accede to the proposals of the sanitarians, and the speed with which agreement or satisfactory compromise is reached on provisions concerning which there are differences of opinion. But the point to bear in mind is that THERE CAN BE NO 3-A SANITARY STANDARDS UNTIL FULL AGREEMENT IS REACHED AMONG THE THREE INTERESTS CONCERNED. The more than ten years required to formulate 3-A Sanitary Standards for Milking Machines, and the complete failure—in five or six years—to develop sanitary standards for can washers, amply demonstrate the veracity of that statement.

Incidentally, representatives of the U. S. Department of Agriculture, of the Army and of the Navy who are concerned with sanitary standards, attend the caucus sessions of the sanitarians, as observers. The Committee extends to any member of the Association the privilege of attending such a caucus session as an ob-

server, provided he observes the customary amenities of such attendance; that is, acquaints the chairman with his identity, and participates in the discussion only when invited to do so.

#### *Basic Objective of 3-A Sanitary Standards*

The initial objective of the 3-A Sanitary Standards program, initiated in the 1930's, was to establish principles in equipment design, finish, and fabrication which would satisfy the sanitation consciousness of regulatory sanitarians, and which would serve to reduce or eliminate the tendency to draft sanitary specifications of local application, and of consequent non-uniformity with those applied elsewhere.

#### *Basic Objective Being Abandoned by Some*

With a few notable exceptions, the goal of that objective was being approached prior to the summer of 1953, when the 3-A Sanitary Standards for Farm Holding and/or Cooling Tanks were published in the Journal. During the past five years, local augmentations to the 3-A Sanitary Standards required of farm tanks have included: ball or pear-shaped feet to the legs, greater clearance above the floor, tightly-fitting main covers, shortening of the outlet passage to the valve seat, bayonet fittings on removable agitator shaft connections above the drip-shield outside of the milk-zone, and a higher rate of cooling.

It is conceded that the 3-A Sanitary Standards for Farm Holding and/or Cooling Tanks were formulated before there had been developed the reservoir of experience relative to farm tanks now existent. Nevertheless, it is indeed questionable that the caucus of sanitarians, even if it had then had available the current experience, would have included in the 3-A Sanitary Standards any of these local augmentations. Sentiment in the caucus does not appear favorable to their inclusion in the revision now under consideration.

Obviously, then, instances of augmentation of 3-A Sanitary Standards to satisfy local requirements constitute negations of the initial and primary objective of the 3-A Sanitary Standards program, to which this Association, as its initiator, is deeply committed. There is no escape from that conclusion, nor from the semblance of retreat from a moral obligation, which it implies.

#### 3-A SYMBOL ADMINISTRATIVE COUNCIL PROGRAM

Now I wish briefly to discuss 3-A Symbol Administrative Council policies and activities.

It is also essential to a clear understanding of these policies and activities that it be recognized that the organization of that Council is merely the result of the extension of that co-operation and collaboration



to which reference has already been made. The Council has neither enforcement nor punitive powers. It can only grant or, if necessary, revoke authorizations.

The Council program of issuance and renewal of authorizations to affix the 3-A symbol to equipment which conforms to 3-A Sanitary Standards has been in operation for less than thirty months. The eight Council trustees—four of whom represent this Association—are all otherwise-employed individuals, none of whom receives any remuneration whatsoever for Council activities. In this and in other respects the Council program is not comparable to that of the Good Housekeeping Seal of Approval, nor to the ASME and Underwriters' Laboratory programs.

The authorization and renewal fees are nominal, and merely provide the Council with funds for normal operating expenses, and to cover the travel to meetings of trustees who would otherwise be able to attend only at personal expense. The financial balance being accumulated is being held in reserve to underwrite the cost of travel to hearings of charges against authorization holders, if and when held, or for other contingent expenses.

#### *Authorization Issuance Prerequisites and Procedure*

The conditions which must be satisfied by an applicant for a Symbol Administrative Council authorization to use the 3-A symbol were set forth in the paper entitled "Current Status of 3-A Symbol Utilization", presented at the 1957 Annual Meeting, in Louisville, and published in the April, 1958, issue of the Journal. Briefly repeated, these conditions are: (a) signature of printed declarations on the application form; (b) initialing of each paragraph and signature of the reprint of pertinent 3-A Sanitary Standards; (c) submission of a statement regarding the inspection system employed by the applicant; and (d) submission of descriptive literature, photographs, and such drawings as may be requested. The review of this material is conceded to be "paper work". The potentialities for oversight of details of design or construction prescribed by the 3-A Sanitary Standards—by either the applicant or the reviewer of the application—which are inherent in this procedure were recognized by those who sponsored the organization of the Symbol Administrative Council, and were accepted as calculated risks. They were stressed in the paper cited above and in other presentations, and the co-operation of members of the Association in reporting to the Council any observations of departure from 3-A Sanitary Standards was solicited.

The paucity of such reports received by the Council does not warrant agreement with the expressed opinion that the appearance of the 3-A symbol on

equipment is relatively meaningless, unless a prototype of equipment has been inspected as a prerequisite to the issuance of an authorization, and unless each unit to which the symbol is affixed is also inspected by a representative of the Council. Surely, no one is so naive as to harbor the belief that the organized manufacturers of dairy equipment would ever have entertained the thought of participation in a 3-A symbol use and control had it been intimated that this would involve the employment of resident inspectors of the completed equipment, of full-time supervisory and administrative personnel, of the payment of office rent and the purchase of office equipment, etc. The cost of such an exercise of control of the symbol use would be upwards of \$300,000 annually, presumably to be added to the unit prices of equipment. The proposal of a control program of such magnitude and cost must assure benefits not obtainable by the system now applied; i.e., the declarations of the applicant, supported by voluntary reporting of departures by sanitarians, users, and fabricators alike. If the extremely limited number of charges of non-compliance may be accepted as an index of substantial compliance during these nearly thirty months of use of the 3-A symbol, there would appear to be no justification for the serious proposal of so radical a step as the employment of a corps of full-time resident inspectors.

It is not implied, however, that the inspection of prototypes of equipment, as a prerequisite to the issuance of authorizations, is opposed as undesirable—even though it has not been demonstrated to be necessary. In a number of instances the Council has required the submission of small parts for examination as to design, finish, etc. And some of you have been called upon to view prototypes of equipment, and to express your opinions as to conformance.

It must be recognized, however, that conformance at the time of inspection prior to issuance of an authorization cannot provide a guarantee against the potentiality of fluctuations in the effectiveness of final inspection of equipment in the manufacturing plant. There is, therefore, the continuing need for sanitarians to assure themselves that the finish and workmanship of equipment justify the presence of the 3-A Symbol. Those features, such as radii, diameters of milk passages, width of bridge, etc., need not routinely be checked, since these are governed by the dimensions of dies and jigs, and do not change from unit to unit.

#### *Check Lists*

Check-lists of the provisions of the 3-A Sanitary Standards, covering equipment of several types, for



use in determining the degree of compliance, have been developed by one Affiliate Committee, and by several regulatory jurisdictions. The extent of their use by sanitarians, if a matter of record, has not come to the attention of the speaker.

The Symbol Administrative Council has been asked why it does not require the filling-out of check-lists and their submission with applications for authorization to use the 3-A symbol. The reason is that the Council requires the initialing of every paragraph of every section of the reprint of pertinent 3-A Sanitary Standards by the applicant—as well as its signature. A check-list is no more nor less than an inspection report form, the advantage of which is proportional to the condensation of the text of 3-A Sanitary Standards which can be effected. A consideration of the many provisions of long sanitary standards would be appropriate for use by individuals routinely or frequently inspecting units of equipment, and would materially reduce the cost and the inconvenience of the use of multiple-paged reprints. But, for single use by any individual, reprints adequately serve the purpose. The Council also ascribes a certain psychological value to the initialing and signing of a formal and official reprint of 3-A Sanitary Standards.

#### *Publication of Lists of Authorization Holders*

Beginning in the April, 1957, issue of the Journal, the names and addresses of concerns to which Symbol Administrative Council authorizations had been issued, and the models covered, were published by types of equipment until all authorizations in effect had been made known. Thereafter, the additional authorizations and changes in models covered have been reported each month to the Journal, and have been published as space was available. Because copy sent to the Journal on the last day of May or the first of June may arrive too late for publication in the June number, but appears in the July number, the list of authorization holders available in files of the Journal may not be depended upon to be fully current. This is unfortunate, but is a situation for which there is no remedy. The Dairy Industries Supply Association published a complete list as of September 30, 1957, and January 1, 1958, and will include in the Exposition Directory, to be distributed during the 1958 Dairy Industries Exposition, a list complete to the day on which copy goes to press. However, the authorization number held by a concern, and the models covered, can be ascertained by any sanitarian merely by addressing an inquiry to the Symbol Administrative Council. (That statement pertains only to sanitarians; therefore, inquiries should be identified by the position and connection of the inquirer.)

There is evidently some degree of misunderstanding concerning the timing of the publication of the names of holders of authorizations. Section (e) of Article IX of the By-Laws of the Symbol Administrative Council provides that:

“The first list of authorizations shall not be published until 12 months (or other selected period) after formal announcement of this authorization procedure.”

The announcement of the readiness of the Council to receive applications for authorizations was made about April 1, 1956, and the first authorizations were issued on May 1 of that year. As previously stated, the first list of authorization holders was published in the April, 1957, number of the Journal, in accordance with the By-Laws. In Section (f) of Article IX it is also provided that:

“When a new 3-A Sanitary Standard is adopted, publication of names of manufacturers to whom authorizations are granted will be deferred for 12 months after publication of the sanitary standard — to allow ample time for all manufacturers desiring to do so to be included in the first list. The same procedure shall apply when revisions to existing sanitary standards are adopted.”

Since 3-A Sanitary Standards published during the past several years usually carry a notation of the date of effect (one year after publication), it has been the policy of the Council to issue no authorizations pertaining to equipment covered by recently-adopted 3-A Sanitary Standards until they become effective. Thus, the names of the holders and the numbers of the authorizations pertaining to evaporators and vacuum pans, issued on August 1, 1958, twelve months following publication of the 3-A Sanitary Standard, were mailed to the Journal for the earliest possible publication. In this manner, no advantage has been given any manufacturer by virtue of the date of his authorization, and it is doubtful that any sanitarian has seriously been inconvenienced by the short, but unavoidable, lag in publication.

#### *3-A Symbol Details*

It has, in some quarters, been intimated to be highly desirable that:

1. 3-A symbols on equipment also include numerals indicating the year in which the authorization was issued,
2. 3-A symbols be positioned in restricted areas, specified for each type of equipment,
3. 3-A symbols conform to prescribed size and color, and
4. 3-A symbols for conventional and C. I. P. equipment (presumably piping connections and fittings) be readily distinguishable.

These proposals are indicative of profound interest in the Symbol Administrative Council program. They have received consideration by the trustees of



the Council. When the whole range of equipment to which 3-A Sanitary Standards now apply is taken into consideration, however, it becomes apparent that these proposals either are impracticable, or are not sufficiently essential to warrant the added complication.

*Relationship Between Committee on Sanitary Procedure and Similar Committees of Affiliate Associations*

This discussion would be incomplete without some reference to the relationships between committees of Affiliate Associations, concerned with sanitary standards for dairy equipment, (whatever the title by which they are known), and the Committee on Sanitary Procedure of this Association.

The mechanical difficulties of providing such committees with copies of tentative sanitary standards, or of proposed amendments, in time to permit the holding of committee meetings, the drafting of comments, and transmission to the Committee on Sanitary Procedure prior to joint-meetings of the 3-A Sanitary Standards Committees have been emphasized in foregoing discussions. This inability to make use of experience in affiliate committees, in joint-meeting caucuses of sanitarians, does not imply, however, that such affiliate committees have no function. Assistance to the Symbol Administrative Council has already been suggested. The proposal of provisions to be included in sanitary standards known to be in course of formulation is another potential function. Others, such as the drafting of definitions of some of the general terms, such as "clean", "smooth", "easily", etc., which appear frequently in 3-A Sanitary Standards, have been undertaken as projects.

The Committee on Sanitary Procedure has never undertaken to assign specific functions or projects to Affiliate committees. Nor is it conceivable that it shall ever presume to dictate to any Affiliate com-

mittee what projects it should or may not undertake. But, whether or not there be Executive Board or Council of Affiliates by-law, rule, or precedent to that effect, it should be quite obvious that, whatever the project, whether it coincides with or is tangent to one of the Committee on Sanitary Procedure, the most direct and certain way to incorporate the findings of the project into the 3-A Sanitary Standards program (presumably the objective of any Affiliate committee) is to present them to, and to discuss them with the Committee on Sanitary Procedure, before they are independently published.

CONCLUSION

Having five Past-Presidents on the Committee on Sanitary Procedure, two Past-Presidents in the Milk and Food Program of the USPHS, and three representing it on the 3-A Symbol Administrative Council, the Association has a valid basis for assurance that its interests in these programs—as well as those of individual members—will not be neglected. There is no implication in that statement that non-officer members serving on these bodies are any less loyal to the interests of the Association.

The Committee and the Council welcome, and will act upon—within the frameworks of their respective organizations—constructive suggestions presented to and frankly discussed with them. No charge to the contrary can be maintained.

Members of the Committee on Sanitary Procedure and representatives of the Association on the Symbol Administrative Council will consider it a privilege to discuss details of the programs, or questions pertaining to specific provisions of tentative sanitary standards, at meetings of Affiliate Associations they are in position to attend. A broadening of the knowledge about and understanding of these programs is the only missing ingredient essential to their ultimate success.

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**INVITATION TO  
THE  
FORTY-SIXTH ANNUAL MEETING  
OF  
INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS  
August 26 - 28, 1959  
Glenwood Springs, Colorado  
Headquarters — Hotel Colorado**

The Rocky Mountain Association of Milk and Food Sanitarians will host the 1959 meeting of the International Association of Milk and Food Sanitarians in Glenwood Springs, Colorado. Everything possible is

being done to make your attendance at this meeting most pleasant and profitable. It is hoped that all who possibly can will make it a combination vacation and educational conference. Plan now to bring the



family for a real western outing and visit the scenic places you have always wanted to see. This will be the most informative meeting you have ever attended.

Glenwood Springs is in the heart of the most scenic area of North America, located an easy 175 miles west of Denver and 350 miles east of Salt Lake City on U. S. Highways 6 and 24 and the main line of the Rio Grande Western Railroad. Within an hour's driving distance of Glenwood Springs is picturesque Aspen, Maroon Bells, Marble, Glenwood Canyon, and hundreds of other colorful attractions. The Colorado River runs through the town where it is joined by the Roaring Fork river. In every direction one finds canyons, mountain peaks, streams and forests.

In addition to the swimming pool at the Hotel Colorado there is the famous Yampa Hot Springs outdoor pool where one can enjoy swimming the year around. A nine hole golf course invites the golfer. Hiking, horseback riding, fishing and just plain resting will round out a variety of recreational attractions. Dress clothes will be out of place. Don't forget your bathing suit and sport clothes. Glenwood Springs has warm days and cool nights so jackets and warm clothing are also necessary. Wear comfortable low heel walking shoes and leave your spike shoes at home. Leave your hay fever remedies at home and breathe clean fresh mountain air.

The 3A Sanitary Standards Committees and the Rocky Mountain Association of Milk and Food Sanitarians will meet jointly with the International. This is the first time since 1951 that the 3A Sanitary Standards Committees have met with us.

#### PROFESSIONAL PROGRAM

Your Program Committee is assembling speakers to make an interesting as well as technical program covering the very latest knowledge in the fields of milk, food, and environmental sanitation. Part of the program is devoted to the cooperative role of the Health Officer and Sanitarian in sanitation programs, and several Health Officers of the region will participate. Sessions will open on Wednesday morning, August 26th and continue until Friday afternoon, August 28th. Bring along your own sanitation problems and let the assembled experts help you during the times set aside for informal meetings and functions.

#### HEADQUARTERS

The Hotel Colorado will be the headquarters for the convention. The Hotel operates on the American plan which includes meals, lodging and all the facilities of the hotel. There will be no extra charge for anything except a small registration charge made by the I. A. M. F. S. The rates will be \$15.88 per person

per day with two in a room. A number of rooms with four persons are available for correspondingly lower prices. Prices quoted include lodging, meals and gratuities. Hotel reservations should be made as early as possible. All delegates are encouraged to stay at the Hotel Colorado.

#### ACCOMMODATIONS

Glenwood Springs is a large resort area with adequate hotel, motel and camping facilities. Consult your local travel clubs for further information. It is important that you make your reservations early.

#### CLEARING HOUSE

A central clearing office will be set up in Denver to help you with your transportation problems to Glenwood Springs and return. The office will also assist you in pointing out places of interest in Denver and other areas in Colorado. The Colorado Dairy Products Association Secretary and office will provide this service. This office is located at 945 - 11th Street and the telephone number is AComa 2-8541.. Visits to dairy plants and dairy farms to observe western dairying will be arranged for those who wish to include this in their agenda.

#### LADIES' ENTERTAINMENT

Remembering how much the ladies enjoyed the outings and western entertainment, when the I.A.M.F.S. met in Glenwood Springs in 1951, the Ladies' Entertainment Committee have planned short trips and entertainment in keeping with your wishes. The Hotel Colorado provides professional baby sitting services for small children while their mothers are enjoying themselves. A childrens' banquet is planned to entertain the small fry while their parents enjoy our evening western entertainment. A special fishing place for children under 14 years has been arranged.

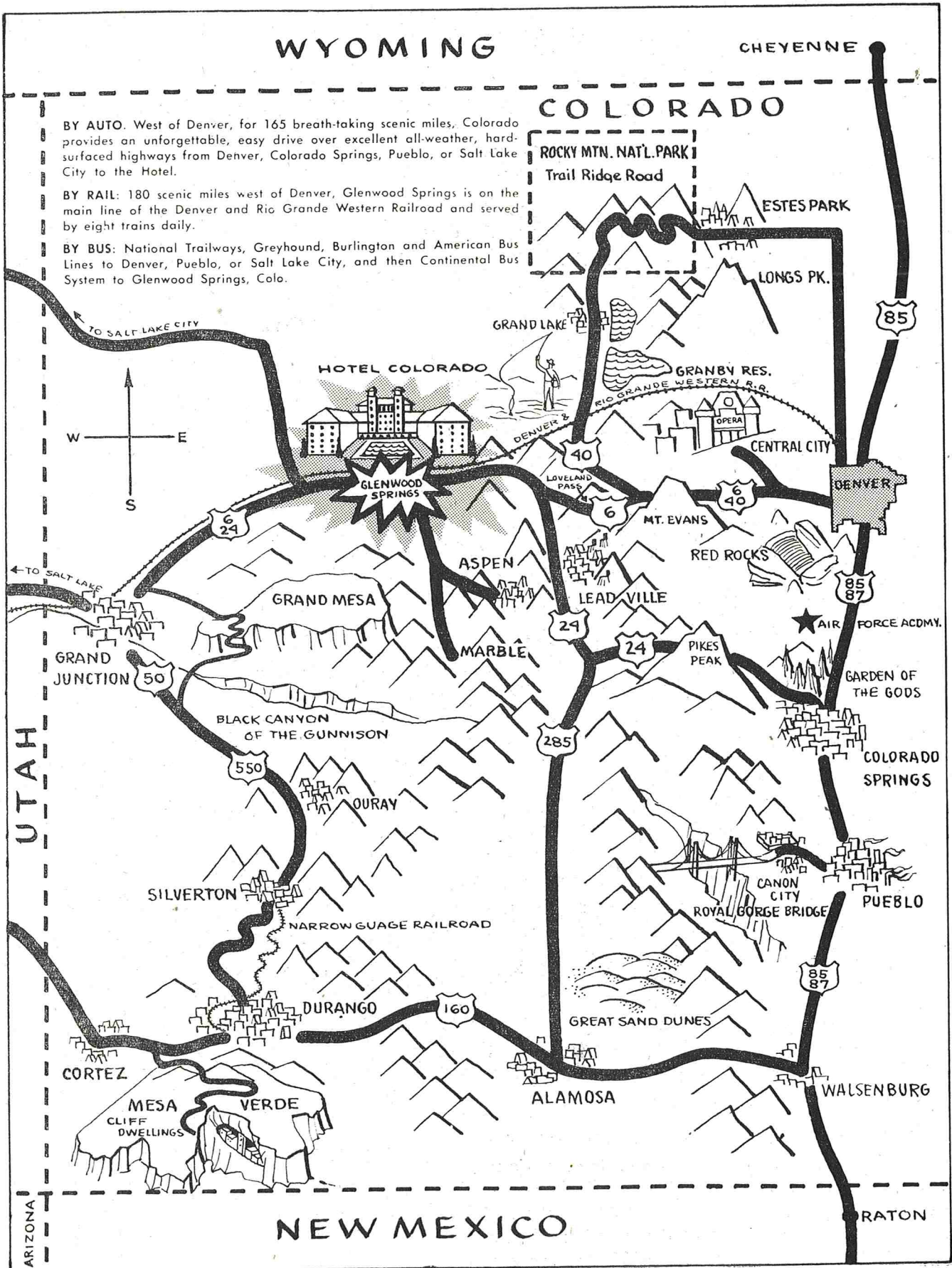
Folders of interesting places are being sent to your affiliate secretary. If you are interested in any particular place or places, or have any particular problem, write for information in order that you may complete your plans early.

A most pleasant and interesting time awaits you during the week of August 24, 1959 in Colorado. We are looking forward to your visit.

#### ROCKY MOUNTAIN ASSOCIATION OF MILK AND FOOD SANITARIANS

Colorado	New Mexico
Montana	Utah
Nebraska	Wyoming







## Special Service Article

### SOME ESSENTIALS OF FOOD ESTABLISHMENT SANITATION

**Editor's Note:** This is the first of a series of articles on "Some Essentials of Food Establishment Sanitation." This article, and those to follow will review and discuss certain selected aspects of this important public health problem.

#### SIZE OF THE INDUSTRY

The food service industry, which feeds the American public when it is away from the family dining table, is a large, complex and important entity in our total economy. The National Restaurant Association<sup>1</sup> has issued the following figures to indicate the magnitude of the industry.

TABLE 1.

Type Establishment	Per cent of meals served
Food Service Establishments by per cent of meals served.	
194,123 restaurants, cafeterias, lunch counters, refreshment stands .....	56.27
26,261 industrial restaurants .....	4.81
15,100 hotels .....	7.98
6,572 hospitals .....	4.28
All other types .....	26.66
(including) clubs, taverns & bars, drug stores, department & variety stores, confectioneries, motels and tourist courts, delicatessens, bakery stores, boarding houses, common carriers, educational and religious institutions & miscellaneous	

While the number of food and drink establishments shown indicates units in the thousands, the number of meals served weekly in the nation's restaurants, estimated at 557,690,000 is even more impressive. The gross annual business volume is estimated to be about 17.5 billion dollars and almost twenty-five per cent of the value of foods consumed in the United States passes through this industry. The restaurant industry ranks first in the number of people it gainfully employs. One out of every six persons working in retail trades is a restaurant employee. There is one restaurant for every 700 people in the United States.

#### PUBLIC HEALTH IMPORTANCE OF THE INDUSTRY

When the figures quoted above are considered, it is no wonder that public health departments and others devote hours of man power and a substantial portion of their official health budget to the sanitary

supervision of eating and drinking establishments. One does not have to look far to see why this is true. There are at least three good reasons. First, food can transmit infection and disease to the consumer. Improper and careless handling may subject the food to invasion by a variety of microorganisms thence to the consumer. Secondly, food may be contaminated with toxic substances, may be adulterated, or may through a large variety of causes, become entirely unfit for human consumption. The protection of food purity and wholesomeness, aside from deterioration caused by microorganisms, is also an important factor in terms of consumer protection. Third, and finally, is that phase of food sanitation which is sometimes called esthetic. The physical plant, the surroundings, and the environment where food is prepared and served has an important bearing, both from the viewpoint of food protection and customer acceptable. People generally are sufficiently discriminating to expect cleanliness in a public food service establishment. While so called, *atmosphere*, may not have a close correlation with public health protection, the customer however, expects to be served in neat, clean and orderly surroundings.

#### FACTORS WHICH OFFER MAXIMUM PROTECTION

When one considers the multitude of factors that are involved in the safe operation of a public food establishment it is quite difficult to establish a precise priority. As a matter of fact, it is necessary to establish priority on some items arbitrarily, since epidemiological data on all phases of food service operations are lacking. Equally important is the inter-relation between items of sanitary significance. Facilities may be entirely satisfactory yet methods may be poor. Judged in this light therefore, the selection of those factors which give maximum protection must depend upon whatever data is available plus knowledge based upon experience.

However, there is perhaps no one item more important in food service operation than the people who are employed. Frequently, this is spoken of as the *human element*, and rightly so because every employee from management on down has a responsibility in the operation. The work of each, influences significantly,



the safety and sanitary quality of food service. Here then is one of the first and real challenges to a food sanitation program. It is a component which should bring maximum safety to the customer.

Practically all food ordinances contain a section on the health status of employees. One common and familiar one, reads as follows:

*No person who is affected with any disease in a communicable form or is a carrier of such disease shall work in any restaurant, and no restaurant shall employ any such person or any person suspected of being affected with any disease in a communicable form or of being a carrier of such disease. If the restaurant manager suspects that any employee has contracted any disease in a communicable form or has become a carrier of such disease he shall notify the health officer immediately. A placard containing this section shall be posted in all toilet rooms.<sup>2</sup>*

In the past, but to a lesser degree at present, the mandatory medical or physical examination of the food worker was looked upon as an important barrier to the spread of communicable disease and food borne infections. A good deal of time and effort was expended urging workers to visit a physician or to report to a public clinic for a periodic physical examination. Experience has demonstrated many defects in this procedure, the most serious of which is that the examination seldom discloses conditions presenting the greatest hazard to food. Another well known defect is the false sense of security built up in both the worker and the public. But the most serious defect of all, is an erroneous assumption made by some public health workers, that further inquiry into the status of the food service employee's health is unnecessary because he has undergone a physical examination.

The more productive approach to the food worker, to his health and to his influence in food safety is through observation, consultation with management and education. In an effective food sanitation program the physical condition of all food workers should be carefully scrutinized. General vitality, absence of obvious clinical signs of illness, condition of skin, particularly of the hands, forearms, neck and face should be observed. The frequency of respiratory illness, chronic coughing or a history of recurrent intestinal upsets are of prime significance. It is not expected that the sanitarian will make his inquiry as would a trained physician. Obviously he should refrain from any attempt at diagnosis. On the other hand, suspicious signs should not be overlooked and careful discussion of the subject worker should be carried on with responsible management. Frequently this will disclose a record of absenteeism on the part of the employee. Management may recall symptoms and days missed

because of this or that complaint of illness by the worker. It is at this point that the sanitarian can render a real service to all parties concerned. He can discuss the most practical and feasible plan for the worker's medical examination with the management. Perhaps there are free diagnostic facilities available in the community to which the worker can be referred. The sanitarian may offer to discuss the worker's situation with the health officer and report back whatever recommendations appear applicable.

This whole subject of employee health is a sensitive and personal one. It must be handled with care, tact and good judgment. There are some who may feel that matters of this nature fall into the medical category and that the non-medical man is not competent to deal with them. The prime answer to this contention, is that the sanitarian, not the medical officer, is the person who routinely contacts the food service industry. He has first hand knowledge of each establishment and has intimate knowledge of conditions that bear upon the overall situation. This places him in an admirable position to make frequent observations in this very significant phase of food service operations. It would appear that all too commonly there is an insufficient amount of careful observations and inquiry made where the food service worker's health status is concerned. A review of food establishment inspection reports covering a large number of places will disclose a wide variety of defects noted in physical surroundings and equipment, but rather infrequently is any notation made concerning employee's health. It is unrealistic to assume that employees are always in a satisfactory state of health. Here then, is an area where close scrutiny and action, where necessary, offers one important factor in the maximum protection of the public health through the food sanitation activity.

#### COOPERATION OF MANAGEMENT

Management has an important role to play in this whole matter of health of employees. While it is realized that help shortages mitigate against exclusion of workers who have clinical signs of illness, management would profit in the long run by having medical services available for their employees on a pre-arranged basis. Operators readily admit that sickness absenteeism is one of their acute personnel problems, yet remedial procedures do not appear to be well established. The sanitarian then is in a position to suggest and advise on this problem with management. While a number of the larger food establishments and companies do have pre-arranged medical facilities available, the health situation is too commonly left to the discretion of the individual employee.



Self medication is frequently employed. This may give temporary relief, but may not reveal a more deep seated basis for the recurrent illness.

While the matter of health among food workers is not to be treated in an arbitrary manner, generally, management should be informed of the fact that certain prescribed procedures are set forth by ordinance, where infection among food workers is suspected. The health authority is commonly authorized to proceed as follows:

*When suspicion arises as to the possibility of transmission of infection from any restaurant employee the health officer is authorized to require any or all of the following measures (1) the immediate exclusion of the employee from all restaurants; (2) the immediate closing of the restaurant concerned until no further danger of disease outbreak exists, in the opinion of the health officer; (3) adequate medical examinations of the employee and of his associates, with such laboratory examinations as may be indicated.*

In this article one phase of food sanitation has

been discussed. The whole subject is quite complex. An exhaustive treatment of it would occupy more space than is available here. The points that have been made may be taken as a plea to the food sanitarians to be more objective and searching in his inquiry about the status of employee health. There is no one perfect solution. On the other hand, neglect of this *priority* item in terms of food protection is a serious omission within the framework of an effective public health program.

#### REFERENCES:

1. National Restaurant Association, 8 South Michigan Avenue Chicago 3, Illinois. America Eats Out, Figures and Facts about the Restaurant Industry, 1957
2. Department of Health, Education and Welfare, Public Health Service, Ordinance and Code Regulating Eating and Drinking Establishments, 1943 Recommendations of the Public Health Service, Washington, D. C.

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## SURVEY OF STATE SANITATION CONTROL AUTHORITY

CHARLES MATTLAGE

*Health Officers News Digest, New York*

In a recent survey conducted by *Health Officers News Digest*, publication of the Public Health Committee of the Paper Cup and Container Institute, all state health departments were canvassed for information regarding sanitation control jurisdiction at the state level in various activities with public health implications. They were asked to name the agency or agencies setting standards, regulating practices or having general authority for supervision of each of these activities.

Replies were received from all states, and tabulation of the various departments or combinations thereof reported to have or share authority in individual areas was prepared. This material was published in *Health Officers News Digest*, September and November 1957 issues.

Thereafter, it appeared that a presentation of the complete information for each state would be useful to many persons in the public health field as a basis for comparison of practices. In order to achieve maximum accuracy for this report, all state health departments were advised how their original replies had been interpreted, and then given the opportunity

to correct any misinterpretations or furnish additional information if this seemed necessary.

The letters mailed in this second inquiry pointed out that "the degree of authority may vary from a clear-cut delegation of authority by legislative act to an assumption of jurisdiction by a board of health by reason of the absence of other control or even to service in an advisory capacity without any power of enforcement of standards." It further explained: "What we are trying to determine is which departments *at the state level* exercise any influence on sanitation in the designated areas *at the local level*,"

Answer to the second mailing again were received from all 48 states. The few changes indicated in the replies have been made in the listing presented on the next two pages.

Obviously the list cannot define the extent of control by any agency in any area of activity. However, it is interesting to note the varying distribution of authority among the several states and the number of activities in which individual health departments indicated they do not exercise any authority.



## REGULATING AUTHORITIES IN VARIO

	Milk Control	Food Service Control	Foods, Drugs & Cosmetics	Hotel Env. San.	Motel Env. San	School Env. San.	Hospital Env. San.	Institution Env. San.
Ala.	H	H	H-1	H	H	H	H	H
Ariz.	H	H	See SS	H	H	H	H	H
Ark.	H	H	H	H	H	H	H	H
Cal.	1	See SS	H	2	2	4	H	13
Colo.	H-1	H	H	H	H	H	H	H
Conn.	1	H	6	H	H	H	H	H
Dela.	H	H	See SS	H	H	H	H	H
Florida	H-1	See SS	H-1	H-3	H-3	H-4	H	H
Ga.	H-1	H	See SS	14	H	H	H	H
Idaho	See SSa	See SSb	H-5	H	H	H-4	H	H
Illinois	H	See SSa	See SSb	14	14	10	H	12
Ind.	H	H	H	14	H	H	H	H
Iowa	1	See SSa	5	1	1	H-4	H	See SSb
Kansas	1	See SS	H	H-3	H-3	14	H	15
Ky.	H	H	H	H	H	H	H	H
La.	H	See SS	H	H	H	H-4	H-11	H-11
Maine	1	See SSa	See SSb	H	H	4	H	11
Md.	H	H	H	H	H	H	H	H
Mass.	H-1	H	H	H	H	H	H	H
Mich.	H-1	See SSa	See SSb	2	H	H	H	H
Minn.	1	See SSa	See SSb	H	H	4	H	12
Miss.	See SS	H	H-7	H	H	H	H	H
Mo.	See SS	H	H	H	H	H	H	H
Mont.	1	H	H	H	H	H	H	H
Neb.	1	See SS	1	1	1	4	H	10
Nev.	H	H	6	H	H	H	H	H
N. H.	1	H	H	H	H	H	H	H
N. J.	H	See SSa	See SSb	H	H	H-4	H-11	H-11
N. M.	H	See SSa	See SSb	H	H	H-4	H	H
N. Y.	H-1	See SSa	See SSb	H-1	H	4	H-12	H
N. C.	H-1	H	H-1	H	H	H	H	H
N. D.	H-1-2	See SS	8	8	8	4	H	10
Ohio	1	See SS	H-1-5	9	9	4	H	H-13
Okla.	See SS	H	H	H	H	H	H	H
Ore.	1	See SSa	See SSb	H	H	H	H	H-10
Penna.	1	See SS	1	H	H	H	H-12	H-12
R. I.	H-1	H	H	14	H	14	H	12
S. C.	See SS	H	H-1	H	H	H	H	H
S. D.	1	See SS	1-7	1	1	H	H	H
Tenn.	1	See SS	1	3	3	H	H	13
Texas	H	H	H	H	H	H	H	H
Utah	1	H	1	H	H	H	H	H
Vermont	1	See SS	H	H	H	H-4	H	H-11
Virginia	H-1	H	See SS	H	H	H	H	H
Wash.	1	H	See SS	2	H	H	H	H
W. Va.	H	H	H	H	H	H	H	H
Wis.	H-1	See SS	1	H	H	H-4	H	H
Wyo.	1	H	1	H	H	H	H	H

## Explanation of Symbols

SS - Special Situation

H - Health Department

1 - Agriculture, Dairy Comm., Livestock Sanitary Bd., or Milk Control Bd., Medical Milk Comm.

2 - Labor or Industrial Relations

3 - Hotel &amp; Rest. Bd., or Div. of Dept. of Conservation

4 - Education

5 - Bd. of Pharmacy

6 - Food &amp; Drug Comm.

7 - State Chemist &amp; Bd. of Cosmetology

8 - State Laboratories Dept.

9 - State Fire Marshall



# INDUSTRY AREAS OF SANITATION CONTROL

Industry Env.	Camp Env. San.	Labor Camp Env. San.	Nursing Home Env. San.	Special Situations
H	H	H	H	
H	H	H	H	Health Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
H	H	H	H	
2	H	2	H	Institutions - 13; all other - H
H	H	H	H	
H	H	H	H	Health Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
H	H	H	H	All public - H-3; schools - H-4; other - H
H	H	H	H	Agriculture Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
H	H	H	H	a. Health Dept. - fluid milk; Agriculture - manufacturing
H	H	H	H	b. Schools - H-4; all other - H
2	14	2	H	a. Public, ind. - 1; schools - 10; hosp., nurs. homes - H; public. inst. - 12; camps and labor camps - 14
H-2	H	H	H	b. Health Dept. - foods
2	See SSc	H-2	H	a. Public, ind., camps, labor camps - 1; schools - 1-4; hosp. - H; Inst. - 1 and Bd. of Regents (educational), 1 and Bd. of Control (others)
				b. Health Dept. and Bd. of Regents - educational; Health Dept. and Bd. of Control - others
				c. Health Dept. - general; Conservation Commission - state parks
15	14	H	H	Restaurants, hotels, motels - H-3; vending, fairs, carnivals, itin. rest., hosp. nurs. homes, labor camps - H; schools, camps - 14; inst., ind. - 15
H	H	H	H	
H	H	H	H - 11	Schools - H-4; Hosp., inst., nurs. homes - H-11; all other - H
H	H	H	H	a. Fairs and carnivals - 1; schools - 4; inst., - 11; all other - H
H	H	H	H	b. Health Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
H	H	H	H	
H	H	15	H	
H	H	14	H	a. Hotels, motels, schools - H-1; hosp., inst., ind., camps - H except Dept. of Ag. wherever charge is made for food; other - 1
2	H	H	H	b. Agriculture Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
H	H	H	H	a. Schools - 4; inst. - 12; all other - H
H	H	H	H	b. Agriculture Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
H	H	H	H	Health Dept. - fluid milk; Agriculture - manufacturing
2	H	2	H	Health Dept. - fluid milk; Agriculture - manufacturing
H	H	2	H	Public - 1; schools - 4; hosp., nurs. homes, camps - H; inst. - 10; ind., labor camps - 2
H	14	H	12	
H	H	H	H	
H-2	H	H-2	H-11	a. Schools - H-4; hosp., inst., nurs. homes - H-11; ind., labor camps - H-2; all other - H
H	H	H	H	b. Health Dept. and Pub Serv. Div. of State Univ.
H-2	H	H	H-12	a. Schools - H-4; all other - H
				b. Health Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
				a. Public except motels and fairs - H-1; fairs - H-1-10; motels, inst., camps, labor camps - H; schools - 4; state hosp. - H; other hosp. - 12; nurs. homes - H-12
2	H	H	H	b. Health Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
2	8	8	H	Schools - 4; ind. - 8; inst. - 10; hosp., nurs. homes - H; others - H-8
H	H	H	H-12	Schools - H-4; other - H
H-2	H	H	H	Health Dept. - fluid milk; Agriculture - manufacturing
H	H	H	H	a. Institutions - H-10; vending - no standards established. Where food is prepared, licensed as caterer; other - H
2	H-2	2	H-12	b. Health Dept. - foods only
2	H	H	H	Nursing homes - H-12; labor camps - 14; all other - H
H	H	H	H	Health Dept. - milk produced within state; Dairy Comm. - milk brought in from outside state
H	14	2	H	All public - 1; other - H
H	H	H	H	Public, ind., labor camps - 3; inst. - 13; camps - 14; other - H
H	H	H	H	
H-2	H	H-2	H	Schools - H-4; others - H
H	H	H	H	Health Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
H	H	H	H	Agriculture Dept. - foods; Bd. of Pharmacy - drugs & cosmetics
H-2	H	H	H	
H	H	H	H	Schools - H-4; ind., - 14; all other (except only sandwich machines covered for vending) - H
H	H	H	H	

10 - Supt. of Pub. Const., Bd. of Adm'n., Bd. of Control, Dept. of Public Works  
 11 - State Hosp. Bd. or Dept. of Institutions  
 12 - Dept. of Public Welfare & Safety  
 13 - Operating Authority (Dept. of Mental Hygiene, Corrections, etc.)  
 14 - None at State Level  
 15 - Unknown



# ON THE TRAINING OF SANITARIANS<sup>1</sup>

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## INTRODUCTION

A recent editorial by Hatlen (4) brought forth an appeal for the recruitment of "qualified" college trained personnel. The problem of providing adequately trained sanitarians is a serious one, and it is of concern to at least three large groups. First, to the schools which provide formal training for potential sanitarians, it is a problem of providing the best possible curricula. Secondly, to department heads of regulatory agencies and industrial organizations who hire sanitarians, it is a problem of securing an individual best trained to meet their particular needs. And thirdly, it is a problem to the sanitarians themselves as they strive to better their profession.

The objectives of this study are to present: (a) a review of the present professional status of sanitarians and various activities which are directed toward its betterment; (b) a review of recommendations which have been made for training sanitarians; and (c) a survey of opinions relative to the type of training most desirable for sanitarians.

### *Definition of a Sanitarian*

What is a sanitarian? The Committee on Professional Education of the American Public Health Association (1) proposed the following definition of a sanitarian:

"A public health sanitarian is a person whose education and experience in the biological and sanitary sciences qualifies him to engage in the promotion and protection of the public health. He applies technical knowledge to solve problems of a sanitary nature and develops methods and carries out procedures for the control of those factors of mans environment which affect his health, safety, and well-being."

This definition appears to be quite adequate.

### *Duties of a Sanitarian*

Sanitarians are the second largest group employed in official health agencies and are exceeded in number only by public health nurses. The complexity of the sanitarian's duties touches all phases of community life, draws upon knowledge of the physical, biological, engineering and social sciences, and is interwoven in nearly all activities of a complete public health pro-

gram. In addition to educational duties, the sanitarian is required to interpret and enforce public health laws, ordinances, and regulations. He is in close daily contact with dairy farmers, milk and food plant operators, and proprietors of all types of retail food service establishments. His work requires investigations of domestic water supplies, sewage facilities, and the disposal of other community wastes. He is concerned with insect and rodent control and with sanitary conditions at hotels, motels, trailer parks, resorts, recreational camps, swimming pools, and bathing areas. Home safety and accident prevention, assistance in epidemiological investigations, civil defense planning, and evaluations of sanitation laws and regulations may be included among his duties.

## MOTIVATING FACTORS

### FOR SELECTING A CAREER IN PUBLIC HEALTH

Men enter the field of Public Health Environmental Sanitation with a wide variety of educational backgrounds. This is generally not true among the other professions making up the public health team.

A survey by Stiles and Watson (8) has shown that students in the schools of medicine, dentistry, and nursing list the following as the three primary motivations for choosing their profession: (a) native interest and aptitudes which make it natural to pursue this field in preference to all others, (b) expectation of a substantial financial income and economic security, and (c) expectation for advancement in position, social prestige, or responsibility. Graduate students in the School of Public Health of the University of California at Berkeley and San Francisco, however, rated the following factors to be of much greater significance than those selected by students enrolled in other professional schools: (a) previous experience in an occupation closely related to the expected career, (b) an agreeable opportunity which materialized unexpectedly, and (c) close relationship of this vocation to another which could not be attained for some reason. Public health students gave considerably lower rating to such motivations as "expectation of substantial financial income and economic security", or to "expectation for advancement in position, social prestige or responsibility".

Another study recently completed in California (3) has further minimized financial considerations as an incentive by pointing out that sanitarians' salaries in

<sup>1</sup> A report of the Committee on Education, Minnesota Sanitarians Association, and based on data gathered by George W. Hanson in connection with work leading to the degree of Master of Public Health, University of Minnesota. Presented at the Annual Meeting of the Minnesota Sanitarians Association, St. Paul, September 18, 1958.



that state, during the last four years, lagged by about 35 percent behind the annual wage increase for workers in general. However, the situation relative to salaries of sanitarians is not entirely discouraging. A study made in 1956 by the Conference of Municipal Public Health Engineers (7) indicated that since 1954 the salaries of the sanitarians have risen more rapidly than those of public health engineers.

In summary, it would appear that, in general, personnel are attracted to the public health field late in their college programs or even after they have completed their college education.

#### NECESSITY FOR TECHNICALLY TRAINED SANITARIANS

The most important reason for college level training is that advances in technology have added to the complexity of the sanitarian's general program. New areas challenge his skills. Some of these areas are: radiological health; industrial sanitation; air pollution control; urban fringe sanitation; accident prevention; housing; and developments in food production, processing, and distribution. Knowledge made available through research can be applied toward producing a healthier environment. Proper use of this new knowledge, however, requires adequately trained and competent personnel.

#### PROFESSIONAL STATUS OF SANITARIANS

##### *Advancement to Professional Status*

Sanitarians are seeking professional status. They look to the recognition and dignity now enjoyed by health officers, engineers, nurses and other members of the public health team. Generally they realize that professional recognition will not become a reality until adequate standards in education and training are established which will provide the basis for competency in performing the work of a sanitarian.

Some indication of the present status of qualifications specified for sanitarians is contained in a report of the *Committee on Salaries, Association of Municipal Public Health Engineers* (7). This report stated that one-third of all the vacancies for sanitarians consists of positions for college graduates with no experience. On the other hand, the report indicated that nearly 50 percent of all sanitarian positions at the local level now require a college degree.

Some degree of professional recognition already has been obtained. This has been fostered largely by two professional societies, the International Association of Milk and Food Sanitarians, Inc., and the National Association of Sanitarians. Activities of these organizations are reflected in the general upgrading of sanitarians. As public understanding grows, undoubtedly there will be further demands for more and better

trained men. Professional recognition should increase and it is likely that there will be more active participation by sanitarians in community programs.

Many sanitarians now realize that registration, whether voluntary or mandatory, can be helpful in attaining professional status and increased proficiency. Registration should be based upon high-level qualifications and ability, and should not be used as a device to insure job security or to protect mediocrity.

It is an accepted fact that practically all present state registration laws emphasize education and training of the sanitarian as fundamental to his professional development. It is also recognized that most of these laws promote a reciprocal interchange of personnel between states with similar acts, thus eliminating employment barriers which now exist in some areas.

Jones (6) in a report presented to the 44th annual meeting of the International Association of Milk and Food Sanitarians, Inc., indicated that there is a definite trend in the United States to establish some form of state legislation for registering qualified sanitarians. He further stated that eleven states and one territory have enacted legislation to establish legal procedures for registering sanitarians. They are: Oregon, Georgia, California, Wisconsin, Colorado, Utah, Louisiana, Oklahoma, West Virginia, Arkansas, Massachusetts, and the Territory of Hawaii. In addition, the state of New Jersey requires the licensing of Sanitary Inspectors.

Several other state governments including Arizona, Connecticut, Florida, Missouri, Ohio, Texas, Washington, and Minnesota have considered but have failed to act upon similar registration bills. These failures, in most cases, were apparently due to insufficient "grass roots" education at both the public and legislative levels.

Voluntary registration of sanitarians, utilizing standards equivalent to the compulsory regulations, has been established in Indiana, Ohio, and Pennsylvania.

These various registration acts are a step in the right direction, but maximum recognition, prestige and uniformity of standards will be attained only by (a) well qualified, dedicated and competent personnel available for this type of work, and (b) a voluntary national registration plan or a uniform registration law in each state. Those applicants who fail to meet established minimum standards or qualifications must, however, be screened out.

#### RECOMMENDATIONS WHICH HAVE BEEN MADE FOR TRAINING SANITARIANS

Since 1950, three study groups have made recommendations pertinent to the educational qualifications of sanitarians. A summary of the recommendations of each of these follows:



*Working Conference on Undergraduate Education in Sanitary Science*

This Conference (5) was sponsored by the Kellogg Foundation in 1951. The purpose of this conference was to provide an opportunity for institutions offering an undergraduate degree in public health to exchange views on their programs of study. Emphasis was placed on the importance of laying down general principles for future planning rather than attempting to develop a stereotyped pattern of education. In *Appendix A* of their report, they listed the following suggested program based upon semester credits:

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
Humanities .....	6	Humanities .....	6
Mathematics .....	6	Biology .....	8
English .....	6	Organic Chemistry .....	5
Chemistry .....	6	Sociology .....	3
Physical Ed. ....	6	Speech .....	3
	30	Psychology .....	3
		Physical Ed. ....	4
		Political Science .....	3
			35
Junior Year		Senior Course	
Course	Credits	Course	Credits
Bacteriology .....	4	Epidemiology .....	3
Quantitative Chemistry	4	Sanitary Science .....	18
Economics .....	3	Physics .....	4
Sanitary Science .....	6	Human Relations .....	3
P.H. Organization .....	3	Electives .....	8
Physics .....	4		36
Parasitology .....	3		
Entomology .....	3		
Statistical Analysis .....	3		
	33		

It is interesting to note that the forward of the the conference report included the following quotation:

"In the training of a sanitarian the first objective is to produce an educated individual, a person who has developed competence in the formulation of intelligent judgments, and secondly to provide a person qualified to enter the field of environmental health."

At the present time there are 16 colleges or universities which have curricula similar to that suggested by this committee. These are: University of California, University of Denver, Florida State University, University of Florida, Indiana University, University of Massachusetts, University of Michigan, University of North Carolina, University of Oklahoma, Rutgers University, San Jose State College, Southern Illinois University, Tulane University, Utah State Agricultural College, State College of Washington, and the University of Washington.

*Committee on Professional Education, American Public Health Association*

The report of this committee (1) recommended that undergraduate study follow a similar type of program as that proposed by the "Working Conference" men-

tioned above. A summary of their recommendations is as follows:

*The first two years* — English, economics, government, sociology, anthropology, social institutions, speech, etc.; and sciences such as mathematics, elementary bacteriology, chemistry, physics, psychology, zoology or physiology or general biology.

*The second two years* — Advanced general bacteriology, medical entomology, and/or parasitology; public health courses to include communicable disease control, public health administration and law, health education, principles of environmental sanitation, epidemiology, biometry, principles and practices of water supply and sewage disposal, control of production and distribution of food and milk; laboratory procedures used in the maintenance of a sanitary environment; approximately three months of supervised field training in branch offices of a state health department or in local municipal or county health departments.

This committee also proposed five basic levels or classifications for the public health sanitarian, the least of which requires a Bachelor's degree.

(See Table 1).

TABLE 1 — PROPOSED CLASSIFICATIONS FOR PUBLIC HEALTH SANITARIANS

Title	Education	Minimum public health experience
Public Health Sanitarian I	Bachelor's degree	None
Public Health Sanitarian II <sup>a</sup>	Bachelor's degree	1 year
Public Health Sanitarian III	Bachelor's degree	3 years
Public Health Sanitarian IV	M.P.H. (desirable)	4 years
Public Health Sanitarian V	M.P.H.	6 years

<sup>a</sup> Graduates with a B. S. degree in sanitary science and public health, because of specialized preparation and field training, should start at the Sanitarian II level.

*Report of Directors of Full Time Local Health Departments of Michigan*

This report (2) consisted of a recommendation to the Commissioner of Health of the State of Michigan that recognition be given to a two year course at the technician's level for persons who may be interested in the field of environmental sanitation. This group would be known as "Sanitarian Technicians". This plan is now under consideration by the Ferris Institute in Michigan for it was proposed that this institution provide such training. These recommendations are opposed by the Executive Board of the International Association of Milk and Food Sanitarians, Inc. who object to the "trade school" approach of such a program. This objection is substantiated by the recommendations contained in the committee report *Educational and Other Qualifications of Public Health Sanitarian* (2) previously discussed.



A SURVEY OF OPINIONS  
RELATIVE TO THE TYPE OF TRAINING MOST DESIRABLE  
FOR SANITARIANS

*Procedure*

In view of the growing interest in providing better training for sanitarians, a survey was made to obtain the opinion of agencies employing sanitarians relative to the training qualifications desired. Generally there appear to be two distinct college curricula that are utilized by college students planning a career in, or who eventually find themselves engaged in, public health work as sanitarians.

First, there are the four-year science graduates often with majors in applied fields such as Dairy Technology, Food Technology, Bacteriology, etc. Such graduates have been the major source of college trained sanitarians in the past. They have had little or at best only rudimentary training in the broad area of public health prior to employment; however, generally they are well grounded in fundamental science courses and many have proven themselves adept in applying this training in the field of public health.

Secondly, there are the college graduates with a degree in Sanitary Science. Such individuals have received specific training in public health with a great deal of emphasis on methodology, but they frequently lack knowledge relative to applied fields wherein public health principles are of major consideration.

Therefore, a questionnaire (see Appendix) was designed to obtain information as to which of the above two types of training programs was preferred. This questionnaire in letter form was sent to environmental sanitation sections of all state and territorial health departments, to some of the district United States Public Health Service offices and to a number of larger city and city-county health departments, as well as several large industrial food processing firms.

The questionnaire requested the recipient to indicate the type of college level training preferred in a man they would like to hire as a sanitarian, and to give the reasons for their choice. It also requested information as to whether or not their department presently employed sanitarians and, if so, how many. In all, 100 questionnaires were mailed. Answers were received from 66 of the parties contacted. According to the answers received, these 66 departments were directly or indirectly responsible for hiring and placing some 1727 sanitarians. The large number of returns reflects the general interest in the training of sanitarians.

In preparing the questionnaire, every effort was made to eliminate bias. Also, it was sent to all parts of the United States in an effort to balance out any bias

that might exist in any one portion of the country. It is recognized that it was not possible to control any bias of individuals who answered the questionnaire. Furthermore, various departmental policies relative to training qualifications could, in those cases not set forth by regulation, change with succeeding directors.

*Comments from Those Favoring Sanitary Science Curriculum*

The sanitary science curriculum leading to a B.S. degree was indicated as first choice by 45.4 percent of all department heads answering the questionnaire (see Table 2). Representative comments taken directly from the answers to the questionnaire are presented below:

TABLE 2 — PREFERENCES EXPRESSED IN REPLIES FROM  
PUBLIC HEALTH AGENCIES RELATIVE TO COLLEGE  
CURRICULA FOR SANITARIANS

Curricula	Choice		No. of sanitarians employed
	No	%	
Sanitary science	30	45.4	962
Applied science	24	36.3	523
Other than above	12	18.3	242
Totals	66	100.0%	1727

"Sanitary science because they have better background in the specific subjects dealing with environmental sanitation."

"On-the-job training time is greatly reduced and this is a big advantage to the employer."

"They have a knowledge of prevention and control of preventable diseases by environmental control measures as well as a knowledge of people, their standards of living and their needs with respect to their particular environment."

"Most sanitarians have difficulty from the public relations standpoint, rather than from the technical standpoint. We would hope that any graduate in sanitary science would be able to recognize problems that he is not equipped to handle and would call upon those who could advise him for assistance."

"Sanitary science graduates can always acquire techniques of the science graduate, but the science graduate never does acquire the broad training of the sanitary science graduate."

"A curriculum leading to the B.S. degree in sanitary science embodies a carefully planned balance in the science courses, whereas the four year science graduate is likely to have had all or most of his technical training on only one, or at best two, science fields."

"We feel that college graduates in sanitary science would be better qualified and might obtain a preference in employment as sanitarians. We do not feel that the employment should be limited to such persons since the demand for sanitarians is more than could be supplied from such sources."

"The sanitary science graduate would know the value of the other members of the public health team and therefore would think in terms of the overall public health program."

"From the point of view of early competence in the field of public health, the person graduating in sanitary science seems to make a better sanitarian than one from the general



biological sciences. However, whether the more specialized training in sanitary science will stand him in good stead later on, we do not know as we have no sanitarians with this type of training in our higher-level positions."

#### *Comments Relative to Shortcomings of a Sanitary Science Curriculum*

In spite of the many reasons listed above, sanitary science continues to supply only about 10-15 percent of the graduates needed annually to fill vacancies in the field. The following are a few of the comments received; these indicate some of the possible shortcomings of such a program and may help clarify the reasons for this shortage:

"The sanitary science graduate is specifically trained in a very limited field of endeavor. Should he become dissatisfied with his work, he may find it difficult in making a change. Also, by directing one curriculum to a specific field, such as public health, you limit the health departments to a lesser number of personnel which, by no means of the imagination, could be considered the best of the students available."

"The chance for advancement for the sanitarian is somewhat limited. His original employment position is often the highest position he can hold without further academic training. This may not be true in the larger governmental agencies or in the larger industries, but is certainly true in the majority of the vacancies; and that except in a few special cases, the lack of professional recognition makes him 'low man on the totem pole' in the public health team. Therefore, if one knows in advance that he is going to enter the public health field, perhaps it would be better to choose a recognized professional field."

"The principles taught in restricted sanitation courses often are in conflict with the ideas of the agency employing the sanitarian. As a result, unlearning is necessary."

"A person with this background may lack enthusiasm for his work. Some have the feeling that they are completely trained men and can learn very little more from a health department or the community." (This comment from a department which has employed seven sanitary science graduates in the past six years.)

"The men in sanitary science have not received good basic training in fundamental science courses but have, to some extent, been 'trade schooled' in some narrow fields of environmental sanitation. It is often difficult to distinguish between the quality of work, basic knowledge, etc., of the sanitarians who are not specifically trained in sanitary science and those who are. When giving promotional examinations prepared by the American Public Health Association, it was found that the sanitary science majors did not necessarily show up any better than those who received the fundamental science courses. This is also found to be true in the oral examination when an attempt was made to determine such things as a man's reasoning powers."

#### *Comments of Those Favoring an Applied Science Curriculum*

Results of the survey showed that 36.3 percent of those answering the questionnaire indicated this curriculum as their preference. This would seem to indicate a nearly even split in opinion between the two choices. This second type of college personnel are the

four-year science graduates often with majors in applied fields such as Dairy Technology, Food Technology, Bacteriology, and Biology. Such graduates have been the major source of college trained sanitarians in the past. Some of the reasons cited in preference for this group are as follows:

"Graduates from a four year course in science with emphasis in basic science are more valuable than those that have received more general training in public health methods. Adequate preliminary training in basic sciences is most important." (This comment from a person who taught sanitary science for three years.)

"Specific training in the more detailed work in the various fields of environmental health should come in graduate study."

"Any broad training in science provides a good background for sanitation since in-service training is a necessity for all new sanitarians. Regardless of background, no one just out of college is equipped to handle the complex field of public health."

"It is felt that many schools today are limiting employment for graduates by constructing restrictive curricula rather than providing them with the broad base upon which they may be employable in more fields. Accordingly, it is primarily necessary for a man to have a background in the basic sciences and having broad educational experience rather than having specific training in public health with a great deal of interest on the principles of public health. With the man with a basic science degree, a health department can provide him in many ways with the necessary public health academic training and experience which he requires, if and when he comes into the field of public health. If the undergraduate program has been sufficiently broad, it will have provided a base for graduate study at a later date to prepare the individual for health work as a sanitarian supervisor or specialist sanitarian."

"The man with a degree in basic science is preferable. He is more willing to learn and carry out the division's programs without the feeling that he is a completely trained man and can learn very little more from this department or the community. With an eagerness to learn coupled with some in-service training in fields of his endeavor, he is doing a fine job. On new problems in the field, his wider background in fundamental science has enabled him to more easily reach a satisfactory solution. The sanitary science man seems to be at a loss to apply the practical knowledge." (This comment from a department employing more than 50 percent sanitary science graduates.)

"There is a basic need for adequate training in the fundamental sciences with less emphasis during the undergraduate training on principles and methodology. The latter can be developed through proper organized orientation, supervised experience and in in-service training after employment."

"The smaller states have to work their sanitarians into many duties not specifically along the lines of strict sanitation. When this is true, they would prefer a man trained in Food Technology or Bacteriology. Having this background they can then train them in the specific or varied fields that are involved."

#### *Comments Relative to Shortcomings of an Applied Science Curriculum*

Some of the replies relative to the shortcomings of an applied science curriculum were the following:

"The individual with a B.S. degree in applied fields has no actual training in public health and does not think in terms



of the overall public health programs."

"A large portion of the background courses a basic science student would receive would not be applied or be useful in the field of environmental sanitation."

"The four year science graduate is likely to have had all or most of his technical training on only one, or at best two, scientific fields."

(Reference should be made to those comments listed as advantages under the sanitary science curriculum.)

#### *Comments from Those Not Specifically Favoring Either Type of Training*

Twelve of the questionnaires returned failed to: (a) specify the type of training they desired; (b) approved of both types; or (c) approved of neither type. Some comments from this group are as follows:

"The comparison between the two is a toss-up."

"Both courses are necessary in the field of public health. For top level positions you need men with schooling in Dairy or Food Technology, Bacteriology, and Entomology. Secondly, you need men schooled in sanitary sciences who can operate on a broad scale."

"With the requirements for conducting both specialized and generalized programs, it is necessary to conduct the personnel accordingly. Experience shows that a graduate holding a degree in sanitary science is often no better prepared for environmental sanitation work over a graduate in related sciences because of the special emphasis so often presented in the undergraduate curriculum, i.e., milk and food, sewage and water, bacteriology, and housing."

"We have had experience with sanitarians with training in both types of college curricula described. Generally speaking, there seems to be no obvious difference in performance between the two types after a few months period of on the job training. Much of the difference in performance seems to be the result of the individual's ability to apply his academic training to the specific practical problems he meets in the field."

#### *Other Information of Interest*

Several other items of interest brought to light by the survey may be of general interest.

*Post-graduate training.* Twenty-three percent of the answers received indicated the desirability of graduate training toward the M.P.H degree regardless of the background of the individual.

*In-service training.* Nearly all of the replies stated the existence within the respective departments of on the job training opportunities and regular periodical in-service training courses regardless of the background of the individual.

*Individual abilities.* Several answers indicated that individual personality and salesmanship was of primary importance above any type of training. To quote just one answer as an example: "I once had a technician working for me that could appear before a group and do more harm in ten minutes than we could cure in a year. Yet, he was excellent so far as technology goes."

#### SUMMARY AND CONCLUSIONS

Sanitarians, together with interested groups, have begun the task of improving their professional status. Generally, they realize that professional recognition will not become a reality until adequate standards in education and training are established which will provide the basis for competency in performing the increasingly complex duties of a sanitarian. The principal methods presently being utilized are: (a) registration based upon high-level qualifications and ability; and (b) encouragement of studies pertinent to the educational qualifications desirable for sanitarians. In this connection, the 16 colleges and universities offering a B. S. degree in Sanitary Science are providing a curriculum quite similar to that recommended by the "Working Conference" (5) and the Committee on Professional Education, *American Public Health Association* (1).

In view of the growing interest in providing better training for sanitarians, a survey was made to obtain the opinions of agencies employing sanitarians relative to the training qualifications desired. Answers were received from 66% of the organizations to which questionnaires were mailed. Those replying included departments which are directly or indirectly responsible for hiring and placing some 1727 sanitarians.

The choice of desirable college curricula, as indicated by the returns, was so evenly split between applied science graduates and sanitary science graduates that no definite conclusion can be drawn as to which would be most desirable. It does appear from the comments received, however, that both curricula are presently being utilized and are providing the means for adequate training of sanitarians. The survey also revealed that in some instances there was a tendency toward the use of applied science graduates in public health areas allied to the individual's specialization, and the use of the sanitary science graduate in the general sanitation program.

Other interesting information obtained through the survey included: (a) the desirability of graduate training toward the M.P.H. degree as indicated by 23% of the answers; (b) the need for regular periodic in-service training courses regardless of the background of the individual; and (c) the desirability of individual attributes fundamental to the enhancement of good public relationships.

It is apparent that a variety of training is possessed by personnel serving as public health sanitarians. This includes: (a) relatively inadequately prepared individuals holding jobs as "political appointees"; (b) individuals with limited professional training but possessing extensive experience gained through long serv-



ice; (c) well educated individuals with little formal training in the public health field; (d) college graduates having pursued curricula in sanitary science or in several areas of applied science; and (e) individuals holding graduate degrees in public health or specialized areas related thereto.

In view of the above, there appears to be a need for additional constructive thinking and planning on the part of educators in the field of public health toward the objective of providing the kind of professional training for public health sanitarians that would be the most adequate.

#### APPENDIX

The following was contained in the questionnaire addressed to various public health agencies and several industrial food processing firms:

"Generally there appear to be two distinct college curricula that are utilized by college students planning a career in, or who eventually find themselves engaged in, public health work as sanitarians."

1. "There are the four-year science graduates often with majors in applied fields such as Dairy Technology, Food Technology, Bacteriology, etc. Such graduates have been the major source of college trained sanitarians in the past. They have had little or at best only rudimentary training in the broad area of public health prior to employment; however, generally they are well grounded in fundamental science courses and many have proven themselves adept in applying this training in the field of public health."

2. "Secondly, there are the college graduates with a degree in Sanitary Science. Such individuals have received specific training in public health with a great deal of emphasis on methodology, but they frequently lack knowledge relative to applied fields wherein public health principles are of major consideration."

"We would like to have your opinion as to which type of

training you feel would be most advantageous to an individual seeking employment as a sanitarian. We would appreciate your indicating briefly your reasons for your choice. Also, does your department presently employ any sanitarians? If so, how many?"

"Please give your answer on the reverse side of this sheet. A self-addressed, stamped envelope is enclosed for your use. We would appreciate the return of this questionnaire at your earliest convenience."

"We wish to assure you that all comments will be kept confidential."

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## NEWS AND EVENTS

### BACTERIAL GROWTH EFFECTED BY WATER-MILK RESIDUES

*Certain species of bacteria develop more rapidly in milk and water combinations than in undiluted milk,* report T. J. Claydon, V. D. Foltz and H. C. Fryer of Kansas State College and recorded in the November 1958 issue of the Journal of Dairy Science. During warm weather, the rapid putrefaction that often occurs in milk-water residues when left in utensils suggests more active bacterial development than takes place in milk. Since only limited information could be found on the affect of water dilution of milk on bacterial growth and since some physical or physico-chemical influences might be expected, a study was made to compare bacterial growth in milk and in milk and water combinations. It was found that certain bacterial species do develop more rapidly in milk-water combinations than in undiluted milk. This characteristic, would be expected to accelerate decomposition of milk-water residues and contribute to the prevalence of off-odors. Prolonged presence of milk-risings on milkroom floors or in equipment might have a selective influence on the prevalent bacterial flora. Where there are delays between initial rinsing of equipment and final cleaning, the efficacy of sanitizing practices might be affected.

(Abstract from November, 1958, Journal Dairy Science)

### TRAFFIC IN INCUBATOR REJECT EGGS PRESENTS PROBLEM

Nationwide traffic in incubator reject eggs is a major problem currently under investigation by the Food and Drug Administration, and by several states.

Incubator rejects are eggs that have been removed from hatchery incubators when found to be infertile. Such eggs are in various stages of decomposition. Their shipment for food purposes is illegal under the Federal Food, Drug, and Cosmetic Act. The Food and Drug Administration has served notice that it will seek court action unless the eggs are denatured before shipment by adding charcoal, kerosene, creosote, or some other material which will render them unusable for food purposes. They can, of course, be used for industrial purposes, for example in the tanning industry.

The FDA has known for some years of a growing racket in incubator rejects, and there have been a

number of court actions to curb it. Nevertheless, the traffic has continued to expand, and this year it has been active in all major poultry producing areas from Maine to central Texas.

This is a clandestine type of business, characterized by subterfuges such as cash transactions without written records, dummy corporations, aliases, and phony addresses. The eggs are picked up at hatcheries and transported, usually at night, to concealed processing plants where they are broken and frozen in thirty-pound cans. To conceal decomposition, processors are resorting to use of chemical preservatives, pasteurization, and dilution of the rotten eggs with good eggs. Currently about \$60,000 worth of the frozen eggs are in the custody of U. S. Marshals in some 15 different seizure cases. Most of them are so-called 18-day rejects, obtained from hatcheries at a cost of about 7 cents per dozen.

FDA estimates that the incubator reject business involves a minimum of three million dozen eggs annually, enough to make more than three million pounds of frozen eggs. They usually sell at about ten per cent below the market price for good eggs.

FDA has sought through the trade press to warn hatcherymen and egg dealers against the illegal operators and practices. The American Poultry and Hatchery Federation has been especially helpful in its cooperation with the Food and Drug Administration. FDA has also cautioned the baking industry and other food processors to be wary of eggs offered at suspiciously low prices.

### OMAHA FOOD MARKET SANITATION PROGRAM HAS UNUSUAL ASPECTS

The Food Retailers of Omaha, Nebraska, have embarked upon a sanitation program that has some rather unusual aspects. The owners and operators of retail food stores and markets in Omaha and Douglas County, have formed what is known as the *Doctors-Food Retailers Committee*, the stated purpose of which is to improve sanitation in retail food stores.

Some of the background leading up to the present plan is of pertinent interest. There is no retail grocery and market ordinance in effect in the Omaha-Douglas County area. Since the formation of a full time Health Department in 1946, the Department has inspected stores and markets only upon the receipt of specific



complaints. The findings of such inspections, usually indicated poor sanitation within the store or market. (1) While the Health Department recognized the need for a program of sanitary control among these establishments, no serious attempt was made to have an ordinance enacted since other problems in environmental sanitation appeared more urgent and demanding.

In February 1956, however, an outbreak of food poisoning occurred. Investigation revealed the cause originated in a food market where nicotinic acid had been added to ground beef. Of a total of one hundred forty-five persons who ate the meat, eighty-eight reported illness. Analysis of the meat showed it to contain a mixture of niacin, dextrose and ascorbic acid. This outbreak, coupled with an increase in the number of customer complaints about store conditions, called for more definite and concerted action in this phase of food merchandising. As a result, the City Board of Health instructed the Department to draw a proposed ordinance to specifically regulate the sanitary operation of groceries and markets. This was done and the proposed ordinance was then submitted to representatives of the *Omaha Retailers Association*. The industry refused consideration of the proposed ordinance. However, the Association's attorney advised the membership that the Health Department already had both the legal right and the responsibility to inspect groceries and markets, whether or not there was a specific ordinance. The Department then undertook the inspection of all groceries and markets within the City limits.

Results of this store by store inspection, which involved about 350 separate units, indicated that sanitary conditions were below acceptable standards. Based on a rating system of excellent to poor, with gradations in between, it was disclosed that over seventy per cent of the establishments rated *fair* to *poor*. As a base upon which some comparison could be drawn, the status of restaurants was reviewed. A restaurant ordinance had been in effect since 1947 including regular inspection and supervision. About ninety-eight per cent of the City's restaurants showed a rating of *good-fair* or better. This appeared to demonstrate that regular public health supervision of restaurants had upgraded sanitation and food handling practices and that industry had cooperated in terms of better facilities and methods.

Quite the opposite was true in the case of the Omaha Retailers Association. They had refused to consider the proposed ordinance and had shown resentment toward any regular health supervision. Their next move was however, somewhat unique. They enlisted the aid of the County Medical Society, and

formed what became known as, *The Doctors-Food Retailers Committee*. The purpose of this *Committee* was to improve sanitation in all food stores. This *Committee* then took two additional steps. First, it drafted and adopted an industry wide sanitation code, and secondly, engaged the services of a private firm of sanitation consultants. Inspection of all stores was to be carried on by the consultant firm who would advise store owners of needed sanitary corrections and carry on the work from the educational viewpoint. To facilitate the program and as a record of inspection results, a detailed sanitation inspection form was developed, *Unannounced Sanitation Inspection form by the (- Name of consultant firm -) for Omaha Food Industry Sanitation Division In Compliance with and to Meet Standards of Omaha Food Industry Sanitation Code*. (2)

The eventual outcome of this program should prove of interest to regulatory agencies. The Omaha situation poses a number of rather pertinent questions, among which are these. Will an industry which demonstrated an uncooperative attitude earlier toward official supervision, be willing, of its own volition, to make many obviously needed changes and improvements in facilities and methods? Will the industry be willing to continue its financial support of a paid program of sanitary inspection the direct cost of which could have been avoided through the normal services of the Health Department? Does industry believe that the principles of sanitary food handling can be so changed and, perhaps *watered down*, so that compliance will be easier to attain? In what manner did the Health Department antagonize the industry to the point where it was willing to engage, at its own expense, a firm of private consultants who would conduct store and market inspections? Will the citizens of Omaha and the customers of these stores and markets look to the *Doctors-Food Retailers Committee*, as a recognized and adequate authority in which to vest the responsibility for a public health matter as important as this?

While a number of health departments encourage industry self regulation and discipline, it is generally encouraged under more favorable circumstances. Successful self inspection programs need and require the advise, assistance and encouragement of public health departments. They are generally operated as joint cooperative ventures since, in the final analysis, the duly constituted health department is responsible for the protection of the public health. There can be no abrogation of power and in the well operated program of self inspection it is the official agency that gives it stability.

The Omaha situation is unique. If real progress



can be made under this plan, the public will benefit. If, on the contrary, the program lacks the true element of self discipline, and conditions in stores and markets are not improved, there appears to be but one other solution; a sound and forthright sanitation program under the auspices of the Health Department.

#### References:

1. Omaha-Douglas County Health Department, "Sanitation Report on 354 Grocery and Meat Markets in Omaha 1957." Mimeographed report.
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### PARKIN THANKS AFFILIATES FOR COOPERATION

Ivan E. Parkin, Professor and Dairy Extension Specialist of Pennsylvania State University has expressed his thanks to several members of IAMFS affiliates who recently sent in suggestions concerning an amendment to the 3-A bulk milk cooling tank standard. Parkin serves as liaison representative between the 3-A Sanitary Procedures Committee and the affiliates of International.

In this capacity, he requested from all affiliates suggestions relative to what changes should be considered in amending the bulk milk cooling tank standard. As a result, some fifteen letters were received containing practical, concrete suggestions, many of which were used as a basis for subcommittee deliberations.

Parkin indicated that this good response seemed indicative of the interest being taken by dairy sanitarians in the work of the 3-A Sanitary Standards Committee. He hopes this will be the forerunner of other commentary and suggestions. The work of the 3-A group is greatly facilitated when it hears from men in the field who see equipment upon which standards have been promulgated or for which standards are being developed. The 3-A Committee receives, in some part at least, satisfaction from its work when it receives communication from the field.

### THE PURPOSE OF EDUCATION

#### A STATEMENT

By Vice Admiral H. G. Rickover, U.S.N., Washington, D.C.  
Issued on "Meeting the Educational Challenges Day" at the  
21st Dairy Industries Exposition, Chicago, Illinois

The purpose of education ought not to be life adjustment, or ability to make money; not even happiness. Education has but a single purpose - to train

the intellect. The mind cannot be trained any other way than through study, through hard work; through learning about oneself, about the world one lives in, about the other people who inhabit this earth. It is this training, the acquisition of this kind of knowledge, and this alone that equips us to cope with the many difficult problems that are facing us.

There are many extremely complex and vexing problems which we must somehow solve. Take the enormous increase in population which threatens to engulf us. Do you realize that of every twenty people who ever were alive in this world, one is living today?

Take the enormous increase in knowledge which threatens to eliminate the all-around, well educated person by forcing upon us extreme specialization. It is estimated that knowledge now doubles every fifteen years. As never before, the time when young people are best able to learn must today be used to help them acquire a vast amount of necessary knowledge. They have no time to waste during their learning years, no time to waste on trivialities, know-how courses, on learning to dance or to catch fish. They have time only to learn solid subjects which will enable them to live effectively in today's world - and that means the liberal arts.

The importance of education has been known to people of Western civilization for two and a half millennia. Back in 5th century Athens, the law decreed that if a father did not provide for the education of his sons, the sons were relieved of all filial obligation to support him in his old age.

The key figure in education is the teacher. He transmits our culture from one generation to the next. He ought to be the most respected citizen in our land. We should never let things come to a pass where a teacher might be justified in saying to the parents of his pupils; "Why do you expect me to raise your children and prepare them for college, when you don't pay me enough to send my own children to college?" Today we pay our teachers so niggardly that they cannot buy their own product - education. This is something for parents to ponder. When you bring children into the world, you take on the responsibility to educate them properly so that they can become adults who can handle themselves in this world of spiralling technological changes.

If it were true, as many people in education seem to believe, that the purpose of formal education is to adjust children to life as it is, then one could conceive of a concentration camp school which taught children to adjust to life in such a camp. Would you call this education? Adjustment of young people to existing circumstances is not a proper goal of education. God has given us a brain. The purpose of the



school is to develop the brain of each individual child to the maximum extent. Actually, we have at no time and nowhere quite reached that goal. I for one have never met anyone whose brain has really been developed to its maximum potential. Everyone could do better with his mind than he chooses to do.

### NEW PLANBOOK OF DAIRYING IDEAS AVAILABLE

Persons looking for practical help on a streamlined milking system can get it free in a new 32-page planning book. The title is unusual — "The Way Cows Will Be Milked on YOUR Farm — Tomorrow."

How to save hundreds of miles lugging milk and feed with a milking parlor, how to plan for the most efficient loose housing, how to eliminate daily manure handling, head off udder troubles, boost milk production and quality — all are illustrated in this new bookful of good dairy ideas.

The book contains a most complete and up-to-the-minute collection of pictures, drawings and data on parlor milking. Its writers toured colleges, experiment stations, and successful parlor installations in varying climates of the western hemisphere. Leading dairy authorities, farmers and manufacturers have all contributed their latest findings to the new planbook.

From it, any dairyman can plan his own parlor and loose housing system to avoid mistakes and save cost. Help is also available from local Surge dealers on final blueprints.

For a free copy of the new 32-page Planning Book, write Dept. JMF Babson Bros. Dairy Farm Research Service, 2843 West 19th Street, Chicago 23, Illinois.

### GENERAL PROCEEDINGS OF THE 45TH ANNUAL MEETING OF THE IAMFS

The International Association of Milk and Food Sanitarians held their 45th Annual Meeting in the New Yorker Hotel, New York City, September 8-11, 1958.

The meeting was held jointly with the New York State Association and the Cornell Dairy Conference.

The joint meeting was called to order Monday, September 9, 1958 by Mr. William Skinner, President of the New York State Association.

The invocation was given by the Reverend Jones A. Gusweller, Rector of the Protestant Episcopal Church of St. Matthew and St. Timothy, New York City Health Department.

Mr. Paul Corash introduced Doctor Kandle to the Association.

Harold Robinson delivered the presidential address which was excellent and timely. His subject concerned the future of the Association. The entire address has appeared in the Journal.

Harold Robinson appointed the Nominating Committee consisting of Messrs. Adams, Brown, Jones, Lawton, Parkin, Parkinson and Weber. They were charged with selecting nominees for 2nd Vice-President and Secretary-Treasurer. Mr. Robinson pointed out that the men selected must be willing to devote considerable time and effort to the Association, furnish clerical help and often serve at a financial loss to themselves.

Mr. Mark Hollis, Assistant Surgeon General, gave an excellent talk on the problems in the urbanization of the United States and the increased need for food research. He pointed out that a co-ordinated approach among all health agencies is necessary if this problem is to be solved.

Norman Myrick, Editor of the American Milk Review, gave an interesting talk concerning future trends in the population shifts of the United States and the problems to be faced in the shifts.

Joseph McCaffrey discussed new techniques in the bacteriological field.

Doctor John Sheuring discussed the bacteriological aspects of soft ice cream and reported some excessive high bacteria counts had been found in routine sampling of soft ice cream.

Mr. Jerome Trichter of the New York Department of Health spoke on chemicals in food and pointed out that of 400 chemicals used in food, 150 have not been fully tested or proven safe to use.

The Nominating Committee's report was given, and for 2nd Vice-President Mr. Freebairn and Mr. Walton were nominated. For Secretary-Treasurer, Mr. Vincent Foley was nominated.

Due to the joint meeting, committee reports were not given in the meeting. Short condensations of the committee reports were available and the committee members were introduced to the Association. The complete committee reports will be published in the Journal.

#### BUSINESS SESSION

1. President Harold Robinson called the business session to order at 4:00 P. M., September 10, 1958.

2. Mr. Riley moved that the reading of the minutes be dispensed with. The motion was seconded and carried.

3. The Secretary-Treasurer read the financial report for the fiscal year. Mr. Franklin Barber moved that this report be approved as read. The motion was seconded and carried.



4. The Executive Secretary read his report for the fiscal year. Mr. Parkinson moved that this report be approved as read. The motion was seconded and carried.

5. The Secretary-Treasurer read the proposed amendments to the Constitution and By-Laws. Mr. Riley moved that the proposed amendments to the Constitution be submitted to the membership for adoption. The motion was seconded and carried.

6. Mr. Baselt moved that the amendments to the By-Laws be adopted when and if the amendments to the Constitution are adopted by the membership. The motion was seconded and carried.

7. Mr. Wainess made a motion that the words, "Secretary-Treasurer" (in Art. IV A of the Constitution and By-Laws) be changed to, "Executive Secretary." The motion was seconded and carried.

8. Mr. Faulkner moved that those amendments that relate to, and are not in conflict with, the Constitutional amendments be adopted when, and if, the pertinent amendments to the Constitution are adopted. The motion was seconded and carried.

9. It was moved by Mr. Donald Race that the Committee on Ordinances and Regulations submit its recommendations relative to the revisions of the New York City Sanitary Codes pertaining to milk products to the Commissioner of Health of the City of New York. Discussion of this motion took place with the following comments:

Mr. Adams opposed this motion.

Mr. William Hickey spoke in favor of the motion.

Mr. John Faulkner wanted to know what the specific recommendations were.

Mr. John Fritz opposed the motion.

Mr. Harold Wainess spoke in favor of the motion and thought the Association should back its committees.

Mr. Baselt opposed and thought that the report should be of the Committee and not of the Association.

10. Mr. Race withdrew his original motion.

11. Mr. John Faulkner moved that the Committee on Ordinances and Regulations be authorized to submit its comments on those revisions of the New York City Sanitary Code applicable to fluid milk and milk products to the New York City Health Department, but that such comments be identified as Committee comments, and that it be stated that they do not necessarily represent the views of the I. A. M. & F. S. The motion was seconded and carried.

12. Doctor John Sheuring submitted the report of the Sub-Committee of the committee on Education and Professional Development pertaining to the

registration of sanitarians. Doctor Sheuring moved that this report be adopted. The motion was seconded and carried.

13. Mr. John Fritz moved that the Association accept the report of the Food Equipment Committee Standard No. 5 on "Hot Water." The motion was seconded and carried.

14. Doctor John Sheuring made a motion that all committee reports that are to be accepted and approved by this Association be available at the first day of the Annual Meeting. The motion was seconded and defeated.

15. President Robinson appointed Dr. Parry, Dr. Hopper and Mr. Baselt as tellers to count the votes for 2nd Vice-President and Secretary-Treasurer.

16. Voting was held on the two nominees for 2nd Vice-President, Mr. Freebarin and Mr. Walton. Mr. Charles Walton of the Laramie, Wyoming Health Department was elected 2nd Vice-President.

17. Mr. Harold Wainess moved that the vote for Vincent Foley, the only nominee for Secretary-Treasurer be unanimous. The motion was seconded and carried. Mr. Foley was elected Secretary-Treasurer.

18. Mr. Paul Corash gave a report of the Resolution Committee and the resolutions adopted.

#### BANQUET AND AWARDS

The Annual Banquet was held in the Grand Ballroom of the New Yorker Hotel with George Hopson acting as Toastmaster.

Harold Adams presented the Sanitarian's Award to Carl A. Mohr of Green Bay, Wisconsin. A complete write up of this event with Mr. Mohr's picture has appeared in the Journal.

Mr. H. Clifford Goslee was presented an Honorary Life Membership in the Association. Doctor J. H. Shrader was the recipient of the first honorary life membership.

Doctor M. Fisher of Missouri was presented with the Citation Award. This award is presented for outstanding contribution to the progress of our International Association. Doctor Fisher was also named by the Missouri Association as their outstanding Sanitarian of the Year.

The guest speaker was J. Roger Deas of the American Can Company, New York City, New York, and he gave an excellent and interesting talk.

The Thursday morning session consisted of a panel discussing, "Public Relations and the Sanitarian."

Mr. Frank Lovejoy of the Socony Mobile Oil Company gave an interesting talk on the value of Salesmanship and selling.

The installation of officers was held and the meet-



ing adjourned at 12 o'clock, noon, September 11, 1958.

The next meeting will be held in Glenwood Springs, Colorado, August 26, 27, 28, 1959.

Respectfully submitted

Vincent T. Foley, *Secretary-Treasurer*

### DAIRY REMEMBRANCE FUND

**Note:** This report of the Dairy Remembrance Fund is presented to inform our membership of the fine work being done by this organization. The IAMFS is one of the sponsoring organizations.

The 1958 annual meeting authorized a contribution sufficient to cover the cost of twelve copies of the recruitment film, "This is the Dairy Industry", for distribution through Modern Talking Pictures Service and for showing to thousands of secondary schools throughout the nation as part of the project initiated by the Dairy Industry Committee whose constituents guaranteed the distribution of a total of one-hundred copies of this film. Our contribution has been made and this phase of the educational program is under way. We believe that it will be of invaluable assistance to our dairy colleges.

The meeting, also, authorized making contact with each one of the agricultural colleges throughout the United States and territories. The purpose of this was to inform the colleges of the availability of the recruitment film and, also, to tell them that the FUND would co-operate by furnishing up to fifty per cent of the cost or through matching industry funds for the balance needed where the college could make a partial payment from its regular budget. We have had a considerable volume of correspondence with many of the colleges and are delighted to report that the FUND has assisted in making deliveries to the following institutions:

University of Florida	University of Georgia
Rutgers University	Texas A & M
Texas Technological College	North Carolina State College
Connecticut State University	University of California
Oregon State University	Cornell University
Colorado State University	Louisiana State College
Fresno State College	

Negotiations are still under way on behalf of several other State colleges. In addition, we were instrumental in providing the information which enabled several other colleges to purchase the film with their own funds. We also found that a half dozen colleges had either obtained a copy of the film already through local dairy groups or were having copies made available on a loan basis from such groups. We believe that we have greatly assisted in bringing industry groups closer to all of these colleges with whom we have been working and that this project has brought a

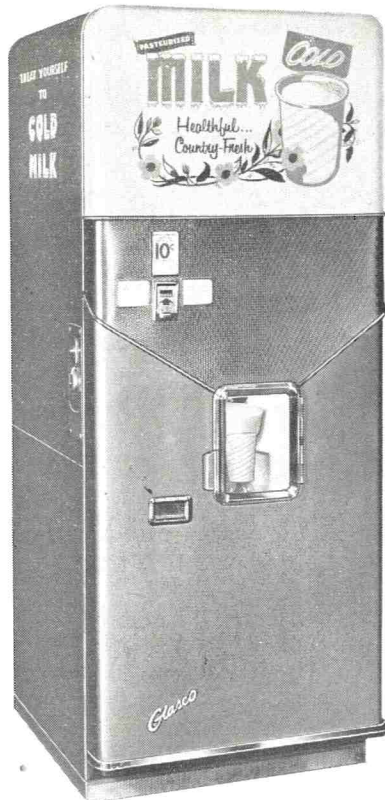
great deal of goodwill to the FUND. In all cases where industry groups worked with us by making contributions toward the cost of the film, we have invited the trade groups to become sponsors through their better knowledge and the type of work which we can do together.

The annual meeting also authorized the making of three assistance loans in the amount of up to \$400 each for worthy students who were faced with an emergency situation. One such loan has recently been granted to a student at Iowa State College through the recommendations of the head of his department. The student had an outstanding record and was adjudged to be of great future value to the dairy industry. His father had passed away and his mother, who had taken employment, had lost her position and the young man was in serious financial straits. A note in the amount of \$350 is in our possession. No payment will be asked for until two years after his expected graduation in 1960. We are charging only 2% interest and will credit 1% of this provided the young man remains in the upper portion of his scholarship group. This is the first such loan granted by the FUND and it will be interesting to await developments. We have had indications that one or two other requests may be forthcoming during the present college year.

The survey reported to the annual meeting brought out the fact that there was no central source of information to which either the industry or the colleges could turn for accurate knowledge of the numbers of students registered in various categories. The meeting authorized an exploration, preferably with the American Dairy Science Association, which would lead to the establishment of a central facility where such information could be reported by the dairy educational institutions at least once a year. It was expected that this would greatly assist the colleges themselves and also the industry. It could help to establish a better knowledge of the financial needs and of the recruitment needs and, also, the employment needs for both undergraduates, graduates and researchers. There has been an exchange of letters with officials of American Dairy Association. Its Committee on Education has been given authority to study the matter and to make a proposal to the DAIRY REMEMBRANCE FUND in the near future. We are awaiting receipt of this proposal. When it is in hand and has been analyzed, there will have to be a discussion of it by the Board of the DAIRY REMEMBRANCE FUND which will probably wish to call in representatives of national dairy trade associations in order to implement the establishment of the proposed facility.



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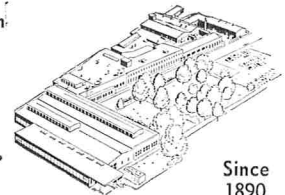
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## QUESTIONS AND ANSWERS

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

### QUESTION:

In a large vending machine installation, two classes of foods are offered. The readily perishable foods are kept in accordance with the U. S. P. H. S. Code - "below 50° F. or not lower than 150° F." What temperature or conditions are recommended for the other class of "canned" products such as can be bought off the grocers' shelf?

### ANSWER:

Canned foods are sterilized foods and until the container is opened, present no sanitation problems. They are, however, subject to quality impairment when stored at elevated temperatures. The ideal storage is "cool and dry." As temperatures are raised and times lengthened, flavor and often color is impaired and vitamin retention may be diminished.

At temperatures above 90° F., these effects begin to assume importance. Above 100° F. chemical processes are accelerated to a degree where one week's storage may be the equivalent of a month in cool storage. Also, some products react with the container causing discoloration and even a small amount of chemical attack on the metal.

An unusual bacterial problem is encountered in the range

from 100° F. to 160° F. This is the growth range of thermophilic organisms. Some of these spore formers have high thermal resistance and can survive a sterilizing process. They do not grow at normal temperatures and so die out in time. However, when stored near their optimum growth temperature (about 131° F.) they grow and alter the flavor of the food. Their metabolic products are non-toxic and so present no health hazard. The sole concern is degradation of the quality of the product.

The hazard of product degradation during storage at elevated temperatures may be minimized by educating the vending machine operator in his responsibility. No product should be held at vending temperatures for a period longer than 2 to 3 days. The operator should realize that elevated temperatures increase tremendously the rate of chemical action or product deterioration. For this reason, a product which has not been sold within 2 to 3 days should be removed from the vending machine, unless previous experience has indicated that a particular product is not adversely affected by prolonged storage at vending temperatures.

### QUESTION:

Can you clarify this matter of stainless steel finish in regard to its cleanability?

### ANSWER:

Research has shown that appearance is not a good guide. A surface may appear rough because it is not reflective, but was found to be as easy to clean as a mirror finish. It was



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further found that thin sharp scratches are more difficult to clean than smooth irregularities. These easy cleaning non-reflective surfaces are produced by electric polishing rather than expensive buffing.

While 3A Sanitary Standards usually call for all milk contact surfaces to be as smooth as a #4 mill finish on stainless steel sheets or 120 grit finish, properly applied laboratory studies made by members of the dairy equipment industry indicate that several other types of finishes can be cleaned just as readily.

**QUESTION:**

What plastics have been approved by Food and Drug for use in contact with fluid milk? Can they be cleaned without special precautions?

**ANSWER:**

General Chemical Company's Genetron HL has been approved. There are several types of plastics for which data have been accumulated suitable for presentation to F. D. A. in the near future. The Plastic Task Committee of the 3A Sanitary Standard Group is also preparing data on additional plastics for presentation to F. D. A. This, however, appears to be a project that will not be completed for at least a year or two. Generally, in the tentative 3A Sanitary Standards which incorporate reference to plastic materials the same description of surface finish is used as for stainless steel parts used in the milk zone. In a study of stainless steel versus Genetron HL, no special precautions were found necessary since the standard detergents, sanitizers and milk stone remover fluids as commonly used by the industry were employed in the test without detrimental effect to the material.

**NATIONAL CONFERENCE ON  
 INTERSTATE MILK SHIPMENTS**

**H. L. Hortman, Chairman, National  
 Conference on Interstate Milk Ship-  
 ments, announces that the next meet-  
 ing will be held at the Statler Hotel,  
 St. Louis, Missouri, April 20-22, 1959.**



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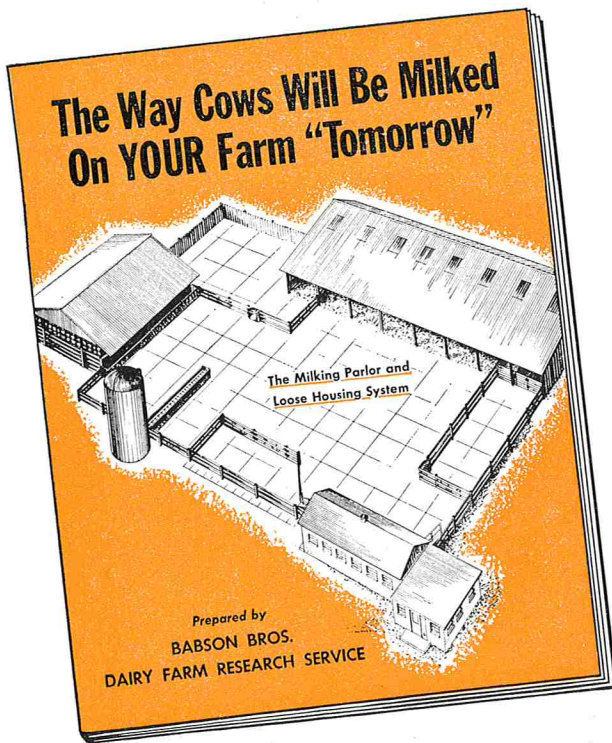
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