

JANUARY, 1963

Vol. 26

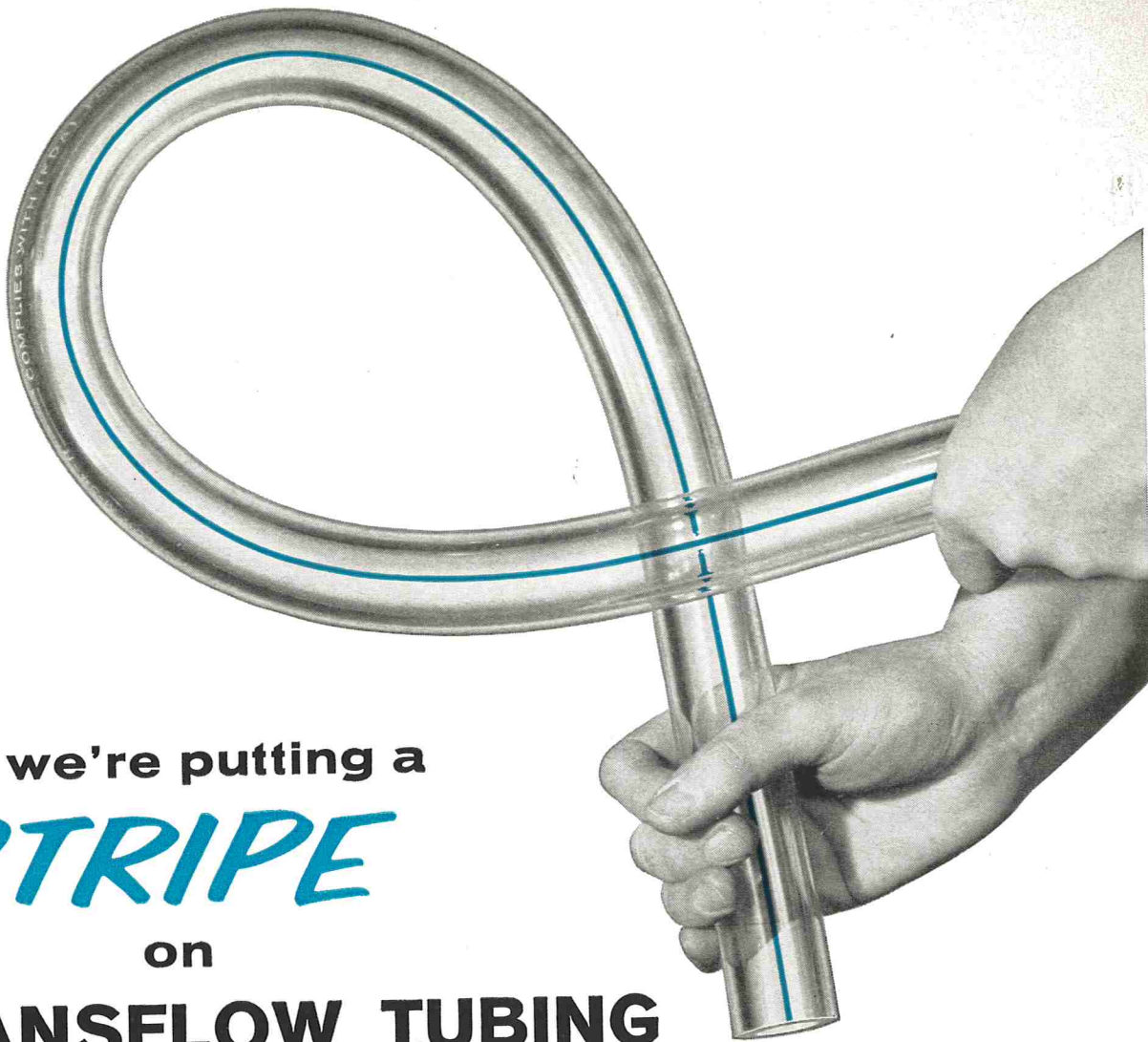
No. 1

Journal of

MILK and FOOD TECHNOLOGY

Official Publication

International Association of Milk and Food Sanitarians, Inc.



Why we're putting a
STRIPE
on
TRANSFLOW TUBING

TRANSFLOW Tubing is the only tubing on the market today that was developed *solely* and *specifically* to meet the rigid requirements of raw milk handling. Its manufacture involves highly specialized production techniques and precise quality control measures.

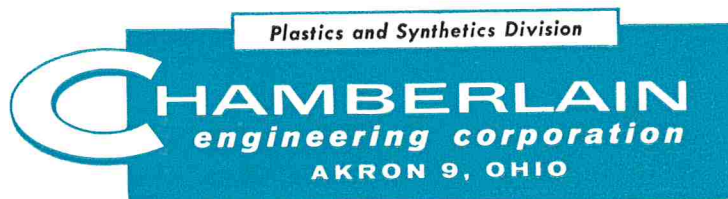
To protect users, it has always carried an identifying brand along its length. Now, you'll be seeing TRANSFLOW with a dark blue stripe running along its outer wall. Positive identification of TRANSFLOW thus becomes faster and easier than ever before.

This stripe, like the brand which will continue to be used, is your assurance of getting genuine TRANSFLOW — the product of highly trained research scientists at Chamberlain Laboratories working hand-in-hand with the experienced, practical dairy farmers at TRANSFLOW Test Farms. When you see the stripe, you'll know it's TRANSFLOW — the tubing developed *specifically* to handle raw milk.

So — next time you buy tubing, don't fail to

LOOK FOR TRANSFLOW'S "STRIPE OF QUALITY"

* Our "striping" program went into effect January 1st. Thus, some stocks may still include TRANSFLOW Tubing without the stripe



Notice — January 26, 1963

To: Membership Only

Following is the Constitutional Amendments on which members only of IAMFS are to vote. It is suggested, as a guide to your thinking on this vote, that you read the editorials *for* and *against* which are contained in this issue.

All votes must be mailed within 60 days of the above date.

AMENDMENTS

Articles I and II of the Constitution of the International Association of Milk and Food Sanitarians were amended at the 1962 Business Meeting of the International Association of Milk and Food Sanitarians, October 26, 1962, Benjamin Franklin Hotel, Philadelphia, Pennsylvania, to read as follows:

Article I—There is hereby created the International Association of Milk, Food and Environmental Sanitarians, Inc., not for pecuniary purposes, which shall hereinafter be referred to as the Association.

(Objectives)

Article II—9. Cooperate with other professional groups in the development of general and environmental sanitation.

Dr. John J. Sheuring of the Georgia Affiliate moved acceptance of the two above-listed proposed amendments to the Constitution. The motion was seconded by Mr. Furman Hendrix of the Georgia Affiliate, and was adopted by the membership present.

KARL K. JONES, *Secretary-Treasurer*

YES

NO

Name -----

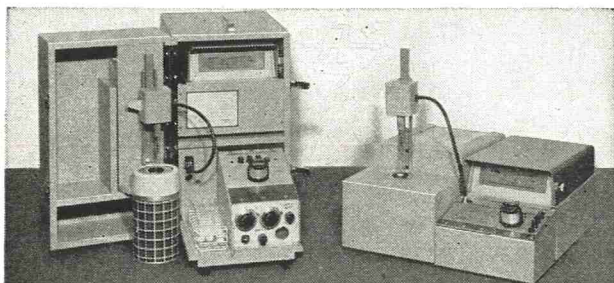
Address -----

Tear out along this line and mail to IAMFS, Inc., P. O. Box 437, Shelbyville, Indiana

STOP

WATERING OF MILK

WITH AN
ADVANCED MILK CRYSCOPE*



*ADVANCED - first in Milk Cryscopy, has delivered more Milk Cryscopes and follows the methods of AOAC, APHA and MIF more closely than any other manufacturer. Immediate Delivery!

HOW PREVALENT IS WATERING OF MILK?

From 5 or 10% to 30% of ALL milk is watered. This has been established by state, municipal, association and university surveys. Dramatic savings have been made by dairies who routinely screen for added water.

YOU CAN STOP IT TOO!

Let us survey your milk for added water. Write or call for information and complete brochure TODAY.



**ADVANCED
INSTRUMENTS, INC.**

43 KENNETH STREET, NEWTON HIGHLANDS 61, MASS. • Telephone DEatur 2-8200

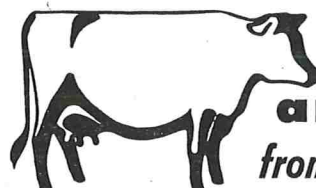
CLASSIFIED ADS

Position Available

Technologist wanted for staff of national food trade association. Interested in recent dairy or food technology graduate. For details write: Box 437, Journal of Milk and Food Technology, Shelbyville, Indiana.

FOR SALE

Single service milk sample tubes. For further information and a catalogue please write, Dairy Technology, Inc., P. O. Box 101, Eugene, Oregon.



**CLEAN
and SAFE**
from Herd to Bottle!

Britex
SANITATION PROGRAM

BRITEX CORP. Manufacturing Chemists
BOSTON, MASSACHUSETTS



STANDARD METHODS AGAR

TENTH EDITION 1953

ELEVENTH EDITION 1960

APPROVED

A P H A FORMULA

Pancreatic digest of casein	5 g.
Yeast extract	2.5 g.
Glucose	1 g.
Agar, bacteriological grade	15 g.

Reaction pH 7.0

BACTO

PLATE COUNT AGAR

*Bacto-Tryptone	Pancreatic Digest of Casein USP	5 g.
Bacto-Yeast Extract		2.5 g.
Bacto-Dextrose	Glucose	1 g.
Bacto-Agar		15 g.

Reaction pH 7.0

*BACTO - TRYPTONE, Pancreatic Digest Casein USP, has been an APHA Standard Methods Peptone since 1923 and a Plate Count Agar Peptone since 1939.

According to specifications and standards of

USP United States Pharmacopoeia XVI 1960

APHA Standard Methods for Examination of Dairy Products XI 1960

AOAC Association of Official Agricultural Chemists IX 1960

Descriptive literature on request

DIFCO LABORATORIES

DETROIT 1 MICHIGAN USA



OFFICERS

President, RAY A. BELKNAP, Chicago, Illinois
President-Elect, JOHN H. FRITZ, Washington, D. C.
First Vice-President, WALLACE C. LAWTON, Minneapolis, Minn.
Second Vice-President, FRED E. UETZ, Englewood, N. J.
Secretary-Treasurer, KARL K. JONES, Indianapolis, Ind.

Executive Board

JOHN J. SHEURING
 CHARLES E. WALTON
 RAY A. BELKNAP
 JOHN H. FRITZ
 WALLACE C. LAWTON
 KARL K. JONES
 FRED E. UETZ

Publication Board

DR. J. C. OLSON, JR. H. L. THOMASSON
 KARL K. JONES

Editors

DR. J. C. OLSON, JR., *Associate Editor*, Dept. Dairy Industries, University of Minn., St. Paul 1, Minn.
 H. L. THOMASSON, *Executive Secretary and Managing Editor*, Box 437, Shelbyville, Indiana.
 JOHN D. SIMPKINS, *Assistant Executive Secretary and Assistant Managing Editor*, Box 437, Shelbyville, Ind.

Associate Editors

C. A. ABEL-----Chicago, Illinois
 H. S. ADAMS-----Indianapolis, Indiana
 M. P. BAKER-----Ames, Iowa
 F. W. BARBER-----New York, New York
 F. C. BASELT-----New York, New York
 L. A. BLACK-----Cincinnati, Ohio
 J. C. FLAKE-----Chicago, Illinois
 L. G. HARMON-----East Lansing, Mich.
 E. K. HARRIS-----Cincinnati, Ohio
 R. P. HAYWARD-----Bowie, Md.
 C. A. HUNTER-----Topeka, Kansas
 C. K. JOHNS-----Ottawa, Ontario, Canada
 O. W. KAUFMANN-----East Lansing, Mich.
 W. C. LAWTON-----St. Paul, Minnesota
 W. S. MUELLER-----Amherst, Mass.
 K. G. WECKEL-----Madison, Wisconsin
 J. C. WHITE-----Ithaca, New York

The Journal of Milk and Food Technology is issued monthly beginning with the January number. Each volume comprises 12 numbers. Published by the International Association of Milk and Food Sanitarians, Inc., with executive offices of the Association, Blue Ridge Rd., P. O. Box 437, Shelbyville, Ind.

Entered as second class matter at the Post Office at Shelbyville, Ind., March 1952, under the Act on March 3, 1879.

EDITORIAL OFFICES: J. C. Olson, Jr., Associate Editor, Dept. Dairy Industries, University of Minn., St. Paul, Minn.; H. L. Thomasson, Managing Editor, P. O. Box 437 Shelbyville, Ind.

Manuscripts: Correspondence regarding manuscripts and other reading material should be addressed to J. C. Olson, Jr., Associate Editor, Dept. Dairy Industries, University of Minn., St. Paul, Minn.

"Instruction to Contributors" can be obtained from the editor for the use of contributors of papers.

Journal of

MILK and FOOD TECHNOLOGY

Official Publication

International Association of Milk and Food Sanitarians, Inc.

REG. U. S. PAT. OFF.

Vol. 26 January, 1963 No. 1

Editorial: On Changing the Name of Our Association For A Name Change <i>John J. Sheuring</i>	1
Against A Name Change <i>Fred E. Uetz</i>	1
Practice Of Public Relations In Public Health <i>Irving H. Schlafman</i>	2
Responsibilities and Challenges Of Change <i>L. E. Burney</i>	3
3-A Sanitary Standards for Multiple-Use Rubber And Rubber-Like Materials Used As Product Contact Surfaces In Dairy Equipment	5
3-A Sanitary Standards For Batch and Continuous Freezers For Ice Cream, Ices and Similarly-Frozen Dairy Foods	7
Cottage Cheese Problems In Production And Sanitation-Public Health Aspects <i>T. I. Hedricks</i>	10
Training Opportunities For The Sanitarian - The Undergraduate Approach <i>H. S. Adams</i>	12
International Association of Milk and Food Sanitarians Committee Reports	13
Presidential Address 49th Annual Meeting, IAMFS <i>Charles E. Walton</i>	21
Activities Of The National Mastitis Council, Inc. <i>Robert W. Metzger</i>	23
News and Events	26
Report of Executive Secretary <i>H. L. Thomasson</i>	32
Index To Advertisers	35
Events In February	35
Classified Ads	II

Business Matters: Correspondence regarding business matters, advertising, subscriptions, orders for single copies, etc., should be addressed to H. L. Thomasson (address above).

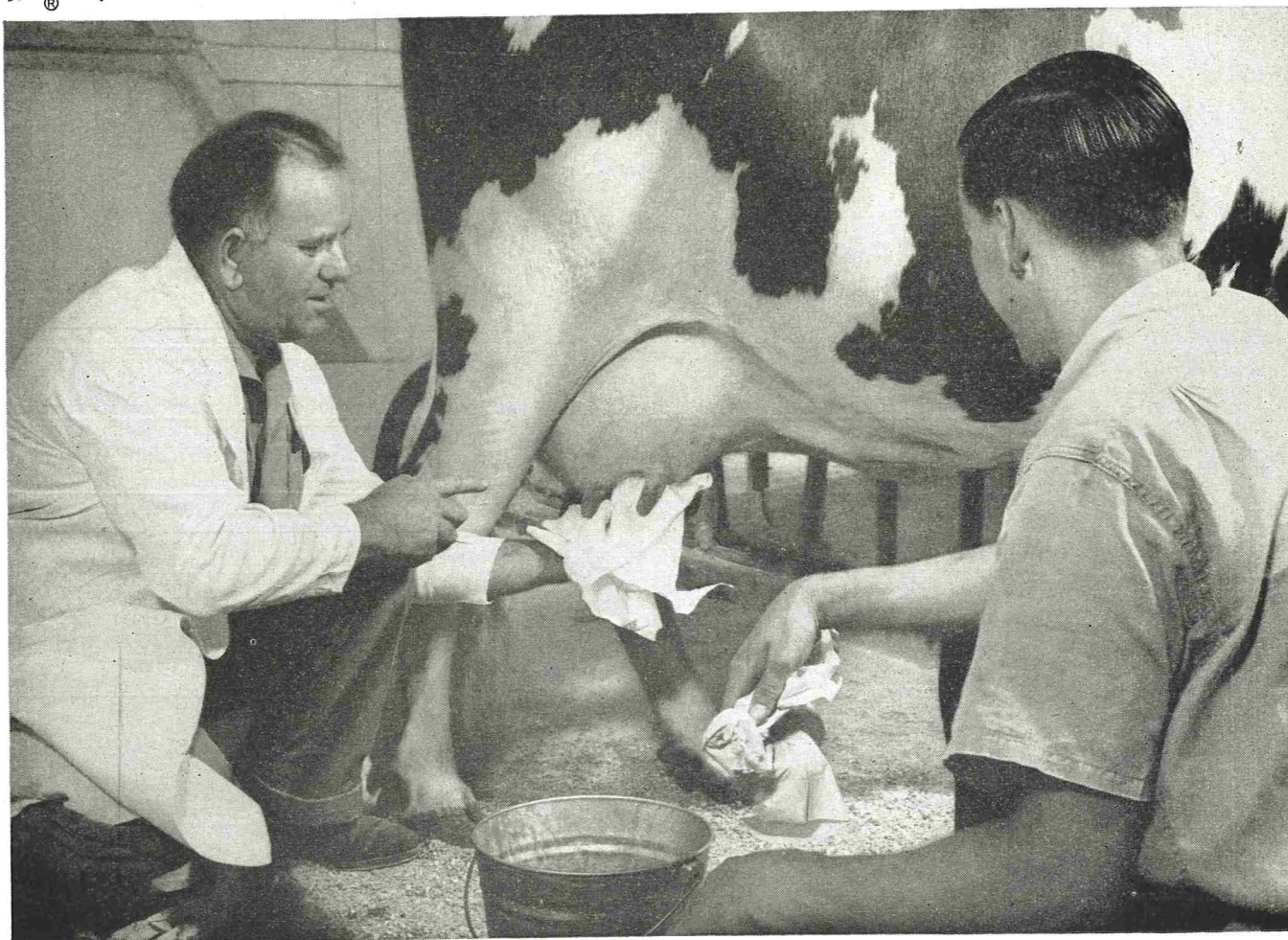
Subscription Rates: One volume per year, Individual non-members, Governmental and Commercial Organization subscription,

1 yr. \$8.00
 Public and Educational Institution Libraries, 1 yr. \$6.00
 Single Copies \$1.00

Orders for Reprints: All orders for reprints

should be sent to the executive officer of the Association, P. O. Box 437, Shelbyville, Ind.

Membership Dues: Membership in the International Association of Milk and Food Sanitarians, Inc., is \$7.00 per year, which includes annual subscription to the Journal of Milk and Food Technology. All correspondence regarding membership, remittances for dues, failure to receive copies of the Journal, changes of address, and other such matters should be addressed to the Executive Secretary of the Association, H. L. Thomasson, Box 437, Shelbyville, Indiana.



Pennsan[®]—proven effective for udder sanitation!



Extensive laboratory tests and farm experience have proved PENNSAN's effectiveness for udder sanitation. PENNSAN solutions rapidly kill organisms commonly associated with mastitis . . . rapidly penetrate and remove soils on udders and flanks . . . help prevent spread of mastitis in the herd. Recommended use solutions of PENNSAN (1 oz. to 1 gal. of water) will not cause cracking, drying, or irritation of cows' udders.

PENNSAN is the multi-purpose sanitizer and cleaner—also ideal for dairy equipment and utensils. It removes and prevents milkstone and films, works in even hardest water, is non-corrosive to stainless steel, controls bacteriophages without affecting starter cultures and retains bactericidal power even after drying on stainless steel—for as long as 24 hours!

PENNSAN—now in handy unbreakable plastic jug.

B-K Department
PENNSALT CHEMICALS CORPORATION
3 Penn Center, Philadelphia 2, Pa.



On Changing The Name Of Our Association

FOR A NAME CHANGE

At the Annual Meeting of the International Association of Milk and Food Sanitarians in Philadelphia, the membership attending the meeting voted in favor of changing the name of the Association to the International Association of Milk, Food and Environmental Sanitarians, Inc. The Executive Board of the Association recommended that the change be made.

The motion to change the name made by me was based upon a proposed Constitutional Amendment submitted by the Georgia Society of Registered Professional Sanitarians.

Having served on the Executive Board of the IAMFS for the past five years, on a number of Association Committees, and being Secretary-Treasurer of the Georgia Affiliate, I believe the background experience obtained is sufficient to justify my interest in having the change in name adopted. There are a number of reasons in favor of the change:

There are a number of affiliates of IAMFS which have a majority of their members engaged in general or environmental sanitation. In some sections of the country, a majority of the members of IAMFS are doing some type of general and environmental sanitation. They want to have the name of our Association changed in order to include them. At the present time, they feel they are not adequately recognized.

In many sections of the country, there is a trend for sanitarians to be assigned various tasks in the field of general and environmental sanitation. This is true even in areas where the majority are still primarily interested in milk and food sanitation. We should make provisions now to include those general and environmental sanitarians in our organization.

Some secretaries of affiliates have had difficulty in persuading members to retain their affiliation with IAMFS because the Association provides no recognition for the general and environmental sanitarians in its name. We depend on our affiliates for survival. We should do everything within our power to encourage their growth in membership and professional standing.

Our organization is growing, its expenses are increasing, and we must do everything possible to retain our present membership and encourage others to join our Association. We believe a change in the name of our Association will help achieve these goals.

Finally, our organization cannot remain static. Our environment is changing, the type of training for sanitarians will change, and their assignments will be more in the fields of general and environmental sanitation rather than in the specialized fields of milk and food. We must change to meet the challenges that will occur in the next few years. One of the important changes is to include the general and environmental sanitarians in our organization by changing the name of the Association.

Be sure to vote! A two-thirds majority of the votes cast must be in favor of the change in name to make it effective.

DR. JOHN J. SHEURING, Dairying Department
University of Georgia, Athens, Georgia

AGAINST A NAME CHANGE

To each one of us, at some time or another, falls the chore of registering for himself, or a group conceded to be kindred spirits, some honest reaction to proposals where a choice exists.

In this particular instance, as I see it, our choice is to be whether or not we maintain our status as MILK AND FOOD SANITARIANS; or expand into an almost nebulous area of ENVIRONMENTAL SANITATION.

As I see it, environmental sanitation is an all inclusive term, encompassing all phases of sanitation. In some cities, for instance, regulatory milk and food sanitarians have been inducted into crash programs covering inspections of gas type refrigerators in thousands of apartments and extreme rodent problems in tenement houses. If this is indicative of genuine environmental sanitation, which therefore minimizes the value of the true specialist, then our approach should be more drastic. Possibly our Association should hereafter be known as the International Association of Environmental Sanitarians and the Journal relabelled as the Technological Journal of Environmental Sanitation.

I have never, knowingly, been accused of resisting progress. Speaking as a dairy industry sanitarian, my interests are solely in milk and milk products sanitation. I have always been a member of a strictly milk sanitarians affiliate.

I or we, who have for the past several decades, felt that we owed our allegiance to the International because it afforded us the finest vehicle of mutual understanding and enlightenment in the field of dairy technology, can hardly subscribe to a watered down version which this expansion program could well turn out to be.

FRED E. UETZ, Assistant to Vice-President in Charge of Production
Pioneer Ice Cream Division, The Borden Company, New York City

PRACTICE OF PUBLIC RELATIONS IN PUBLIC HEALTH¹

IRVING H. SCHLAFMAN

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

Of all public health workers, we sanitarians probably have felt the greatest need to understand, and to deal with, people. Most of our everyday responsibilities involve working with people—with our own associates, with the consumer, or with the dairyman or restaurateur, to name a few. Public relations is basically human relations, individually and collectively, and it is with the subject of human relations that these remarks are exclusively concerned.

Our success in securing real permanent improvements in the quality of living in our communities depends, in great measure, upon our ability to develop, with people, a sincere human interrelationship based upon constructive, mutual understanding. We must live with the people with whom we work, and the absence of friction and tension in our everyday work experience is basic to our own job satisfaction and professional pride. We can effectively and satisfyingly work with people only when we have honestly developed in ourselves the very qualities we appreciate—indeed expect—in others.

A few years ago, a group of experienced sanitarians was asked to think of themselves as a dairyman or restaurant owner and to seriously consider the desirable traits that they would like their supervising sanitarian to possess. Match yourselves, if you will, against some of the following replies:

"I'd like my sanitarian to be relaxed in my company."

"The sanitarian should be friendly. If we could be friends first, we could really work together."

"I'd like to feel the sanitarian was sincerely interested in me, in my business, and in my problem."

"If I were convinced the sanitarian was treating everyone firmly and equally, we could get along fine."

"I'd like my sanitarian to be up-to-date on new developments."

"I don't care to see a sanitarian make a fetish of the picayune and the petty."

"A prejudiced sanitarian is hopeless."

"I'd like to be treated with dignity and respect

even though I might have never finished grammar school."

"I'd like my sanitarian to dress neatly."

"I'd like the sanitarian to let me help plan solutions to problems."

"Even if I got upset, I'd like the sanitarian to be calm and objective."

All of these comments, from sanitarians, reflect the basic emotional desires of all people—to be accepted, to be liked, and to be secure. No one—you, I, the dairyman, the restaurant owner—enjoys failure, ridicule, animosity, and insecurity. When basic emotional needs of people—affection, significance and security—are not fulfilled, anxiety is most certain to follow. Anxiety is to the mind as pain is to the body and in our field of endeavor, anxiety often results in resistance to change, friction, and tension.

It is not implied that every sanitarian be a psychologist or psychiatrist. However, a working knowledge of why people oppose change and an understanding of some ways of overcoming opposition can be acquired.

There are usually two categories of explanation for failure to cooperate with the sanitarian. They are (a) the quickly expressed reasons which are just smoke screens or alibis, and (b) the hidden real reasons. Needless to say, the real reasons must be identified if progress is to be made.

How frequently we are made conscious of resistance by such comments as: "It's not my job—go talk to the waitresses;" "it's okay for the big dairies;" or "why don't you clean up Harry's place?" The speaker may consciously recognize these statements as alibis or at times he is convinced they are legitimate reasons. In either case, there is usually a much more fundamental reason for his resistance.

The hidden real reason, when once we get at it—and get at it we must—is more apt to be (a) lack of complete understanding of the problem, (b) lack of security, (c) feelings of inferiority, (d) poor health, (e) personal or family difficulties, or (f) antagonisms toward the agency or person suggesting the change.

In our dealings with people, we must mobilize the desire to truly want to get together with the other person. We must present the best side of ourselves, be friendly, confident, equal, supportive,

¹Presented as part of a Symposium on Public Relations at the 49th Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., at Philadelphia, Pennsylvania, October 24-27, 1962.

and understanding. To be friendly, we have to like people; to be confident, we have to be technically proficient and professionally proud; to be equal, we have to be fair; to be supportive, we have to recognize the worth of the ideas of other people; and to be understanding, we must appreciate all sides of a problem.

Yes, we have all met the know-it-all—that domineering, hasty, superficial person. He's an egoist and his ego must be catered to. He must be complimented and made to feel important. We have all met the skeptic who has either been born a "doubting Thomas" or has been disillusioned in the past. We must sympathize with this person, speak conservatively and understate our case. We have met the thinker—that shrewd, slow-but-sure analyst. He cannot be rushed. He wants, and must get, facts and time. We have met the argumentative one—that person who enjoys fighting, enjoys being obstinate, and has little use for thinking. We cannot motivate this creature with intelligent, rational ideas. He is an emotional problem and we must listen patiently. The argument must be turned into a friendly discussion. Then, there is the silent type—the one who's unwilling to talk, who is poker-faced and who leaves you pretty much in the dark as to what he's thinking. We must not say too much to him. We must be brief and to the point. Demonstration may be more effective than words. He'll open up when he gets ready to do so. We've also met the busy one—too busy to be efficient, too busy to even listen to

us. We must admire how busy he is, how much responsibility he has and how much work he accomplishes. He's sure to stop to listen to our praises and perhaps to our requests.

Obviously, the approaches described are not always easy to follow or are they a guarantee of success. However, if increased effort is expended to reduce friction and tension through mobilizing the desire to truly get together with the other person, good will and improved public relations can be the fruits of our labors. Such effort, it is desired to emphasize, is not a substitute for, but a supplement to, an honest, thorough, and competent enforcement of our laws and regulations.

The successful sanitarian, like any other professional worker, puts integrity and quality of his services above all other considerations. When we do this, when we approach our public health responsibilities with a sense of pride, enthusiasm, and total worth, and when we work with people in a spirit of cooperation and understanding—not coercion and disinterest—then, and only then, will our public image shine.

REFERENCES

1. Butterworth, T. H. Human Relations in the Field of Sanitation. *Modern Sanitation*, February. 1951.
2. Copell, Don F. The Human Side of Selling Sanitation. *Modern Sanitation*. January. 1952.
3. Holter, F. J. The Sanitarian in Public Relations. *The South Carolina Sanitarian*. January. 1953.

RESPONSIBILITIES AND CHALLENGES OF CHANGE¹

L. E. BURNEY

*Vice President of Health Sciences,
Temple University, Philadelphia, Pennsylvania*

In a small health center in the heart of Ethiopia, there was a large poster with the following slogan, "Sanitation is a way of life." The way of life in this and other developing countries is different from ours, but there is one principle common to all of us; we are adapting continuously to change. You have heard the expression that nothing is certain except death and taxes; to this must be added *change*.

The health professions are affected by these changes in our society and environment—political,

social and economic changes. We have helped to create some of these changes and to guide others. Our research, training and programs must be sensitive to change.

In 1862, just 100 years ago, land grant colleges were established through federal support in order to meet the needs of a rural agricultural economy, a need which apparently was not being met by existing colleges. During these 100 years, many changes have occurred, and it is demanded of all of us to be aware of these changes and the needs which they bring in order that our services and our research programs can more nearly meet the needs of the public.

¹Delivered as the keynote address at the Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., in Philadelphia, Pennsylvania, October 24-27, 1962.

POLITICAL, SOCIAL AND ECONOMIC CHANGES

Our population will soar to 215 million by 1970. The number of persons over 65 years of age will increase to 22 million by 1970. Our population is an extremely mobile one—35 million people change residence each year. Two-thirds of our population live in 184 metropolitan areas; by 1970 this will reach three-fourths. Urbanites seek more medical and hospital care than rural people.

The two age groups with the greatest proportional gains in the next ten years are the aged and the young—the same two groups which consume the largest per capita of health services—and are the least productive and able to pay.

CHANGES IN THE HEALTH FIELD

Research and technology have made dramatic changes in the health problems. The communicable diseases are no longer the serious problem that they were even a generation ago, although there are major areas of concern. The two major areas of importance at the present time are those relating to environmental health and to long-term illnesses and disabling diseases.

Actually, the very progress we have made in health has created increasingly complex problems for the present and the future. We have available to us for diagnosis and treatment of disease drugs, biologics, chemicals and hormones unknown even ten years ago. We have a public which is better educated and with greater financial resources, and which considers health a right, not just a privilege, and further demands that health services be amenable to family budgeting.

There has been tremendous increase in the funds available for research in the health sciences, and from these funds continue to come dramatic new advances. At the same time, because of changes in our way of life and the complex society in which we live, it becomes increasingly more difficult to apply effectively and economically the knowledge that comes out of our research laboratories. Patterns of health care are changing almost daily and yet relatively little research is being done in this particular area. In the medical care field, with which I am most familiar, we find the hospital more and more becoming the integrated health center for the community. We see, too, the increasing use of auxiliary personnel to assist the physician, both in his hospital and in his home care of individuals. Now, for every physician, there are four auxiliary health workers. The increasing technical knowledge that has become available has also required greater specialization in all of our fields. This has become necessary but at the same time has created problems

of learning to work together and bring to bear upon either the individual or the community all of these specialized skills to meet the total needs of the patient, the family, and the community, whether we are concerned with environmental health problems or those of the chronic diseases.

The two greatest problems I see at the present time are (a) learning how to use more effectively the variety of skills which are available, and (b) more effective and economical methods of providing health services to the public.

Here are some questions I believe you must give your continued attention to in order to meet your opportunities and responsibilities adequately. What is the job of the sanitarian of the future? What is the role of specialization in your profession, for example, the radiation specialist? What changes should be made in the training of the sanitarian and in helping him develop the special skills? Is there a close enough relationship between those engaged in service, research and teaching? Is there a close enough and effective working relationship between the educational and research institution and those of you who are engaged solely in operational activities? How can we develop a closer rapport among these groups and achieve a real two-way connection in our various activities? What will be the effective patterns of organization and administration? Is there need for research in this area? Are we too satisfied with the way in which things are being done at the present time and resist change too forcefully? What should be your relations with other members of the health team?

CONCLUSION

Change is inevitable. One either meets these changes independently or someone else takes over. We must profit by the experience of the past, but at the same time must face the future and not back into it. None of us can work in a vacuum in our present complex society. There must be closer ties between operation in the field and the research in our universities with a two-way flow of ideas and problems. Our greatest hurdle is to learn to work together, to recognize our interdependence and be more concerned with what each of us can contribute than with what our isolated professional role may be. The public demands this of us and, in the final analysis, whether we work for a university, an industrial organization or a governmental agency, the public is the ultimate consumer and our master.

The future is bright only for those who are prepared to meet it with vigor and ideas and positive action. These are challenging days for the health professions. The responsibilities are great, but the opportunities and rewards are even greater.

3-A SANITARY STANDARDS FOR MULTIPLE-USE RUBBER AND RUBBER-LIKE MATERIALS USED AS PRODUCT CONTACT SURFACES IN DAIRY EQUIPMENT

Serial #1800

Formulated by
International Association of Milk and Food Sanitarians
U. S. Public Health Service
The Dairy Industry Committee

It is the purpose of the IAMFS, USPHS, and DIC in connection with the development of the 3-A Sanitary Standards program to allow and encourage full freedom for inventive genius on new developments. Multiple-Use Rubber and Rubber-Like Materials to be used as product contact surfaces in dairy equipment heretofore or hereafter developed which so differ in specifications or otherwise as not to conform with the following standards, but which in the opinion of the manufacturer or fabricator are equivalent or better, may be submitted at any time for the consideration of IAMFS, USPHS, and DIC.

A. SCOPE

These sanitary standards cover the requirements of rubber and rubber-like materials for multiple use as product contact surfaces in equipment for production, processing, and handling of milk or milk products. Test criteria are provided for rubber and rubber-like materials as a means of determining their acceptance as to their ability to be cleaned and to receive effective bactericidal treatment and to maintain their essential properties under repeated use conditions.

In order to conform with these 3-A Sanitary Standards, multiple-use rubber and rubber-like materials shall comply with the following material, physical properties and fabrication criteria.

B. DEFINITIONS

For the purpose of these sanitary standards, the following definitions and classifications shall apply:

(1) **RUBBER AND RUBBER-LIKE MATERIALS:** Shall mean resilient (See Appendix A) compounds having natural and/or synthetic origins deriving their physical and chemical properties from chemical vulcanization.

(2) **TEMPERATURE OF EXPOSURE:** Temperatures to which material is subjected in contact with the product and/or cleaning and bactericidal treatment.

(3) CLASSIFICATIONS:

Class I—Temperature of exposure to product up to 300°F., and temperature of exposure to chemical solution used in cleaning and bactericidal treatment up to 180°F. This classification applies when 50% or more of the entire surface area is in contact with the product.

Class II—Temperature of exposure to product up to 300°F., and temperature of exposure to chemical solution used in cleaning and bactericidal treatment up to 180°F. This classification applies when less

than 50% of the entire surface area is in contact with the product.

Class III—Temperature of exposure to product up to 120°F., and temperature of exposure to chemical solution used in cleaning and bactericidal treatment up to 180°F. This classification applies when less than 50% of the entire surface area is in contact with the product.

Class IV—Temperature of exposure to product up to 100°F., and temperature of exposure to chemical solution used in cleaning and bactericidal treatment up to 180°F.

Note: See Appendix B for examples.

C. MATERIAL

Rubber and rubber-like material having any surface in contact with the product shall be non-toxic, relatively non-absorbent, relatively resistant to fat, resistant to normal cleaning and bactericidal solutions, readily cleanable, relatively insoluble, relatively stable in the environment of its intended use, and shall not adversely affect the product.

The minimum physical properties of the finished rubber and rubber-like materials, as determined by the testing procedures specified, are the following:

	Class I	Class II	Class III	Class IV
I. Absorption				
1. Butteroil ¹ : 22 ± ¼ hour @ 158°F. (A S T M #D471) Maximum hardness change, type Shore A points	6	15	20	20
Maximum loss or gain - % by Wt.	5	25	25	60
% by Vol.	5	25	25	75

¹Butteroil may be prepared by melting butter at 150°F., placing in a graduate and pouring off the oil portion on top. It will be approximately 97% milk fat.

(I. Absorption Continued)

	Class I	Class II	Class III	Class IV
2. Distilled water: 22 ± ¼ hour @ 158°F. (ASTM #D471) Maximum hardness change, type Shore A points	6	10	10	10
Maximum loss or gain - % by Wt.	5	15	15	20
% by Vol.	5	15	15	25

II. Stability

1. Air Aging (ASTM #D573) Maximum hardness change, type Shore A points 166 ± ½ hour Air Oven @ 212° F. ²	20	20	—	—
166 ± ½ hour Air Oven @ 158°F. ³	—	—	15	15
2. Original Tensile Strength, psi mini- mum (Sample pre- pared according to ASTM #D412)	500	500	500	500
3. Original Elongation, % minimum (Sample prepared according to ASTM #D412)	75	75	75	75
4. Original Hardness Range Durometer Type Shore A points (ASTM #D676)	50-90	40-90	35-90	30-90

²For Class I and II only.³For Class III and IV only.

D. FABRICATION

The surface of finished rubber or rubber-like fabricated parts shall be at least as cleanable as stainless steel having a 120 grit finish properly applied. Conformance with this item shall be judged by comparing the removal of standard soil from finished rubber or rubber-like fabricated parts with the removal of such soil from stainless steel having a 120 grit finish.

These standards shall become effective April 14, 1963.

APPENDIX A

Hard Rubber

Hard rubber is a vulcanized rubber having a ratio of combined sulfur to rubber hydrocarbon in excess of 15% and a Shore A Durometer value in excess of 90. It is not considered a part of this standard due to its special characteristics foreign to rubber as normally used in the dairy industry.

APPENDIX B

Examples

Rubber classes, as provided for in B. (3):

Class I—Some heat exchanger gaskets, "O" rings, C.I.P. gaskets, flange gaskets, rotating seals.

Class II—Plate heat exchanger gaskets, homogenizer seals, static seals.

Class III—Cold applications such as milk and air tubing, manhole and door gaskets, seals.

Class IV—Inflations.

3-A SANITARY STANDARDS FOR BATCH AND CONTINUOUS FREEZERS FOR ICE CREAM, ICES AND SIMILARLY-FROZEN DAIRY FOODS

Serial #1900

Formulated by
International Association of Milk and Food Sanitarians
U. S. Public Health Service
The Dairy Industry Committee

It is the purpose of the IAMFS, USPHS, and DIC in connection with the development of the 3-A Sanitary Standards program to allow and encourage full freedom for inventive genius or new developments. Batch and Continuous Freezers for Ice Cream, Ices and Similiary-Frozen Dairy Foods specifications heretofore or hereafter developed which so differ in design, material, fabrication, or otherwise as not to conform with the following standards, but which, in the fabricator's opinion, are equivalent or better may be submitted for the joint consideration of IAMFS, USPHS, and DIC at anytime.

A. SCOPE

These standards cover the sanitary aspects for the design, material and fabrication of batch and continuous freezers for ice cream, ices and similarly-frozen dairy foods and equipment integral therewith, including pumps, equipment for incorporating air or introducing flavoring material into the product and mix supply tanks attached to and made a part of the freezer. These sanitary standards cover equipment designed for the freezing of ice cream, ices and similiary-frozen dairy foods which are to be subsequently harderend in cold storage rooms, cabinets, tunnels or boxes, and is not intended to cover equipment designed for freezing soft ice cream, malts, custards, and similiary frozen products which are served to the consumer without further hardening.

In order to conform with these 3-A Sanitary Standards, batch and continuous freezers for ice cream, ices and similiary-frozen dairy foods shall comply with the following design, material, and fabrication criteria.

B. DEFINITIONS

(1) **BATCH FREEZERS:** Shall mean equipment designed to be operated intermittently with the cycle consisting of admitting the product to the freezing cylinder, partially freezing and incorporating air into the product, adding fruits, nuts, and other flavoring materials when desired, and discharging the product, the cycle to be repeated as required.

(2) **CONTINUOUS FREEZERS:** Shall mean equipment designed to be operated in such a manner as to partially freeze, incorporate air and discharge the product as the product flows continuously through the freezing cylinder.

(3) **PRODUCT:** Shall mean the liquid ice cream, ices and similarly-frozen dairy food mixes and the viscous, semi-solid material, to which may have

been added fruits, nuts, and other flavoring materials, with or without incorporated air resulting from the partial freezing of these mixes.

(4) **PRODUCT CONTACT SURFACES:** Shall mean all surfaces of parts and appurtenances that are exposed to the product or from which liquids may drain, drop or be drawn into the product. Lines for air under pressure shall be considered product contact surfaces from the point of entrance to the freezing chamber or product contact point to the product check valve.

(5) **NON-PRODUCT CONTACT SURFACES:** Shall mean all other surfaces.

(6) **ENGINEERING PLATING:** Shall mean plated to specific dimensions or processed to specified dimensions after plating, and for these standards, the minimum thickness shall be 0.0002-inch for all product contact parts except as hereinafter specified.¹

C. MATERIAL

(1) All product contact surfaces shall be of 18-8 stainless steel of not more than 0.12% carbon, nickel alloy or equally corrosion-resistant metal that is non-toxic and non-absorbent, except that:

(a) Bearings, springs, shafts, couplings, drive and mounting pins, and scraping parts may also be made of non-toxic hardenable, corrosion-resistant stainless metal (400 series stainless steel, aluminum bronze alloy, or equivalent) or these materials covered with an engineering plating of nickel, chromium or an equally corrosion-resistant, non-toxic metal.

(b) Freezing cylinders may also be made of steel, other than stainless steel, or other structurally

¹QQ-C-320 - Federal Specification for Chromium Plating (Electrodeposited), July 26, 1954. (Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C., at 5c each).

suitable heat-exchange metal made corrosion-resistant and wear resistant by covering with an engineering plating of chromium or an equally corrosion and wear-resistant non-toxic metal. When steel, other than stainless steel, is used, the minimum thickness of the engineering plating shall be 0.002-inch.

(c) Solder, when used, shall have a tin content not less than 50%, and the remainder shall be lead, and shall be corrosion-resistant, cadmium free, non-absorbent, and shall not impart any toxic substance to the product under conditions of intended use.

(d) Silver-brazing alloys, ("silver solder") when used, shall be corrosion-resistant, cadmium free, non-absorbent, and shall not impart any toxic substance to the product under conditions of intended use.

(e) Plastic materials, or rubber and rubber-like materials¹ may be used for bearings, metering devices, air tubing, port covers, and multi-use gaskets, seals, and parts used in similar applications. These materials shall be relatively inert, resistant to scratching, scoring, decomposition, crazing, chipping and distortion by the temperature, chemicals and methods to which they are normally subjected in operation, or cleaning and bactericidal treatment. They shall be non-toxic, fat resistant, relatively non-absorbent, relatively insoluble and shall not release component chemicals nor impart a flavor or odor to the product.

(f) Single-service sanitary type gaskets may be used.

(2) All non-product contact surfaces shall be of corrosion-resistant material, shall be rendered corrosion-resistant, or shall be painted. If painted, the paint used shall adhere, be relatively non-absorbent, and shall provide a smooth, cleanable and durable surface. Parts removable for cleaning having both product contact and non-product contact surfaces shall not be painted.

D. FABRICATION

(1) All product contact surfaces shall be at least as smooth as a No. 4 mill finish on stainless steel sheets or 120 grit finish properly applied, and all joints shall be smooth and flush. All permanent joints in metallic product contact surfaces shall be fused, welded or brazed. Solder may be used around blade mounting pins, shafts, bushings and bearings for flushings joints and producing fillets for minimum radii.

(2) All product contact surfaces of parts and appurtenances shall be easily accessible, visible, and

readily cleanable, either when in an assembled position or when removed. Removable parts shall be readily demountable.

(3) All internal angles of 135° or less on product contact surfaces shall have minimum radii of 1/4" except that, where smaller radii are required for essential functional reasons, such as sealing ring grooves, scraper blade mounting pins, holes or grooves, guides for batch freezer discharge gates and other assemblies of machine parts readily demountable for cleaning and inspection, minimum radii of 1/32" may be used.

(4) Sanitary tubing and fittings including product inlet and outlet connections having product contact surfaces shall conform with 3-A "Sanitary Standards For Fittings Used On Milk And Milk Products Equipment And Used On Sanitary Lines Conducting Milk And Milk Products," and Supplements thereto.

(5) Pumps having product contact surfaces shall conform with 3-A "Sanitary Standards For Pumps For Milk And Milk Products."

(6) Exterior non-product contact surfaces shall have a smooth finish, be free of pockets and crevices, and be readily cleanable.

(7) Legs, if used, shall be smooth with rounded ends with no exposed threads, and shall be of sufficient length to provide a clearance between the lowest fixed point of the machine and the floor of no less than 6 inches. If legs are hollow tube stock, they shall be effectively sealed. When legs are not used, the base shall be designed to permit sealing to the mounting surface.

(8) When air under pressure is used, a single service filter shall be installed in the air line as close as practicable to the point of air application, and a product check valve of sanitary design shall be installed down-stream from such filter. The filter shall be capable of removing particles of 5 microns (0.0002 inches) or larger in size.

(9) Equipment for producing air under pressure which is supplied as an integral part of the freezer shall comply with the "3-A Accepted Practices For Supplying Air Under Pressure In Contact With Milk, Milk Products And Product Contact Surfaces", one year after publication of these practices.

(10) Shaft seals and multi-service gaskets where exposed to the product shall be of the packless type, sanitary in design, easily demountable, and readily cleanable.

(11) Integral mix supply tanks, if used, shall be provided with a cover. The tank shall be equipped with a cover having a drop flange which overlaps the rim of the tank by at least 3/8". All openings in the tank cover shall have raised rims or flanges of at least 3/8" and, if not continually in use, shall be pro-

¹Rubber and rubber-like materials conforming to the applicable provisions of the "3-A Sanitary Standards for Multiple-Use Rubber and Rubber-like Materials Used As Product Contact Surfaces In Dairy Equipment," Serial #1800, shall be considered in compliance with the criteria in this paragraph.

vided with covers having durable handle(s) of sanitary design and a downward flange of not less than 1/4" so designed as to prevent liquid from entering the product zone. Covers shall be self-draining. Tank valves shall conform to the design, construction, and materials requirements of the 3-A "Sanitary Standards for Fittings Used on Milk and Milk Products Equipment, and Used on Sanitary Lines Conducting Milk and Milk Products," and Supplements thereto.

(a) If tanks are of such capacity that their contents are not normally transferred to the freezing chamber within 1/2 hour, they shall be so designed that the mix can be held at all times below 45°F. In determining conformance with this temperature requirement the freezer shall be tested in an ambient temperature of 100°F.

(12) The fruit funnel and/or observation port on batch freezers shall be provided with a cover having a drop flange which overlaps the edges of the opening by not less than 1/4". The cover shall be self-draining.

(13) Coil springs having product contact surfaces shall have at least 3/32" opening between coils including the ends when the spring is in a free position.

(14) There shall be no threads used on product contact surfaces, except in pumps, as provided for in 3-A "Sanitary Standards For Pumps For Milk And Milk Products."

(15) Non-product contact surfaces to be painted shall be effectively prepared for painting.

These standards shall become effective April 14, 1963.

APPENDIX POLICY REGARDING STANDARDIZATION OF DAIRY EQUIPMENT

August 26, 1955.

The Executive Groups of the Committees on 3-A Sanitary Standards for Dairy Equipment and of the National Sanitation Foundation met in conference, at the Foundation's offices at the University of Michigan, on Friday, June 24 for the purpose of examining lines of demarcation in the preparation of sanitary standards for equipment used in the handling of milk and food. It was recommended that the criterion for determining which organization would handle preparation of standards for a specific item of equipment would be based on which industry has the responsibility for the sanitation of the surfaces contacted by the dairy products. In other words, it was recommended that where the dairy processing plant is responsible for the sanitation of the dairy products surfaces, the 3-A Sanitary Standards Group would undertake the preparation of the standard; and that where the food handling establishment is responsible for the sanitation of the surfaces contacted by dairy products, the standards would be developed by the National Sanitation Foundation's Joint Committee on Food Equipment Standards.

It was further recommended that closer liaison should be maintained between the two organizations by interchange of tentative drafts of standards during the formative period of their preparation, where it is evident that there is definite interest of both organizations in the details of the sanitary standards under consideration. Where necessary to achieve an adequate understanding, a conference of representatives of corresponding committees would be called.

There was complete agreement that both organizations have a common objective in the preparation of effective sanitary standards for equipment used in the food service and dairy fields. Past accomplishments by both serve to point to the necessity of further coverage of such additional items of equipment as have known public health significance.

COTTAGE CHEESE PROBLEMS IN PRODUCTION AND SANITATION — PUBLIC HEALTH ASPECTS¹

T. I. HEDRICK

*Department of Food Science,
Michigan State University, East Lansing*

One of the most encouraging aspects of cottage cheese manufacture and distribution for human consumption has been the lack of illnesses attributed to it. A survey of literature revealed no reports of disease outbreaks or food poisoning caused from cottage cheese. The fact that physicians have recommended its use for infants is an additional indication of its relative safety. Consequently, public health *per se* apparently has not been a problem associated with the various kinds on the market, although the current total production is roughly a billion pounds per year.

Nevertheless, several trends indicate the desirability of increased precaution. The lack of a closed system during production, sweet curd type (higher pH), more handling, longer storage, more combination with fruits, vegetables and other products necessitate constant vigilance from industry and public health personnel.

Furthermore, numerous surveys within the last five years have shown the need for greater attention to the bacteriological condition of cottage cheese in some production areas. A report (2) of 53 samples from nine companies in Baltimore during June through September, 1959, shows that 89% had more than 50 coliforms and/or 100 yeasts and molds per g. Two per cent had staphylococci contamination. Lyons and Mallmann (1) examined 150 samples from eight plants. They concluded the coliform counts were high enough to suggest a potential health hazard. These investigators, as well as others, demonstrated the importance of a low pH in the destruction of "seeded" pathogenic organisms in cottage cheese. The possibility that pathogens can survive the less acid cottage cheese still remains.

In order to ascertain the nature and extent of regulatory problems with cottage cheese, a survey was conducted. For the industry viewpoint, executives intimately familiar with cottage cheese operations of six major companies each reported his principle problems involving regulatory agencies. Chief administrative officials of health departments or dairy branches of the department of agriculture of

42 states communicated their views (depending upon which one had jurisdiction). Representatives of 16 major city health departments also responded.

Information was sought from regulatory agencies regarding cottage cheese standards (composition and quality control), sanitation of hand and machine packaging with special reference to recently designed equipment, testing methods, regulatory problems considered of importance and related information.

In summarizing the reports, the executives of the large companies involved in cottage cheese manufacture and distribution seemed to rate the lack of uniform standards as the number one problem when shipping intercity and interstate. Labeling is particularly troublesome. The custom packing of 30 or more differently labeled cartons for as many outlets was reported. Size and style of lettering, exact wording, printing on body and/or on the cover of a carton, contents in fluid or avoirdupois measure are most of the items needing standardization for labels. Recognition of Grade A or failure to provide Grade A regulations has been a handicap in interstate shipment. The diversity of milk (also non-fat dry milk) production and plant requirements for cottage cheese manufacture among adjacent states presents formidable restrictions on sales without influencing the adequacy of control.

The prohibition or use of additives such as coagulators, stabilizers, flavorings and mold inhibitors to the milk or the creaming mixture differ widely. One respected authority estimated that 85% of the cottage cheese manufacturers presently are not able to adhere strictly to the regulations in all respects in all their markets.

The duplication of inspections frequently results in a nuisance because of requirements and interpretation differences of each agency with respect to sanitation, physical facilities and processing methods. The economic savings to the companies and taxpayers certainly should justify corrective measures. For example, one midwest plant making a few million pounds per year has seven or eight different agencies making routine plant inspections each year. In another case, an executive estimated that the cost of Grade A milk inspection to his company for one milk interchange was \$12,000 per year. Much of this expense could be reduced by the elimination

¹Presented as part of a symposium on Cottage Cheese at the 49th Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., Philadelphia, Pennsylvania, October 24-27, 1962.

of the inspections by more than one appropriate agency.

Another handicap to the industry is the application of the regulations by the various agencies especially from different areas. Not only are facilities and methods involved as was mentioned previously, but this category also includes: a 2% fat product; tolerance in enforcement of fat content requirement (some expect the same exact control as for milk which is impossible); inclusion or disallowance of fat dilution with the addition of flavoring ingredients. Last on the suggested list of problems is the failure of the agencies or the regulation to be sufficiently flexible to keep pace with desirable product manufacture and distribution changes. Excessive demands that all changes be permitted only through legislative approval causes an unreasonable burden on the taxpayer and industry and restricts progress.

Not one of the 42 state agency officials reported a health hazard with cottage cheese. In fact, 12 reported no major problems. Many of the remainder considered some phase of sanitation or product quality as their major concern. The break-down for these was as follows (some listed more than one problem):

1. Unsatisfactory hand packaging or machine packaging	--6
2. Poor quality raw skim milk	-----6
3. Lack of sanitation during processing	-----5
4. High coliform, yeast and/or mold counts	-----4
5. Illegal labeling of container	-----3
6. Short storage life	-----2
7. Lack of uniform fat content among containers of creamed cottage cheese	-----2
8. Excessive marketing time	-----2
9. Inconsistent quality	-----1
10. Inadequate or unsanitary vat covers	-----1
11. No comment	-----7

The regulations for the use of "additives" in cottage cheese manufacture varied according to the listing below:

1. None allowed	-----13
2. Follow federal regulations	-----9
3. No comment or decision	-----9
4. Food stabilizer (one or more kinds)	-----5
5. Coloring	-----2
6. Lactic acid	-----2
7. Sugar, citric acid, flavor creator (1 each)	-----3

Twenty-four state agencies favored machine packaging without qualification. Most of the others preferred it with limitations such as "newer designed machines only," "must meet 3A standards," etc. A few expressed the opinion that with good sanitary precautions, hand packaging could be comparable to average machine conditions. However, it is significant that none stated a general preference for hand packing. The use of direct steam for cooking

cottage cheese is allowed by 15 and prohibited by 12 states. The others either had no comment or no decision.

The specific labeling requirements varied widely among the states but the general basic principles involved were similar. Two states reported no labeling specifications.

The moisture requirement of 80% or less in uncreamed or creamed cottage cheese and fat requirement of not less than 4% were unanimous. Most states do not have microbiological standards. Some states have coliform limits of 10 to 20 per g. One state allows 50 in a package obtained from the store or 20 in a "fresh" sample. Reports from very few states specified the maximum for yeasts and molds. Occasionally among states an agency will check keeping quality and make organoleptic examinations.

The responses from the 16 health departments in the principal cities of the U.S.A. indicated the largest heterogeneity of conditions. Some have promulgated their own regulations; others follow the state laws or the recommendations of U. S. Public Health Service; divided authority with the state was reported by one; and a number leave the enforcement to the state officials.

Of those who check cottage cheese, all reported no major health problems. Most frequent troubles involved quality factors particularly keeping quality and coliform counts (which may be potentially important). However, few city health departments make routine chemical or bacteriological tests. One or a combination of the following were reported: fat, total solids, phosphatase, coliform, yeast, molds, total count, flavor, shelf life and residues. Of interest is the fact one health department will not allow the addition of pineapple or "garden salads" from a new source of supply to cottage cheese without a coliform pretest that is acceptable. Only two sources supplied these products with a satisfactory coliform content.

In conclusion, the opportunities are great for the guardians of public health to standardize the regulations from raw materials and production through distribution. Attention should be given to a vigorous effort for the discontinuance of inspection duplications. Although cottage cheese has not been a public health hazard, in some areas increased emphasis on quality and sanitation standards will benefit industry and the welfare of the consumer.

REFERENCES

1. Lyons, P. R. and Mallmann, W. L. A Bacteriological Study of Cottage Cheese with Particular Reference to Public Health Hazards. *J. Milk and Food Technol.* 17:372-377. 1954.
2. Pais, A. A. Private Correspondence. July 6, 1962.

TRAINING OPPORTUNITIES FOR THE SANITARIAN¹

THE UNDERGRADUATE APPROACH

H. S. ADAMS

*Department of Public Health,
Indiana University School of Medicine, Indianapolis*

Before this audience, it is hardly necessary to emphasize the increasing importance of environmental sanitation. One need only take note of the large Federal appropriations that are and have been made for research, the strengthening and expanding of university courses in engineering and sanitary science and the substantial sums presently available for student stipends allotted to graduate and specialized training. At no time in our history has the importance of man's physical environment been accorded such emphasis, nor given such critical attention.

With the current situation such as it is, it becomes self evident that more and more people are needed in this field who have sound academic preparation in the basic sciences. The place to begin, in my judgment, is at the undergraduate level just as we do in other science oriented courses, such as major study in chemistry, mathematics or physics.

Every person entering this broad yet specialized field must first be indoctrinated in the theory and background of past and present day attempts to control the environment. In addition, there must be a good grounding in the administrative structure of public health and the legal implications that are involved. While this background is highly important, it is even more important that the recipient of the baccalaureate degree come out of his academic experience as a well educated man; a man who can make reasoned decisions and use good judgment. Of course this is true of all educational and academic endeavors, but I mention it particularly at this point because there are some who feel education in sanitary science is too specialized.

A study of the curricula of several colleges and universities offering a major in sanitary science and public health reveals that there is close similarity in the pattern of course requirements. Most all require the satisfactory completion of 124 hours of

undergraduate work. Broken down further, it is interesting to see what areas of study are required and the per cent of time devoted to each. I have broken these down into the usual academic categories which are as follows:

1. *The Physical Sciences*, such as mathematics, physics, chemistry and geology. These account for about 25% of the curriculum, or about 30 credit hours.

2. *The Biological Sciences*, which include such subjects as, zoology, botany, microbiology, entomology and physiology. In this case we find that 21% of the student's course time is spent in these areas, amounting to about 28 credit hours.

3. *The Social Sciences*, such as anthropology, sociology, psychology, government and economics. In this area we find 10% of the requirements, or about 12 credit hours.

4. *The Humanities*, such subjects as English, foreign language, literature, speech and history. The per cent required in this category is 10, amounting to about 12 credit hours.

5. *Public Health and Sanitary Science*, the specialized courses such as epidemiology, food and milk control, sanitary bacteriology and chemistry laboratory, public health administration, statistics and environmental sanitation. This accounts for 24% or about 30 credit hours.

6. *Other Courses*, the balance, bringing courses to 100%. These consist of such items as physical education and electives.

I call your particular attention to the fact that the physical, biological and sanitary sciences constitute about 70% of the total credit hours required, but would also mention that only about one-quarter of the total academic time is spent directly in the major and specialized area of sanitary science.

What are the opportunities in undergraduate education? At the present time, there are eleven colleges and universities that offer the B.S. degree in this field. Enrollments, I regret to say, are all too low. Those of us in this work know that job opportunities are many. We know also that an undergraduate course is excellent preparation for further study at the graduate level. It is our experience

¹Presented as part of a Symposium on Training Opportunities for the Sanitarian at the 49th Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., at Philadelphia, Pennsylvania, October 24-27, 1962.

that most any graduate from such four-year degree course has no difficulty in qualifying himself for advanced work. In the case of my own University, better than 40% of our sanitary science graduates now hold a Master's or higher degree.

In this area we are in competition with many other sciences and professions. However, with current needs as great as they are an increase of as much as 500% in total student enrollment would not result in enough graduates to fill new positions created

nor man existing positions that become vacant.

Finally, it now appears that the Public Health Service, through some of its grant programs to institutions offering public health training, may help with scholarships and student stipends. This, it appears will probably be started on a small scale, but it is hoped that the plan will attract into this field young people who have an interest in the health oriented professions and as a consequence student enrollments should increase.

International Association Of Milk And Food Sanitarians

Committee Reports

**PRESENTED AT 49TH ANNUAL MEETING
OCTOBER 24-27, PHILADELPHIA, PENNSYLVANIA**

REPORT OF THE PRESIDENTIAL ADVISORY COMMITTEE ON ENVIRONMENTAL HEALTH PROGRAMS — 1962

The Committee has not had an opportunity to meet together for an open discussion of the subject area assigned. The recommendations which follow have been developed as a result of limited correspondence between the Chairman and individual Committee members.

The area assigned to the Committee for study is regarded as one of extreme importance to the future course of the International Association of Milk and Food Sanitarians in that the program of the Association and content of its Journal dictates its image to present and prospective members. Thus, the Committee wishes to emphasize the fundamental nature of the recommendations which it proposes to offer. Implementation of these recommendations by the Executive Board would, in the Committee's opinion, tend to further identification of the Association's mission as one of broad service to the sanitarian employed in the projection of local health department programs. However, in view of the Association's long standing relationship to milk and food sanitation, the recommendations which follow should be considered as additions and not substitutions for present program elements.

With respect to categorical programs in the areas of air pollution, water pollution, radiological health and occupational health, it is not believed that the Association or its Journal can expect to provide either effective dissemination of technical information or significant program activity. The Committee does, however, recommend that general review type articles in these fields be incorporated in the Journal of Milk and Food Technology from time to time in order to keep the membership informed of new developments.

There are five program areas which, in this Committee's

opinion, should be included within the Association's framework of committee activities and Journal coverage. These, with specific recommendations for action, are listed below:

Institutional Sanitation

It is recommended that the Association establish a Committee on institutional sanitation with a general charge to (a) determine program needs in this area, and (b) work with other groups in the development of standards, recommended practices, manuals, and such other program guides as may be indicated. A symposium on this general area is suggested for the 1963 Annual Meeting.

Accident Prevention

This is an area where the milk and food sanitarian could advantageously expand his efforts by participating in programs of home safety, institutional safety, and industrial safety, particularly in those industries with which he is principally concerned. It would appear to be in order for the Association to establish a Committee to (a) work in cooperation with national official and voluntary agencies, such as the National Safety Council, the U. S. Public Health Service, and the American Public Health Association, who all have established programs in the Accident Prevention Field, and (b) keep the membership informed as to program needs and developments. Liaison could be established with the Accident Control Committee, Engineering and Sanitation Section, APHA, in working toward the development of criteria for the role of the sanitarian in Accident Prevention. Cooperative effort could be carried out by this Committee in support of home and industrial safety programs established within the Division of Accident Prevention, U. S. Public Health Service. Of particular importance to the Association would be the possibility of cooperating with the Food and Beverage Section, Industrial Division, National Safety Council.

Water Supply and Sewage Disposal

The Committee's thinking on this subject area is with particular reference to plumbing and problems attending water supply and sewage disposal systems for individual homes and institutions. It believes that the subject should be developed from a broader base than the technical requirements of the systems per se. In other words, there appears to be a need for orientation of thinking in terms of interrelationships between a single system and density of systems in an area and probable future pattern of land use. In view of the heavy involvement of official agencies with regulatory responsibilities in this area, it is recommended that initial Committee efforts be limited to a study to determine whether at national level the Association could provide a useful service.

Swimming Pools

Many sanitation problems are apparent today from the standpoints of both operation and use of swimming pools. Uniform criteria are needed for sanitary standards of water quality for bathing places. These problems pertain to public pools, natural bathing places, as well as home swimming pools, which are rapidly increasing in number throughout the country. Both public and private pool operators are beset with increasing numbers of proprietary products and devices which purport to rectify all sorts of unsatisfactory conditions. It is recommended that an Association committee be established for the purpose of working on the above problems in swimming pool operation and standards, and that they be further charged to cooperate with and assist existing committees and other national organizations working on similar problems. An example of such an existing committee is the Joint Committee on Swimming Pools of the Engineering and Sanitation Section, APHA.

Program Evaluation

Measurement of program accomplishment has been a problem for many years and satisfactory answers have been worked out in relatively few areas. The importance of this problem to the development, organization, growth and continued maintenance of environmental health activities is perennial. Accordingly, it is recommended that a Committee be established with a charge to (a) bring together existing methodologies of program appraisal in order to assess their adequacies and (b) to develop, in conjunction with other interested organizations and agencies, new methods where such are needed.

COMMITTEE MEMBERS

Harold B. Robinson, <i>Chairman,</i> (Direct Member, IAMFS), USPHS, Washington, D. C.	John B. Drake, State Department of Health, Seattle, Washington
Cameron Adams (Washington Association), State Dept. of Agriculture, Olympia, Washington	Maxwell Wilcomb, University of Oklahoma, Norman, Oklahoma
James Barringer, (Illinois Association), Joliet, Illinois	Arthur E. Williamson, State Health Department, Cheyenne, Wyoming
Richard G. Bond, University of Minnesota, St. Paul, Minnesota	John J. Sheuring, (Georgia Association), University of Georgia, Athens, Georgia
	Alfred L. Klatte, (Indiana Association), County Health Department, Indianapolis, Indiana

Richard Clapp,
(Georgia Association),
CDC,
Atlanta, Georgia

Paul Rankin,
(Mississippi Association),
State Board of Health,
Jackson, Mississippi

REPORT OF THE COMMITTEE ON BAKING INDUSTRY EQUIPMENT — 1962

BAKERY STANDARDS

The first bakery standard was published in June 1952. Since that time some twenty-two (22) equipment standards have been published.

These standards have served as a guide to bakery owners, purchasing agents and regulatory officials. The Committee believes these standards have materially advanced bakery sanitation throughout the United States. This advancement has been a cooperative effort of industry and regulatory officials, with a sincere desire from all concerned to achieve a high degree of sanitation throughout the baking industry. The Committee realizes that the ultimate has not been achieved in this endeavor. However, the general overall improvement has been remarkable, particularly if a comparison is made between equipment and bakery sanitation of 1952 and 1962.

New processes for baking bread and other bakery products have materially improved the sanitary condition of bakeries. Here, it should be mentioned that new processes create new problems for the sanitarian. Many of these problems are closely aligned to those currently facing the milk sanitarian.

This Committee is pleased to report that BISSC is actively exploring the possibility of exercising some control over equipment being manufactured allegedly conforming to BISSC standards.

This activity may result in an organization arising in the baking industry similar to the 3-A organization in the milk industry.

PROGRESS OF STANDARDS

This year Standard No. 22, covering depanners and delidders, was published. Six more standards are already assigned to task committees and are currently being developed. Seven additional standards have been delineated and their development is scheduled and pending. This is a total of thirty-five (35) standards either published or actively being formulated.

Standard No. 1 has been revised and republished. This was necessary because of the many improvements made by manufacturers of flour handling equipment since 1952.

It is expected that other standards will be reviewed, revised and modernized when necessary.

RECOMMENDATIONS

This Committee, in accordance with accepted BISSC procedure, had submitted a list of recommended changes to the final draft of Standard No. 22. This standard was scheduled to be published September 1, 1962, however, it had not been received by this Committee at the time this report was written. Consequently, this Committee cannot ask the International Association of Milk and Food Sanitarians to approve Standard No. 22 before it has been carefully and thoroughly reviewed by this Committee.

COMMITTEE MEMBERS

Vincent T. Foley, *Chairman*,
(Missouri Association),
Health Dept., 21st Floor,
City Hall,
Kansas City 6, Missouri

A. E. Abrahamson,
(New York Association),
Dept. of Health, New York
City, 125 Worth St.,
New York 13, New York

Louis A. King,
(Illinois Association),
American Inst. of Baking,
400 E. Ontario,
Chicago 7, Illinois

Gene McElyea,
(Illinois Association),
USPHS, Region V,
433 W. Van Buren St.,
Chicago 7, Ill.

W. R. McLean,
(Illinois Association),
USPHS, Dept. of HEW,
Region V,
433 W. Van Buren St.,
Chicago 7, Ill.

Louis W. Pickles,
(Illinois Association),
City Health Dept.,
Peoria, Illinois

Armin Roth,
(Michigan Association),
Wyandotte Chemicals
Corporation,
Wyandotte, Mich.

Harold Wainess,
(Illinois Association),
510 N. Dearborn St.,
Chicago 10, Ill.

REPORT OF THE COMMITTEE ON FOOD EQUIPMENT — 1962

The following report will outline the Committee's activities this year in working with two health and industry organizations (National Sanitation Foundation's Joint Committee on Food Equipment Standards and the National Automatic Merchandising Association's Automatic Merchandising Health-Industry Council) and the progress in meeting its objectives. It is expected these organizations will be the two groups that the Committee will work with during the coming year.

NATIONAL SANITATION FOUNDATION

This Committee was represented at the 1962 meeting of the National Sanitation Foundation's Joint Committee on Food Equipment Standards, where appropriate action was taken on several proposals, and prior to the meeting reviewed and submitted comments on each draft of the proposed revisions to Standards 2, 4, 7, and Basic Criteria C-2. Copies of all changes and revisions are available now in a mimeographed from the Foundation.

Standard No. 2

The Joint Committee tentatively accepted the proposed revision of Standard No. 2, with the understanding that further study and review would be given to drainboard space and activators for drinking fountains prior to its final approval and publication. This completed a two year review of Standard No. 2 by industry and public health officials, and this was the first of eight Standards to receive a major revision. Plans are being made to conduct similar reviews of other Standards.

The principal changes and additions in the revised Standard include performance standards for specified equipment; uniform definitions; increased covers on food contact surfaces; details for cutting boards; and specific requirements for conveyors, self-leveling devices, and ventilating systems. It also contains a precautionary statement that in fabricating and installing counter guards special consideration must be

given to the customer's mouth height, in educational or other institutions, where children are to be fed.

Standard No. 4

At the 1961 meeting, the Joint Committee requested the NSF staff to survey the manufacturers and users of warming units which were designed to be utilized wet or dry to determine the advantages and disadvantages of drains for such units. According to the survey findings, the provision of drains would be a deterrent to good housekeeping practices. Consequently, no action was taken to require drains in this type of equipment.

A first draft of a proposed addition to Standard No. 4, relating to Reel Type (revolving tray) Ovens was reviewed at the 1962 meeting of the Joint Committee, and the second draft has been reviewed by this Committee and comments submitted to the Foundation. This type of oven, considered to be used primarily by the bakery industry at the time the Standard was developed, is now finding more general application in food service and preparation establishments.

Standard No. 7

Based upon the findings of a study recommended by the Joint Committee in 1961, manufacturers of refrigeration equipment which do not include the compressor and cooling units with their equipment are now required to install a data plate on each refrigerator indicating the required BTU input for the refrigerator which will assure performance in accordance with the following new maximum operating temperatures: 40°F for reach-in and walk-in refrigerators, 45°F for refrigerated display cases, and 0°F for freezers.

Standard No. 7 is to receive a general review by the Special Public Health Industry Advisory and User Committees during the next year for the purpose of clarifying the definition of product zone, acceptable materials, and other points. At the present, the walls, floors, and ceilings of walk-in refrigerators are considered product contact surfaces.

In recent years, due to persons being accidentally or purposely locked in refrigerators, considerable emphasis has been placed on the value of safety latches for doors of such equipment. Some commercial refrigeration manufacturers are already installing such accessories on their equipment. However, to require safety door latches on refrigerators would necessitate incorporating similar safety features in all other Standards. Therefore, each organization represented on the Joint Committee was advised to review the following three possibilities and to recommend one to the Foundation so that a basic policy could be established:

1. The inclusion of no safety requirements in the Standards.
2. The inclusion of safety requirements where directly related to sanitation features of such Standards.
3. Expansion of the Standards' scope and coverage to encompass general safety features of equipment.

Basic Criteria C-2

A review of the second draft of the proposed addition to Criteria C-2, relating to Casters, was made. The specifications for casters will become an integral part of C-2 but will also be reflected in Standard No. 2 and all other applicable Standards and Criteria. It was recommended that a further study be made of the construction and sanitation features of the caster proposal and the Foundation coordinate the proposed specifications for casters with those recommended by the Baking Industry Sanitary Standards Committee. Coordination of food equipment sanitary standards between related agencies is essential in many areas in order to avoid overlapping and conflicting guides for fabricators, users, and official agencies.

Basic Criteria C-1

At the present time, the specifications for manually and coin operated food vending machines are included in NSF Criteria C-1, and the annual NSF Listing of Approved Equipment has been carrying a list of vending machines and component parts without differentiating between the two different types of equipment. This has created a problem for public health, fabricator, and user groups in those states which have specific laws governing the sanitation of each type of machine. Following a brief discussion of this matter by the Joint Committee and recognizing the need to categorize and separate the specifications for manually and coin operated vending equipment, the Foundation staff indicated that appropriate steps would be taken to accomplish this end.

Status of Current Research and Future Standards

A special report on the progress of the Use and Wear Tester was presented to the representatives of the Joint Committee. It has been under development for the past three years and is now considered to be ready for sample evaluation. This new technique will permit factual determination of the suitability of a given food contact material and finish, by recreating on an accelerated basis, the actual use and wear conditions to be found in a specific use environment.

The initial phases of a study to establish more economical times and temperatures for an effective and efficient dish-washing operation have been completed, and the results of the study should be available for review and comment by the Committee before the end of the year and could result in revision of Standard No. 3.

Several manufacturers of ice-making equipment had indicated an interest in a Standard for their equipment; consequently, an Industry Task Committee was appointed. The Task Committee has already developed the initial working draft of a proposed Standard. Public and user groups have, likewise, recommended that a proposed Standard for detergent dispensers be drafted, but similar action has not yet been recommended by the dispenser manufacturers.

The Foundation has also received requests for the development of standards for prefabricated wall and ceiling materials, mobile food service vehicles, ventilation equipment, and for an installation manual; but no plans have been made to implement these proposals.

The present National Sanitation Foundation Standards are primarily limited in their application to equipment manufactured for the restaurant (public food service) industry. The Committee recommends that the National Sanitation Foundation consider inviting representatives of the grocery and other segments of the food market industry, hospitals which operate formula preparation departments, and similarly related food industries to participate in the development of new Standards or in the expansion of existing Standards to include food equipment used by the related industries not covered under presently recognized evaluation programs.

NATIONAL AUTOMATIC MERCHANDISING ASSOCIATION

The National Automatic Merchandising Association's Automatic Merchandising Health-Industry Council held its fifth annual meeting October, 1961, and this Association and other public health organizations and the affected industries were represented at this meeting and participated in the Council's deliberations. The morning of the first day was reserved for the public health representatives and was used by them to discuss public health objectives and policies to be followed in their work with the entire membership of AMHIC. This was a valuable experience for the Associa-

tion's representative and enabled the public health members to coordinate and clarify their views on the final revision of the Evaluation Manual including the Safety Requirements and related matters, thereby expediting the work of the Council.

Evaluation Manual—Sanitary Features

The Evaluation Manual, an essential tool in the evaluation of vending machines by evaluation agencies and public health officials, is nearing completion. A final draft of this proposed Manual was reviewed and comments submitted during the year by this Committee. At the Council Meeting, a general review of the proposed Manual for Evaluating Vending Machines was conducted and tentative acceptance was given to the proposal with the understanding that it would soon be available for distribution to the organizations represented on the Council in a mimeographed form for review and comment prior to printing in a final form. The Committee members and other interested persons have received copies of the final proposal and been given an opportunity to offer further comments.

Evaluation Manual-Safety Features

Time did not permit a thorough study of the Safety Requirements for water heater relief valves, water heater tanks, venting for gas appliances, and other safety features for vending machines. However, further review was carried out via mail with final review and acceptance of the Safety Requirements anticipated at the 1962 meeting of the Council.

RECOMMENDATIONS

1. That the Association continue its work with the National Sanitation Foundation and the National Automatic Merchandising Association in developing acceptable standards and educational materials for the food industry and public health.
2. That the Association urge all sanitarians and regulatory agencies to support the work of the Association's Committee and subscribe, by law or administrative policy, to the Standards, Criteria, and Evaluation Manual for food equipment and vending machines.

COMMITTEE MEMBERS

Karl K. Jones, <i>Chairman</i> (Indiana Association), State Board of Health, Indianapolis, Indiana	Gene McElyea, (Missouri Association), Public Health Service, Chicago, Illinois
James W. Bell, (International Association), National Canners Association, Washington, D. C.	H. L. Mitten, Jr., (Illinois Association), Creamery Package Co., Chicago, Illinois
Martin Donovan, (Florida Association), Dade County Health Dept., Miami, Florida	Jerome Schoenberger, (New York Association), New York Health Dept., New York, New York
Colonel F. H. Downs, Jr., (International Association), U. S. Army Retired, Montgomery, Alabama	Eaton E. Smith, (Connecticut Association), State Department of Consumer Protection, Hartford, Connecticut
J. H. Durbin, (Kentucky Association), State Department of Health, Frankfort, Kentucky	George N. Stich, (International Association), Morrison Cafeterias, Mobile, Alabama

D. R. Gooden,
(California Association),
Los Angeles Health Dept.,
Los Angeles, California

Robert E. Hunt,
(Minnesota Association),
State Department of Health,
St. Paul, Minnesota

Fred B. Jacobson,
(International Association),
Food Consultant,
Philadelphia, Pennsylvania

James A. Westbrook,
(International Association),
Public Health Service,
Charlottesville, Virginia

O. J. Wiemann,
(Rocky Mountain
Association),
State Department of
of Public Health,
Denver, Colorado

Samuel H. Hopper,
(Indiana Association),
Dept. of Public Health,
Indianapolis, Indiana

J. C. White,
(New York Association),
Cornell University,
Ithaca, New York

C. K. Johns,
(Central Ontario
Association),
Dairy Technology Institute,
Ottawa, Canada

Keith L. Lewis,
(International Association),
Public Health Service,
Cincinnati, Ohio

James Barringer,
Will County Health Dept.,
Joliet, Illinois

E. N. Kennedy,
(Iowa Association),
Iowa City, Iowa

Fred C. Baselt,
(International Association),
American Can Company,
Monte Sereno, California

Glen L. Hays,
(International Association),
American Can Company,
Maywood, Illinois

Floyd Copenhaver,
(Missouri Association),
Kansas City Board of
Health,
Kansas City, Missouri

Ed Ruppert,
(International Association),
Milk & Food Program,
Washington, D. C.

Merle Gilmore,
Borden & Company,
Denver, Colorado

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

John C. Brown,
(South Carolina
Association),
State Board of Health
Columbia, S. C.

REPORT OF COMMITTEE ON RESEARCH NEEDS AND APPLICATIONS—1962

During the past year, members of this Committee have supplied answers to several questions submitted by individuals and, in many cases, provided pertinent questions and answers for publication in the Journal. A total of nine questions and answers were published between September 1, 1961 and September 1, 1962.

As a result of a Committee suggestion, the Annual Meeting this year will have three evening discussion sessions—one in each of the major areas of sanitation. Each will have in attendance outstanding individuals in their area to guide discussion. Attendance and interest in these group discussions will be the deciding factor on whether or not to retain them for another year.

RECOMMENDATION

The committee was canvassed for expression of opinion on the usefulness of this committee and its course of action for the future. The following recommendation and conclusions are based on the results of the survey.

1. The nature of this Committee makes it desirable that it be composed of a small group of interested persons that are selected entirely by the chairman for their dedication and zeal.

2. The Committee could make a better contribution in the question and answer page by each month publishing one or more detailed abstracts of strictly sanitation oriented articles from other journals.

3. Continue to provide suggestions for special sessions at the Annual Meeting.

4. Secretaries of the Affiliates should be informed that they can aid this committee by taking a few minutes at their local meetings to appraise the membership of the Committee and suggest they send questions and suggestions to the chairman.

5. A question box at the Annual Meeting may provide a source of material for future publication.

6. The Committee's functions are too broad and not well enough defined for effective action. The Executive Board should restate the purposes of this Committee if they wish it to continue, otherwise, it is recommended that it be discontinued.

COMMITTEE MEMBERS

W. C. Lawton, *Chairman*,
(Minnesota Association),
Twin City Milk Producers
Association,
St. Paul, Minnesota

Darrell Deane,
(Rocky Mountain
Association),
University of Wyoming
Laramie, Wyoming

REPORT OF THE COMMITTEE ON APPLIED LABORATORY METHODS — 1962

The inability of this Committee to meet as a group to discuss any problem collectively has necessitated individual effort with respect to the problems under consideration. One of the problems considered by this Committee was concerned with the sanitary significance of coliforms in raw milk. Two members are independently working on this problem, but no report is available at this time. Some action by the committee may be forthcoming following the publication of these findings.

One member of the committee is serving on the *Ad Hoc* Committee on Standardization of Milk Plating Agar of the APHA Coordinating Committee on Laboratory Methods. Progress is being made on the selection of a reference standard and protocol for testing new batches of media; a formal report is to be made at the APHA annual meeting.

COMMITTEE MEMBERS

O. W. Kaufman, *Chairman*,
(Michigan Association),
Dept. of Microbiology and
Public Health
Michigan State University
East Lansing, Michigan

Barry E. Gay, Jr.,
(Illinois Association)
Laboratory Survey Office,
Bureau of Sanitary
Bacteriology,
Dept. of Public Health,
Springfield, Illinois

F. W. Barber,
(New York Association),
National Dairy Products,
Inc.
260 Madison Ave.,
New York, N. Y.

J. J. Jezeski,
(Minnesota Association),
Dept. of Dairy Industries,
University of Minnesota,
St. Paul, Minn.

A. R. Brazis,
(International Association),
Robert A. Taft San. Engr.
Center
Cincinnati, Ohio

B. M. Barney,
Midwest Dairy Products
Corp.,
1681 University Ave.,
Memphis, Tenn.
Everett Cole,
(Rocky Mountain Ass'n.),
Biological Research
Laboratories,
Post Office Box 373,
Arvada, Colorado

W. E. Glenn,
(Kentucky Association),
Dairy & Food Science,
Michigan State University,
East Lansing, Michigan

Mike Purko,
(Rocky Mountain Ass'n.),
State Dept. of Agriculture,
Laramie, Wyoming

Elmer George,
(Minnesota Association),
Minneapolis & St. Paul
Quality Control Laboratory,
2274 Como Ave.,
St. Paul, Minn.

J. C. Olson, Jr.,
(Minnesota Association),
Dept. of Dairy Industries,
University of Minnesota,
St. Paul, Minn.

B. C. Wiggins,
(Connecticut Association),
Advanced Instruments,
Inc.,
45 Kenneth St.,
Newton Highlands, Mass.

H. B. Richie,
(Illinois Association),
Swift & Company
Research Lab.,
Union Stock Yards,
Chicago 9, Illinois

REPORT OF THE COMMITTEE ON DAIRY FARM METHODS — 1962

During the past year subcommittees of the Farm Methods Committee have given study to the following problems:

I. *CIP cleaning of pipeline milkers.* The following elements are important in the installation and operation of a successful CIP pipeline system:

A. A complete instruction chart for cleaning and sanitizing the particular installation.

B. Adequate supply of approved hot and cold water.

C. Detergents that are compatible with the water supply and the job to be done.

D. Proper concentration, temperature, velocity, and time of circulation of detergent solutions.

E. Proper slope and drainage of the pipeline system.

F. Dealer training in planning installation, operation, cleaning, and sanitizing of pipeline systems.

G. Training of the dairyman in operation, cleaning, and sanitizing of the particular system.

H. Emphasis on the complete cleaning and sanitizing job following each milking rather than once per day as is frequently the case.

I. Proper cleaning of the teat cup assemblies, preferably with pulsation, after each milking plus periodic disassembly and replacement of defective parts.

J. As a safety precaution for personnel and equipment it should be emphasized that acid detergents should never be mixed with chlorine sanitizers or with chlorinated detergents.

II. *CIP cleaning of farm bulk milk tanks and tank trucks.* Consideration should be given to the following:

A. *General.*

1. Adequate supply of approved hot and cold water.

2. Equipment designed and constructed for the specific CIP job.

3. Detergents compatible with the water supply and formulated for the particular cleaning job.

4. Adequate control of the cleaning operation.

B. *CIP atmospheric farm bulk milk tanks.*

1. Tanks designed and constructed for CIP.

2. Individual engineering of the CIP system in case of tanks not designed for CIP.

3. A cleaning system that is effective for the particular installation.

C. *CIP vacuum farm bulk tanks.*

1. Tanks designed and constructed for CIP.

2. Installation and operation of an effective cleaning system.

D. *CIP tank trucks.*

1. Facilities for receiving bulk milk.

a. Covered area or room, preferably enclosed on at least three sides, of sufficient size to accommodate the longest tank exclusive of the vehicle pulling the tank, and the operations incident to the loading, unloading, cleaning, and sanitizing of the tank. Provision for removal of exhaust fumes when needed.

b. Walls and ceilings of the rooms to have a smooth, washable, light-colored surface, and maintained in a clean condition.

c. The room to be well lighted and ventilated.

d. Impervious floors, smooth, easily cleaned and sloped to approved drains.

e. Hot and cold running water at hose stations and wash vats.

f. Convenient handwashing facilities.

g. Approved method of agitation of milk when necessary for sampling.

2. Facilities for cleaning CIP tank trucks.

a. Adequate volume of approved hot and cold water.

b. Solution tanks.

c. Controls to insure adequate cleaning.

d. Proper design and construction of cleaning equipment.

e. Adequate capacity of circulating equipment for proper cleaning of the largest tanks in which milk is received.

f. Adequate facilities for cleaning the exterior of tanks and trucks.

3. Periodic inspection of CIP tanks followed by any necessary changes in procedure.

III. *Transfer systems.* Considerable difference of opinion exists on acceptability of transfer systems and on cleaning and sanitizing procedures. The 1961 report of this Committee mentions an extensive study of flexible lines that is being conducted in industry under laboratory and dairy farm conditions. The Committee believes that the results of this study which is still underway will be a valuable guide to questions and problems on this subject.

IV. *Standardization of procedures for bulk tank pick up of milk.* This Committee has found that most states and municipalities have developed effective training programs and regulations to control the operation of bulk tank trucks and the licensing of drivers. The following recommendations are made on this subject:

A. *Regulations.* Regulations on bulk tank truck operations should provide for the following:

1. All tanks and associated equipment to be maintained in a clean and sanitary condition and in good repair.

2. Each time a truck is cleaned and sanitized it should bear a tag revealing the date, time, place, and signature of the employee having done the work.

3. Milk should not be picked up at a farm during milking time, and the operator of the tank truck should adhere to specific maximum temperatures of milk in the farm tank. There should be no partial pick up from a farm bulk tank.

4. The farm bulk tank driver should never pick up unmarketable milk from a farm tank.

5. The operation of the tank truck pump and connecting pipe or hose should be handled in a clean and sanitary manner to protect these items from contamination at all times during the pick up.

6. A careful record of each individual farm shipment should be kept. This record should include such information as the name and/or number of the dairy farm, date and time of pick up, amount of milk in the shipment, temperature of the milk at the time of pick up, and other information that may be needed. A copy of such record should accompany the tank truck to its destination along with a sample of every shipment.

7. Specify maximum temperature allowable during transportation.

B. Licenses.

1. The successful operation of a bulk handling system should include a license for each tank truck, transport truck, transfer station, and truck operator.

2. The transfer station license should control the construction, sanitation, operation, and records of the station.

3. Each tank truck operator should hold a valid operator's license issued by the regulatory agency. The applicant should demonstrate his ability to carry out the duties of an operator by satisfactorily passing an examination given by the agency.

4. It is recommended that the license be issued on a calendar year basis, and be renewable annually provided the operator has a good record of performance. The suspension of a license should be effective until such time as the violated conditions have been corrected.

C. *Education.* A successful bulk milk operation includes a thorough and continuous driver training program. In addition to training in route procedures, technical information should include the following:

1. Fundamentals of microbiology of milk.
2. Principles of various milk quality tests.
3. Inspection for flavor and odor.
4. Sampling for composition and bacteriological examination of milk.
5. Training in the care of samples.
6. Cleaning and sanitizing of dairy equipment.
7. The composition of milk.
8. Calibration of farm tanks.

D. Qualifications Of Drivers

1. Licensed by the approximate regulatory agency to measure and sample milk.

2. To maintain a neat and clean appearance.

3. Have the ability to distinguish marketable and wholesome milk.

E. Operational Procedures At The Farm.

1. On arrival at farm inspect milk for any undesirable characteristics.

2. Measure milk in farm tank before agitator is started; record reading and time of pick up on producer ticket.

3. Start agitator motor and allow milk to agitate for at least five minutes before taking a sample or pumping milk.

4. While agitation is taking place complete producer ticket with necessary information and connect milk hose to outlet of tank and make electrical connections.

5. At the end of the agitation period take temperature of milk in the farm tank and record on producer ticket.

6. Wash hands thoroughly. Take a sample of milk at this time according to the approved procedures for sampling. Label sample with producer's number and date.

7. Open valves on milk tank and tank truck, and pump milk into the truck.

8. When the tank is empty stop the pump, disconnect hose from bulk tank, apply sanitary cap to hose and replace in the truck.

9. Rinse the farm milk tank thoroughly with warm water before leaving the farm.

10. Pick up of the milk should be scheduled so as to avoid interfering with proper cleaning of the tank and cooling of the milk.

11. Partial pick up of a tank of milk should be avoided.

12. When a route has started there should be no delay between farms on the route or prior to the final delivery to the receiving plant.

F. *Procedures For Taking Milk Samples.* Milk samples are needed for bacterial counts and tests for composition, antibiotics, added water, chemical residues, and other quality determinations. Sample bottles or containers should be of an approved type, clean, dry, and properly stored prior to use, and should be placed in an approved insulated ice chest. Extra bottles should be kept on each route to replace any which may become contaminated. A proper sample dipper should be located on each farm or on each truck and kept clean and stored in a sanitary condition. The recommended step by step procedure is as follows:

1. Remove sample container from ice chest and mark with patron number and date.

2. Examine sample dipper for cleanliness. Then sanitize in an approved sanitizing solution. Care must be taken to completely empty the dipper.

3. Open the sample container in such a manner as to avoid contact with the milk contact surfaces of the container.

4. Immerse dipper three times in milk in the farm tank. Empty it completely each time to eliminate any remaining sanitizing solution.

5. Pour a dipper of milk into the sanitary container, rinse the container thoroughly with milk then discard this milk to the floor drain. Do not fill container over tank.

6. Fill the sample container with milk from the farm tank.

7. Close sample container securely.

8. Place sample container immediately in ice chest.

9. Clean the sample dipper.

10. Keep samples packed in ice at all times while in transit.

G. *Reciprocity In Licensing.* Cooperation between regulatory agencies is recommended in setting up rules and regulations so that there can be reciprocity in the issuing and revoking of licenses.

V. *Education.* During 1962 a new task committee on farm methods education was formed. The objective of this committee is the development of educational material for dairy farm suppliers, fieldmen, and sanitarians on sound and effective dairy farm procedures. This is a difficult and challenging task and is to be given major emphasis by the Committee in future efforts.

VI. *Sediment Tests on Bulk Tank Milk.* The Committee is working with representatives of USDA and other organizations in the development of photographic standards for

sediment tests on farm bulk tank milk. Consideration has been given to the following:

A. Character of sediment that is representative of farm bulk tank milk in various sections of the United States.

B. Levels of sediment to be included in a photographic chart.

C. Relative merits of reading sediment test results to the nearest disc on the chart or to the "line" (above or below a specific disc).

D. Problems in photographing the discs and obtaining uniformity in successive printings, and the necessity of screening photographs before release.

VII. *Antibiotics and pesticides.* This report is divided into four sections on education, legislation, testing and enforcement:

A. *Education.* The record in this respect is outstanding with all interested agencies and industry groups engaged in assisting the dairyman to be knowledgeable in the production of milk free of antibiotic and pesticide residues. This has been accomplished by distribution of a wealth of printed material, and through meetings, conferences, and individual discussions with dairymen.

B. *Legislation.* State control of residues in milk is included in the adulteration section of the dairy, agricultural, or sanitary laws.

Some states have adopted special legislation to meet this problem, which may include regulation of commercial pesticide applicators. On the local level the adulteration section of milk sanitation regulations applies.

C. *Testing.* Laboratory analysis for antibiotic residues is being conducted widely by official agencies and dairy plants. Typical results reported on individual herd samples include 1 positive per 1,000 tests; 47,000 tests with 0.29% positive; and 13 positive out of 7,000 tests. The antibiotic tests most frequently reported include the standard disc assay, rapid disc assay, reverse phase disc assay, and the activity test. Because of the complexity of testing for pesticide residues most of this work has been carried out primarily on a spot check or screening basis. Both the paper and gas chromatographic methods are being utilized. In suspect situations, feeds as well as milk are being analyzed. It is noteworthy that the utilization of so called trash feed (principally fruit and vegetable by-products) as dairy cattle feed has been practically eliminated.

D. *Enforcement.* Since residues in milk are treated under the adulteration section of laws or regulations, direct action with violators is the rule. Generally, a written notice is sent the producer for the first offense on antibiotics although a few agencies suspend permits on the first offense. On second offense, the producer is suspended, the period varying from 2 days to 7 days. On third offense, a producer is either suspended for a longer period or permit revoked. In some instances, court action is invoked and the ensuing publicity is considered a valuable educational device.

There is a difference of opinion concerning the testing of individual producer samples or a composite from small groups of producers such as would be the case when bulk pick-up tankers are sampled at the plant. It is believed by some that composite testing misses some offenders. Others say that composite testing with individual follow-up when indicated is adequate and practical as 100,000 units of penicillin can be detected when diluted in over 4,000 pounds of milk.

It is the Committee's belief that legislation governing

residues in milk is generally adequate for enforcement purposes. It is recommended that the benefits of the educational approach be sustained through periodic informational or reminder releases, such as a "flyer" to accompany milk checks, as well as the continuation of other educational methods to maintain the present level of progress. Special support and emphasis should be given to the National Mastitis Council movement as the basic answer to the antibiotic residue problem.

COMMITTEE MEMBERS

- | | |
|--|--|
| A. K. Saunders, <i>Chairman</i> ,
(Illinois Association)
Monarch Chemical Corp.,
Minneapolis, Minnesota. | Richard M. Martin,
(Ohio Association)
Ohio Department of Health,
Columbus, Ohio |
| Dr. R. W. Metzger,
(New York Association)
Dairymen's League
Coop. Ass'n., Inc.,
Syracuse, New York | Mike O'Conner,
(Washington Association)
Seattle-King County
Milk Division,
Bellingham, Washington |
| Chester F. Bletch,
(Virginia Association)
Maryland & Virginia Milk
Producers Assoc., Inc.
Arlington, Virginia | I. E. Parkin,
(Pennsylvania Association)
The Pennsylvania State
University,
University Park,
Pennsylvania |
| James B. Smathers,
(Virginia Association)
Maryland & Virginia Milk
Producers Assoc., Inc.,
Arlington, Virginia | Harry F. Stone,
(Missouri Association)
Department of
Public Welfare,
St. Louis, Missouri |
| Dr. J. C. Flake,
(Illinois Association)
Evaporated Milk
Association,
Chicago, Illinois | Vernon Nichols,
(Missouri Association)
Department of
Public Welfare,
St. Louis, Missouri |
| A. E. Parker,
(Oregon Association)
City of Portland
Health Department,
Portland, Oregon | William Trobaugh,
(Colorado Association)
City & County Department
of Health & Hospitals,
Denver, Colorado |
| Milton E. Held,
U. S. Public Health Service,
San Francisco, California | Clarence C. Gehrman,
(Washington Association)
Department of Agriculture,
Olympia, Washington |
| M. W. Jefferson,
(Virginia Association)
Virginia Dept. of Agriculture
Richmond, Virginia | William Nasson,
(California Association)
San Francisco Health
Department,
San Francisco, California |
| Harry Tibberend,
(Wyoming Association)
Wyoming Department of
Agriculture,
Cheyenne, Wyoming | Dr. George D. Coffee,
(Virginia Association)
Department of
Public Health,
Washington, D. C. |
| William McCorquedale,
(Canadian Association)
409 Huron St.
Toronto, Ontario, Canada | Dr. R. M. Parry,
(Connecticut Association)
Department of Agriculture,
Hartford, Connecticut |
| Elmer Kihlstrum,
(Illinois Association)
Johnson & Johnson,
Chicago, Illinois | Burdette Fisher,
(Kentucky Association)
Kyanna Cooperative Milk
Producers Association,
Louisville, Kentucky |
| R. P. March,
(New York Association)
New York State College
of Agriculture,
Ithaca, New York | |

PRESIDENTIAL ADDRESS 49th ANNUAL MEETING, IAMFS

CHARLES E. WALTON
LARAMIE HEALTH DEPARTMENT, LARAMIE, WYOMING

From the Executive Board and staff members of the International Association, we extend a hearty welcome to each and every member and guest assembled here today. We wish to express our gratitude and appreciation to our affiliate, the Pennsylvania Dairy Sanitarians Association, for being host to our Association during this week of the Forty-Ninth Annual Meeting and the Fifty-First Anniversary.

I feel deeply grateful for having had the opportunity to serve you for the past year. It is evident that democracy exists in the Association when a sanitarian from a small city health department in the great state of Wyoming can assume the presidency of the largest and most respected sanitarians' organization in existence. Any progress that has been realized during my term of office can be attributed to the dedicated men of the Executive Board and staff. Gentlemen, you have done a grand job and I thank you.

You are all aware of the heritage and history of this Association so my remarks today will be directed not to a review of the history, but to a reflection of the significant trends and thoughts of our Executive Board and staff. These have all been predicated upon the team approach to Association challenges.

The continuing growth of membership in our organization each year from direct and affiliate sources is ample proof of the validity of our role among professional and scientific societies. The Association is a medium whereby all those engaged in the broad field of environmental health can share mutual interests and form basic concepts through the exchange of ideas.

In an Association such as ours which represents a broad scope of activities, our one desire is and will continue to be to explore methods to strengthen our affiliate structure to serve the overall membership. Each year, of the past several, more autonomy has been given the Affiliate Council in Association affairs and we believe that greater liaison and understanding exists today between the affiliates and the International than has existed heretofore. Careful study must be given so as not to disturb the current growth pattern of our Association. We must create greater interest in the Association by the involvement of the membership in committee work

and in changes to make current our Constitution and By-Laws to not only serve us today, but tomorrow. The future of the International depends ultimately on the participation of our membership in the affiliate and organizational affairs.

We have, over the years, by the uniqueness of our organizational structure, become the representatives of the health and industry sanitarians. Therefore, the Executive Board, our affiliates, and their Affiliate Council, must face and accept responsibility. Their decisions must represent the considered opinions of all segments of the membership.

Each year more demands are made of our Executive Board and staff. It must use every means at its disposal to form sound opinions and judgments. It is true that only 10 per cent of the total membership attends the meetings and, therefore, directs the Association affairs. You, as direct or affiliate members, must use careful judgment in the selection of your executive officers. The Constitution has provided a system of checks and balances which are similar in purpose to those in the United States Constitution. These provisions state and delineate the duties of the Executive Board and standing committees. They also provide one of the greatest freedoms in that any individual through attendance at the Annual Meeting can initiate, with a proper second, new business. Likewise, through notification to the Secretary-Treasurer, with the allotted margin of time prior to the Annual Meeting, proposals for changes of our Constitution and By-Laws can be made. The Constitutional changes must be considered at the Annual Meeting and if an affirmative vote of the Association is secured, within 90 days the Secretary-Treasurer must submit to each member the proposal to be voted upon. If a majority of those voting affirm the proposal, it becomes part of our Constitution and By-Laws.

Your Executive Board has been convened since last Sunday and has rendered over 100 decisions concerning Association affairs. All of our decisions have been considered in accordance with the provisions of our Constitution and By-Laws. Our founders showed wisdom and foresight in their writing of the Constitution and all additions during the past fifty-one years have proven sound. As you well know, gentlemen, tomorrow we will vote on an additional objective and change of name. We of the

Board urge you to choose wisely in casting your vote.

The financial position of the Association as confirmed by Robert E. Eck, certified public accountant, is basically sound. Income and expenses during the past fiscal year did fall below the break-even point. However, we feel this is a temporary situation. It is an indication, however, that each and every one of us must coordinate our ideas and efforts toward increasing the income of the Association.

I would like to direct your attention to the life-line of the membership—*The Journal of Milk and Food Technology*. The *Journal* is the principal outward manifestation of the professional nature of our Association. Consequently, the quality of the scientific and technical papers which appear between its covers must be high, and thereby reflect the Association's deep interest and concern with the professional aspects of milk, food and environmental sanitation and technology. The following, covering the period of September 1961 through August 1962 indicates the extent and scope of the material published in the *Journal*.

More technical papers were published during this period—62 in number. The previous high was during the year of 1960-61.

Thirty-four or 55 per cent of these articles dealt with various aspects of milk and milk product technology or sanitation per se.

Fifteen or 24.2 per cent of the articles were concerned with the technology, sanitation or other aspects of various food products.

Six or 10 per cent of the papers were applicable to both milk and other food; seven or 11.3 per cent dealt with various aspects of general sanitation (that is, other than milk and/or food).

Consequently, the distribution of the technical or professional materials in the *Journal* between milk and milk products on the one hand and all other areas on the other, is 55 per cent and 45 per cent respectively.

Numerous other materials have been published which include nine Association committee reports, reports of the Annual Meeting with abstracts of all papers presented, minutes of your Affiliate Council and two 3-A Sanitary Standards, plus miscellaneous materials.

The Executive Board has recognized the need for greater coverage of Association affairs in the interest of a better informed membership. We have taken definite action to meet this challenge by the addition to our executive staff of Mr. John D. Simpkins, in order that your *Journal* will better serve you.

It is hoped that your criticism and advice, if they are of a constructive nature, will continue to be directed to the Executive Board. Perhaps I should

define criticism in a sense which Mr. Webster neglected: Criticism is disapproval of people, not for their having faults, but for having faults different from your own. Therefore, the Executive Board and staff pledge to you that we will endeavor to be worthy of the heritage of our founders and utilize every means to conduct the affairs of your Association in a professional and ethical manner. We pledge service above self!

Approximately 35 per cent of our membership is located in Pennsylvania and its neighboring states. This indicates that they are doing an excellent job of maintaining membership, but we wish to point out that strength in number is not our goal. Our goal is to serve the affiliate and it in turn serves the membership either great or small, who in turn serves the disciplines of environmental health under their supervision. In an ever-changing environment affected by new technology in today's "space age" we are sometimes prone to forget our basic program and objective and attach ourselves to that which has quick public acceptance or "cloud nine" appeal. Our founders were aware of this in writing our objectives and, as stated heretofore, provided an orderly manner through which we could attain progress. I wish to read the objectives in our Constitution to you to guide you in your deliberations during this convention.

They are:

To foster efforts designed to improve the professional status of the sanitarian.

Develop uniform and proper methods of supervision and inspection of dairy farms, milk and milk product plants, and food-handling establishments, including warehouses, restaurants, and transportation equipment.

Develop uniform and proper methods of supervision for examination of milk, milk products and other foods.

Encourage improvements in sanitary methods of production of milk and related food products.

Encourage the development of equipment and supplies to improve the sanitary handling of dairy and food products.

Assist members in their technical work and development.

Cooperate with other professional groups in advancing the public health through improved milk and food-handling technology.

Disseminate information concerning sanitary milk and food-handling technology and administration through its official publication and/or by other means.

Your Executive Board took several actions during the past year which we feel are of interest to you.

They are as follows:

Employed an Assistant Executive Secretary.

Approved the affiliation of the Mississippi Association of Sanitarians with 110 members to date.

Reappointed all Associate Editors for an additional three year term. E. K. Harris, Robert Taft Engineering Center, Cincinnati, Ohio, was appointed as a new Associate Editor as was Robert Hayward, USPHS, Washington, D. C.

Changed the Committee structure for 1963 in accordance with the Presidential Advisory Task Committee.

Provided the President and Executive Board with a task group to study and devise methods to improve Association and affiliate practices.

Provided counsel and guidance to the National Mastitis Council, Inc., and the National Advisory Committee on Coordination of Definitions, Standards and Labeling requirements for dairy products. During this past year, these have become independent organizations.

Participated in the first National Manpower Survey of Sanitarians conducted by the Manpower Resources Commission of the U. S. Public Health Service.

Authorized fund allocation to the Sanitarians Joint

Council for their continuance of the above survey.

Actively supported the Sanitarians Joint Council efforts to finalize the establishment of the American Intersociety Board for Certification of Sanitarians—a project originally based on a proposal by International.

The Executive Board representative on the Food Establishment Sanitary Advisory Committee, Mr. William Hickey, reported that the "Food Service Sanitation Manual" has been published.

Our Executive Secretary's annual salary was augmented by an increment to cover medical benefits.

Approved the name change published in the *Journal* and disapproved the amendment regarding the make-up of officers and Executive Board.

In conclusion, we of the Board during the past year have tried to live up to the precept that Marcus Rosenblum expounded in his keynote address at the 48th Annual Meeting in Des Moines: "Those who serve their title with honor, honor their title." This has been our creed during our deliberations and we of the Executive Board reaffirm that we stand ready to serve you and will endeavor to gain your respect by advancing the principles and guidelines which you will present to us this week.

ACTIVITIES OF THE NATIONAL MASTITIS COUNCIL, INC.¹

ROBERT W. METZGER²

*Dairymen's League Cooperative Association, Inc.,
Syracuse, New York*

Two years have now passed since the International Association of Milk and Food Sanitarians sponsored a Mastitis Action Conference for the purpose of establishing an appraisal of (a) the economic impact of mastitis on producer, processor and consumer; (b) the public health aspect; (c) the status of research in terms of what is known and what needs to be known; and (d) regulatory problems. You will recall that this conference directed the Farm Methods Committee to develop a continuing organization to serve as a national force in furthering mastitis research and control.

As a result of this charge to the Farm Methods Committee the Council was formed in January 1961 and later incorporated as an independent organiza-

tion under the "General not-for-profit Corporation Act" of the State of Illinois. At present we have representatives of nineteen national organizations associated with the dairy industry serving as the Board of Directors of the Council. This group is assisted by representatives of the U. S. Department of Agriculture and the U. S. Department of Health, Education and Welfare who serve as consultants rather than as a part of the policy making body. Standing committees on research, education and information, and programs and procedures are effectively operating and gradually progressing toward the ultimate goals which were set up for the Council.

With the passage of time since the original conference and the formation of the National Council, I think we all recognize an increased activity or at least a stimulation of thinking in regard to mastitis control in all areas of the nation. While much of this stimulation resulted from the Mastitis Action

¹Presented at the 49th Annual Meeting of the INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC., at Philadelphia, Pennsylvania, October 24-27, 1962.

²President, National Mastitis Council, Inc.

Conference itself, I feel that much of the activity can be attributed to the work of the Council in the promotion and development of state and local groups and the material which we have so far been able to furnish such groups for their guidance.

The first activity of the newly formed council was to evaluate what is presently being done in the field of mastitis control. The results of this evaluation were presented at the 48th Annual Meeting of the IAMFS and published in the March 1962 issue of the Journal of Milk and Food Technology. While most states were shown to have some type of educational program capable of distributing literature on suggested mastitis control measures, activities varied from well defined state-wide programs to those of a very localized, highly restricted activity such as quality checks on raw bulk milk with little or no follow-up activity. The lack of similarity in existing programs and varying degrees of effectiveness prompted the Council to develop a recommended uniform and practical approach to the problem.

Based on the experience of apparently successful projects, the Council, through the efforts of its Committee on Programs and Procedures, developed a proposed outline for use by state and local groups. This recommended program is quite detailed and all-encompassing covering the four major phases of committee formation, education, pilot studies and program planning. It includes in its scope the four major factors of education, screening, diagnosis and treatment, and management. It is felt that each of these phases is of equal importance in carrying out a successful program. The proposed program, however, is flexible enough to be altered to fit the needs of an area. If one part does not fit the situation in some state, the other sections may be of value.

To implement the development of control programs on a national basis the Council recommends, and has promoted, the development of state councils or advisory groups composed of representatives of agriculture and veterinary colleges, producer organizations and dairy herd owners, dairy processors, veterinary and agricultural associations, extension services, milk sanitarian associations, state departments of agriculture and departments of health, and other interested groups. From such an advisory council can be developed a governing body assisted by sub-committees for specific activities such as program development and evaluation, education, farm management, milking equipment installation and operation, and therapeutic and laboratory procedures.

Several states already have well developed councils which are in contact with the national organization; others have this activity in the planning stage.

The development of state councils and the experience gained through mutual cooperation with the National Council cannot help but benefit all areas.

The work of the National Council's Education Committee has created considerable enthusiasm and interest among all of us who are interested in mastitis control. One of the recommendations of this committee to the Council at the annual meeting was that "The American Society of Agricultural Engineers encourage research in milk handling equipment and recognize significant contributions in their society meetings." The president of their society, Dr. Arthur Farrall, was contacted by our Education Committee chairman, Mr. George Parsons of Michigan State University, for the purpose of focusing the entire mastitis problem and reviewing the important part the agricultural engineers should play in a total research program. Dr. Farrall has suggested to his society that they set up a special committee on milk handling equipment which can cooperate with the National Mastitis Council and the Farm Equipment Institute in the solution of this problem. The initial duties of the proposed new Committee of the Agricultural Engineering Society were agreed upon as follows:

1. Explore ways and means of stimulating research from the Departments of Agricultural Engineering and Dairy in the principles of mechanical milking.
2. Determine the various sources of funds for the above mentioned research.
3. Explore the advisability of a national seminar on milk handling equipment.

The milking machine department of the Farm Equipment Institute is presently cooperating with the Council in the preparation of a manual on the maintenance and operation of milking machines. The aid of the American Society of Agricultural Engineers will undoubtedly be a benefit to this project.

In order to properly follow through with a successful procedure to control mastitis it was felt, from the origin of the Council, that we should fully understand "What is known about mastitis." The preparation of such a manuscript is now under way as a project of our Education Committee with the cooperation of a group of nationally known research workers headed by Dr. Richard Brown of the National Animal Disease Laboratory at Ames, Iowa. Dr. Brown has secured the services of Dr. H. G. Blobel, University of Wisconsin; Dr. G. R. Spencer, State College of Washington; Dr. W. D. Pouden, Ohio Agricultural Equipment Station; Dr. L. W. Slanetz, University of New Hampshire; and Dr. O. W. Schalm, University of California. These men are now actively working on this project and expect

to meet in November to complete plans for the manuscript. As soon as this work is completed the report will be finalized in a published document and made available by the National Council.

Screening tests, which indicate the leucocyte level in milk, are a most valuable aid for the detection of mastitis and even may be termed the first requisite in the development of a good program. While they should not be considered as diagnostic methods, they are of great value in determining the trouble areas. The Council considered these tests of sufficient import to devote the annual meeting program to a review of the most common methods presently used on bulk milk samples. A complete report on the modified Whiteside Test, the California Mastitis Test, the Catalase Test and Direct Microscopic method has been compiled in the Council's Annual Report of February 15, 1962.

We have had several requests from regulatory agencies throughout the nation for information and guidance in the use of such tests. Many agencies feel that these tests have a place from the regulatory point of view as, not only an indication of the presence of mastitis, but also as milk quality checks. Some of the agencies have inferred that they wish to hear what the national requirements may be along this line, i.e. what criteria and/or interpretation should be used before promulgating regulations.

The National Council is aware of the lack of a uniform enforcement program and a special task force has been set up to study the regulatory aspect for the purpose of recommending a procedure to be used on a national level. This group is especially concerned with the following points:

1. Which screening test or tests should be employed.
2. The frequency of testing.
3. Who should conduct the tests.

Following the determination of a definite level of leucocytes, other questions must then be considered, such as:

1. At what level should action take place.
2. What type of action should be employed.
 - a. Referral to a veterinarian.
 - b. Referral to a mastitis control program.
 - c. Notification to the dairyman that levels exceed acceptable limits and must be reduced.

We are also at the present time attempting to spell out a concise, definite outline of methods which may be used at the farm level as a guide to comply with

regulations which may be set forth. We feel that this phase can be developed from the Council's detailed recommended program which we are presently distributing.

In conclusion I would like to state that the Council has had excellent cooperation from those organizations and agencies which have an active interest in mastitis control, and which understand the goals and objectives for which we are striving. While some may feel that we are moving too slowly, it must be remembered that we are dealing with a condition which has existed for many, many years with little concern and in many areas little or no effort made toward alleviation of its effects. It also must be remembered that what has so far been accomplished through the Council has been done with the voluntary services of various groups of dedicated people without the aid of any paid personnel.

We have been fortunate in the cooperation extended by such organizations as the American Dairy Science Association, the American Veterinary Medical Association, and the U. S. Livestock Sanitary Association. The Herd Health Committee of the American Dairy Science Association has considered our work to date in their recommendations to that association. They also have participated in our activities, with a representative on the Council's Board of Directors.

The American Veterinary Medical Association, which also is represented on our Board, adopted a resolution at its annual meeting to set up a special committee to work with the Council. In an effort to prevent each interested group from going off on an individual tangent, the mastitis committee of the U. S. Livestock Sanitary Association is presenting a resolution at their annual meeting next week urging that association to recognize the work of the Council and appointed the chairman of its committee as their representative to the Board of Directors of the National Council.

The ultimate success of the national activities naturally will depend upon finance as well as the cooperative effort of interested groups. We now have developed an active Finance Committee with Mr. William V. Hickey, Past-President of IAMFS, as chairman. Mastitis is a problem for the entire dairy industry. While we plan to request help from all of the industry, we are initiating our drive by contacting all the major producer organizations in an effort to gain their support.

News and Events

Virginia Affiliate Holds Seventeenth Annual Meet

Elected at the business meeting of the Seventeenth Annual Conference of the Virginia Association of Sanitarians, the new slate of officers was recently announced by Mr. G. S. Kennedy, *Secretary-Treasurer* of the Association.

The Conference was held November 29 and 30, 1962 at the Hotel Jefferson in Richmond, Virginia.

Those making up the new Executive Board are: *President*, Mr. G. D. Shelor, Doswell; *First Vice-President*, Mr. C. M. Cooley, Hampton; *Second Vice-President*, Mr. Jay S. Taylor, Staunton; *Secretary-Treasurer*, Mr. G. S. Kennedy, Richmond; *Chairman, IAMFS Section*, Mr. William H. Gill, Richmond; *Chairman, NAS Section*, Mr. Cephus Hook, Berryville; *Auditors*, Messrs. L. E. Horne, Norfolk and L. A. Huff, Roanoke. Also included on the new Board is the *Past President*, Mr. E. Lee Everett, Suffolk.

During the two-day session, sectional meetings were held on the three facets of sanitation: food, milk and environmental. At these seminars, addresses were given by men qualified in their respective fields. Speaking at the food seminar were Mr. George Sooy, Food and Drug Administration, and Robert F. Pero, Director of Bureau of Industrial Hygiene, State Health Department. Addressing the milk session were Mr. A. K. Saunders, Monarch Chemicals and Mr. John F. Speer, Department of Technical Services, IAICM. And, speaking to those attending the environmental seminar were Mr. A. E. Spencer, Richmond Health Department, Mr. T. J. Sharpe, Chief of Sanitation, Hagerstown Maryland Health Department, and Mr. John Lamb, Jr., Bureau of Insect and Rodent Control, State Health Department.

At the opening of the two-day session, members attending heard Mr. Wesley Gilbertson, USPHS, speaking on *The Sanitarian's Role in the Newer Con-*

cept of Environmental Health and Mr. Barnett Lieberman, Vice-President, National Association of Housing and Redevelopment Officials, speaking on *The Sanitarian's Role in Housing Rehabilitation*.

Other guest speakers at the Conference were Dr. Mack I. Shanholtz, Commissioner of Health, Commonwealth of Virginia, Mr. C. H. Atkins, Assistant Surgeon General, USPHS, Dr. H. M. Warburton, Southern Regional Manager, National Dairy Council and Mr. John Fluno, Medical Entomologist, USDA. Friday morning speakers were Mr. Francis Goldsmith and Mr. J. Conway Rees.

A film produced by Johnson and Johnson was presented at the Conference. This film, entitled "*Hospital Sepsis*," opened the Friday morning session and proved a successful part of the program.

The Virginia Association provided, during its Seventeenth Annual Conference, a well-balanced program for the milk, food and environmental sanitarians alike. Mr. G. D. Shelor served as chairman of the Program Committee.

FEBRUARY 14, 1963

ROBERTS ANNOUNCES SLATE OF SPEAKERS FOR DP II

According to Mr. E. J. Roberts of Crowley's Milk Company and President of the Dairy Products Improvement Institute, the program for the Sixteenth Annual Meeting will feature subjects of current importance and interest to the dairy industry and regulatory personnel. These subjects will be discussed by leaders in their respective fields. The meeting is scheduled to begin with a luncheon in the Hotel Governor Clinton, February 14, 1963.

Featured speakers are: Dr. A. C. Dahlberg, Cornell University and Advisor to the Board of DP II, speaking on the controversial subject of testing milk or inspecting farms to determine sanitation compliance; E. L. Peterson, Executive Director of MIF, discussing philosophies underlying dairy product identification; Charles M. Fistere, general counsel for the Dairy Industry Committee, approaching labeling problems involved in substitute and imitation products; and M. W. Jefferson, chairman of the National Labeling Committee, presenting a progress report of the National Labeling Committee for dairy products.

There will be a meeting for the members in the morning. An attendance of more than 250 persons representing the dairy industry, local, state and federal regulatory agencies and educational institutions will attend the afternoon session. Mr. E. J. Roberts will preside at these meetings.

NORTH CAROLINA STATE SPONSORS JOINT SESSION

The annual Dairy Fieldmen's and Sanitarian's Conference was held on November 19 and 20 at the College Union on the North Carolina State College Campus. Dairy plant fieldmen and public health sanitarians throughout the State of North Carolina participated in this meeting.

The first day's program, which was a joint session of both fieldmen and sanitarians, was highlighted by discussions on "The Mobile Lactorium and Free Stall Housing" by Evan Zantow of Chore Boy Milking System, Cambridge City, Indiana, and "Public Relations" by Glenn Woodard of Winn-Dixie Stores, Jacksonville, Florida.

Some of the subject matter that was discussed in the second day's program included: "New Innovations In Milking Machines;" "North Carolina Mastitis Control Program;" "Solids-Not-Fat Field Studies in North Carolina;" "Electronic Machine Computing for WADAM Records;" "Heavy Grain Feeding;" "Producing Milk for Today's Market;" "Latest Developments in Making Top Quality Silage;" "Grain Feeding Mechanization;" "Experiences in Marketing Milk In Bulk Dispensers;" "Problems with Plastic Coated Containers;" "Bottling Water for Civil Defense in Dairy Plants," and a panel discussion on "What Changes Should be Made in the USPHS Milk Code?"

The noon luncheon on the second day featured W. R. Smaltz, football coach, North Carolina State College, and Miss Mary Alberta Sink, North Carolina's Dairy Princess.

Out-of-town speakers included George Hopson, the DeLaval Separator Company; Robert McCutcheon, Maola Milk Company; Walker Suggs, Carolina Dairy; Ralph Howard, Long Meadow Dairy; J. E. Flora, Sealtest Foods; Frank Barr, Durham County Health Department; Sam Rich, Charlotte Health Department; Evan Zantow, Chore Boy Milking System; Glenn Woodard, Winn-Dixie Stores; R. A. Stevens, USPHS and T. A. Meyer, National Silo Association.

Others participating on the program were: W. Patterson, White House Milk Company; A. W. Wilson, Gaston County Health Department; E. Coats, Engineering Farm Systems; and the following North Carolina State College personnel: J. T. Caldwell, Chancellor; R. Ritchie, Agriculture Engineering Department; M. E. Gregory, Food Science Department; J. R. Harris, Extension Veterinarian; J. P. Everett, Animal Science Department; Hugh Liner, Agriculture Economics Department; and J. D. George, W. Mainous; M. Senger, I. D. Porterfield, Dairy Science Department.



Shown here is one panel from the Dairy Fieldmen's and Sanitarians' Short Course held at North Carolina State College November 19-20, 1962. Left to right: Robert A. Stevens, USPHS; Ralph O. Howard, Long Meadow Farms; J. Everette Flora, Sealtest Foods; Sam C. Rich, Charlotte-Mecklenburg County Health Department; Frank H. Barr, Durham County Health Department; Dr. Max E. Gregory, North Carolina State College.

Awards Jury Is Accepting Crumbine Award Entries

All full-time local health departments in the United States have been invited to submit entries for the 1963 Samuel J. Crumbine Awards. According to the Awards Jury of impartial public health experts, preparation of the entries affords competing departments an excellent opportunity for analysis of the present adequacy of their programs and determination of what needs to be done for improvement.

Determination of the winners is based in large part on accomplishment in the preceding calendar year, although consideration also is given to progress in earlier years and plans for refinement and advancement in the future.

Departments may enter for either or both of the awards. One is given to the department considered outstanding for its achievement in the development of a comprehensive program of environmental health. The other is given to the department judged outstanding for its achievement in the development of a program of public food and drink sanitation.

These annual awards are sponsored by the Public Health Committee of the Paper Cup and Container Institute in memory of Dr. Samuel J. Crumbine who, as Kansas State Health Officer early in the century, pioneered many of the currently accepted environmental health and health education practices.

The closing date for this year's competition is March 4. The jury, which represents various disciplines and administrative levels of public health, will meet shortly thereafter to select the winner.

Requests for entry forms and further information should be addressed to the Crumbine Awards Jury, Room 1020, 250 Park Avenue, New York 17, N. Y.

FEATURE

MAKING A MILK PLANT INSPECTION

GAIL A. SMITH, MANAGER OF FOOD INDUSTRIES
TECHNICAL SERVICE, J. B. FORD DIVISION
WYANDOTTE CHEMICALS, CORPORATION

The high quality milk we enjoy today is the result of years of inspections by dairy plant sanitarians. Going from farm to farm and plant to plant, continually checking and insisting on proper cleaning, the sanitarian insured that milk was processed only in clean equipment. In less than forty years the keeping quality of milk in the final container as delivered to the customer has improved from one to two days to a period of weeks.

Today there seems to be a lack of interest among many dairy plant sanitarians in making routine equipment inspections. One reason for this lack of interest is given as too much generalization for the inspector. He now is responsible for every phase of public health work, rather than merely food plant sanitation. This, the sanitarians claim, allows insufficient time to make cleanliness checks. A second reason is, new equipment that has been developed frequently overawes the sanitarian as he does not always understand its operation. It has also been said by some sanitarians that in our enlightened age such equipment inspections are not necessary, as the modern dairyman does his own inspecting.

It is true that the modern dairy plant operator is more concerned with the quality of his product than ever before. It is also true that he has a very effective self-inspection system. Regardless of this, however, everyone at one time or another needs a little supervision to make him do his best. This supervision of plant sanitation can be given by the dairy plant sanitarian.

It is the purpose of this article to increase the interest of sanitarians in making dairy plant inspection. No one wants to eat dirt, even though it is sterile dirt, and by continually checking and insisting on proper cleaning and cleaning methods the milk supplier will continue to have better quality.

Time to make inspections

Milk plants frequently operate around the clock. Even if the operation is not twenty-four hours long, it is nearly always over eight hours.

The inspector must be prepared to visit the dairy plant at all times of the day and night. Naturally, he cannot be expected to be in the plant twenty-four hours a day, but should be prepared to visit the plant at various times when it is operating.

The inspector should not be consistent in his time of calls. Many times a route is set up and the dairy operator can nearly set his clock by the time the sanitarian will walk in the door. Visits should be unexpected and very "unpunctual."

A proper inspection cannot be made sitting in the superintendent's office nor can an inspection be made while the inspector is out to lunch with the dairy plant operator. He should be in the plant actually looking at the operation and the equipment.

Preparing for the inspection

Proper dress is necessary to inspect the sanitary condition of the equipment. Rubbers or boots should be available to protect the shoes. White coats or coveralls are necessary to avoid ruining good clothing. A hat should be worn in the plant at all times. Only when the inspector is properly clothed can he examine the equipment in the proper manner.

To be able to see in dark corners and in shadows, the inspector should be equipped with a flashlight. A black light will help to find milkstone and soil residue not readily visible by normal light.

Test kits and test papers are furnished by all leading cleaner manufacturers to their customers. The inspectors should have the use of these kits and understand them so that he can check the concentrations of the various cleaning solutions used. A test for the sanitizer solution is especially important to make sure that the proper strength is being used in the sanitizing operation.

A thermometer, preferably a long-stemmed dial thermometer, is necessary to check the temperatures of cleaning solutions. Cleaning still depends on time, temperature and concentration. The temperature can only be determined with an accurate thermometer.

It is important to have a sample dipper available for securing samples to be tested with the Test Kits. It is difficult to reach into a hot caustic tank with the bare fingers and frequently this operation will be skipped unless some means of comfortably taking the sample is provided.

Housekeeping

The general housekeeping in a plant reflects the care given to the equipment. To check this house-

keeping, the inspector should use his sense of smell, sight and touch.

As soon as the inspector walks in the door he should continually sample the air with his nose, seeking for unclean odors. If any are detected, they should be run down to the source and this source eliminated. Bottoms of equipment, walls and drains are particularly bad offenders unless a constant cleaning program is insisted upon.

The sense of sight should be utilized at all times when the inspector is in the plant. Floors, walls, windows and storerooms should all be examined carefully and any failure to keep them spotlessly clean should be corrected.

The sense of touch is frequently important in examining equipment. A surface that is not "squeaky" clean is probably greasy and needs additional attention.

Inspecting equipment

In many areas all milk is being shipped in farm bulk pickup tanks and farm producer cans have been eliminated. The growth of the dispenser can, however, has made can washing even more important than it was before bulk milk. Dispenser cans are used to ship pasteurized milk—and maintaining them perfectly clean is of supreme importance. Only by using a properly operated can washer, can this degree of cleanliness be assured.

The inspector should completely understand the operation of the can washer and check it thoroughly and frequently.

The can washer, of course, is a spray washer, and depends on jets of cleaning solution or rinse water to clean the cans. It is important to have the proper quantities of cleaning solutions in the cans and that these jets be open, free of scale and not over-sized.

The temperature and concentration of the wash solution should be checked and if not proper, suitable corrections made. Thermostats for controlling the temperatures of the wash and rinse solutions should be operating properly.

Before the can washing operation is started each day, a cutaway can should be run through the washer. Actions of the jets should be studied to make sure that the can is centering properly above the jet and that the proper amount of cleaning solution enters the can.

At the end of the day the tank should be drained, screens removed and cleaned, jets removed from the lines and the lines blown out with the pumps. Properly operated, the washer will deliver consistently clean cans every day.

Storage tanks and tank trucks should be examined by climbing into them with a black light. If any

milkstone or other soils are present, the cleaning operation should be improved.

During the inspection of these agitator bearings, manhole and tanks, such things as sample cocks, sight glass gaskets, fill pipes and valve plugs should all be carefully inspected. Many times, even though the tank itself is clean, some of these fittings are not properly cared for.

Plate pasteurizers should be checked following the cleaning operation by opening and examining the milk side of all plates. The diversion valve should be dismantled and checked and parts removed from the holding tube.

Pipe lines should be checked by examining the ends of various pieces with a flashlight. In many cases, it is well to push a cotton swab through the line by using a rubber ball bolted to a metal rod. This cotton swab will reveal the condition of the line in areas that cannot be examined from the outside.

All CIP operations should be checked for time, temperature and concentration of the product. A recording thermometer is normally provided which shows the time and temperature. The concentration can be determined by using a Test Kit.

Circulating tanks and hand wash tanks for small parts and fittings should be checked for concentration and temperature. Hand wash tanks particularly are often used with cold solution. A means of heating, such as a direct steam line into these tanks, should be required, insuring proper temperature used in the washing operation.

Bottle washers depend on soaking the milk bottles in a strong, highly alkaline solution. This solution should be tested to insure that the proper concentration is being maintained. Pre-rinses on the washer should operate properly to prevent excessive soiling of the highly alkaline solution. Recirculating rinse tanks should be checked to see that they are being properly cleansed. All jets should be checked to see that they are open and that the bottles are properly centering over them. The chlorinator should deliver 50 ppm into the bottles at the last station.

Sanitizing

The sanitizing operation is one of the most important in the plant. Lines and equipment should be connected for processing before sanitizing. This helps insure that all pieces of equipment are properly contacted with the sanitizing solution.

The sanitizer Test Kit should be used to determine the strength of the sanitizer solution at drain points.

Only by the constant efforts of our sanitarians can proper cleanup of dairy plant equipment be assured.

Ninth NCIMS Meet Planned For April

The Ninth National Conference on Interstate Milk Shipments will be held April 15-18 at the Peabody Hotel in Memphis. Representatives of public health and agricultural agencies, industry, universities and others concerned with interstate milk shipments from more than 40 states and the District of Columbia are expected to attend.

Park Livingston, Franklin Park, Illinois, chairman of the 1963 Conference, announced: "The National Conference on Interstate Milk Shipments is a voluntary organization that meets every two years to develop procedures which will facilitate the interstate shipment of milk of high sanitary quality to any area where needed. At this year's conference, we propose to consider additional agreements to provide greater mutual confidence on the part of shipping and receiving areas, and thus furnish the best possible milk supply to people in every section of the country."

The Cooperative State-Public Health Service Program for Certification of Interstate Milk Shippers, initiated following the First National Conference in 1951, has grown rapidly and has gained increased acceptance by official agencies and industry. The Interstate Milk Shippers List, published quarterly by the U. S. Public Health Service, now contains the names of 890 interstate milk shippers, located in 42 states and the District of Columbia, together with sanitation compliance ratings of their supplies as certified by state milk sanitation rating officers. These lists are distributed by the Public Health Service on request to over 2000 milk sanitation authorities and industry officials. This program involves the production from more than 125,000 dairy farms with over nine billion pounds of Grade A milk shipped interstate annually.

Karl Mohr, Green Bay Wisconsin Health Department, program chairman of the 1963 Conference, reported:

"Basic agreements reached at earlier conferences will be reviewed in task force committees and changes will be voted upon by the general assembly. Among the subjects scheduled for general consideration are: studies on check-rating information, revision of the constitution, study of dietary milk products, improvement of laboratory methodology, mastitis control, non-biological contaminants in milk and milk products, consideration of standards for Grade A powder in consumer packages, and uniform labeling."

Representatives of regulatory agencies and industry may present other specific problems which will be assigned to respective committees for consideration. Any suggested changes in existing basic agreements must be presented at the opening session for consideration by the general assembly.

Serving on the Program Committee with Mr. Mohr are Kenneth E. Carl, Oregon Department of Agriculture; Larry J. Gordon, Albuquerque Health Department (New Mexico); H. L. Hortman, Louisiana State Department of Health; Robert Metzger, Dairy-men's League Cooperative (Syracuse); Robert L. Sanders, State Department of Health (Iowa); O. J. Wiemann, Colorado Department of Public Health and Irving H. Schlafman, U. S. Public Health Service (Washington, D. C.)

Brucellosis Program Receives Boost From Michigan Amendment

To protect Michigan's cattle from infected cattle that might be imported to the state, an amendment to the law became effective January 1 governing cattle importation, it was announced by G. S. McIntyre, director of the Michigan Department of Agriculture.

The intent is to check the spread of brucellosis, a highly contagious cattle disease that has cost herd owners millions of dollars over the years. Incidence of the disease in the state of Michigan is the lowest in history as a result of the brucellosis eradication program, operated jointly between the federal and state departments of agriculture.

After New Year's day, all female cattle, nine months or older being brought into Michigan for dairy or breeding purposes, must have been officially vaccinated for brucellosis between four months through eight months of age. The animals must be vaccinated and properly recorded in the offices of the livestock sanitary official in the state of origin.

Some Michigan herd owners attend livestock sales in other states. Before purchasing cattle elsewhere they should first find out if the animals meet the vaccination requirements for entry into Michigan.

The purpose of the amendment is to eliminate the danger of healthy herds within the state becoming infected with brucellosis from animals originating in other states.

If persons planning on importing female dairy or breeding cattle over eight months of age need further information on this new requirement, they should contact Dr. J. F. Quinn, state veterinarian, Lansing, Michigan.

North Dakota Annual Meet Held During Workshop

The 1962 Annual Meeting of the North Dakota Association of Sanitarians was held jointly with the State Health Department's Sanitation Workshop in Dickison on October 1.

President Metzger presided at the business session and officiated the election of new officers. Iver Unterseher, chairman of the nominating committee, presented the candidates chosen by the committee. As no nominations were made from the floor, a suspension of rules was granted and each man named by the committee was given a unanimous voice vote.

The new slate of officers is: *President*, Ed Bohdan; *President-Elect*, Emery Nelson; *Vice President*, Frank Gilchrist and *Secretary-Treasurer*, Everett Lobb.

Full attendance was reported by the Association with all officers, 21 members and 3 guests present. Messrs. John Fields and R. H. Metzger served as hosts for the meeting.

Department Name Changed To Keep Pace With Expansion Of Program

The Department of Sanitary Engineering in the University of North Carolina School of Public Health has been changed to the Department of Environmental Sciences and Engineering. In announcing the change, Dr. Daniel A. Okun, head of the department, explained that the term "sanitary engineering" had become far too restrictive for the broadened program which now includes a number of new fields beyond the traditional areas of sanitary engineering.

Five graduate programs of study and research are offered in the department: Sanitary Engineering and Water Resources, Environmental Chemistry and Biology, Environmental Sanitation, Air and Industrial Hygiene, and Radiological Hygiene.

This year there are 50 graduate students enrolled in the department with the following distribution among programs: Sanitary Engineering, 10; Environmental Sanitation, 7; Sanitary Chemistry and Biology, 11; Air and Industrial Hygiene, 3; Radiological Hygiene, 8. There are also eleven doctoral students distributed among the above programs.

The department has twelve full-time faculty members which include five engineers, a sanitarian, a biologist, a microbiologist, a biochemist, an analytical chemist, an industrial hygienist and a physicist.

In November, the School of Public Health moved into a new building. Here the department has

special facilities for teaching and research. These include a pilot plant for water system studies, a laboratory for monitoring low levels of radiation, a constant temperature room for aquatic biological work, an instrumental analysis laboratory and a food-sanitation laboratory.

Thirty different research activities are currently in progress among the five programs and additional ones are projected for the near future. In addition to the programs of research and education there are a number of service activities conducted by the department. These include short courses for waste treatment operators, for sanitarians and in radiological health for public health workers.

Warning For Sorbitol Unnecessary Says Food and Drug Administration

The Food and Drug Administration has found that it is unnecessary to impose a requirement of warning labeling with reference to laxation caused by excessive ingestion of sorbitol. FDA says that available information indicates that the incidence of laxation from over-indulgence in sorbitol is no more common than the incidence of laxation caused by certain other food sugars and certain foods themselves. It has, therefore, been concluded that the need in the interest of the public health to require a warning on the labels of foods containing sorbitol is insufficient to justify the imposition of such regulatory control.

The regulations governing the use of sorbitol in foods are now proposed to read: "The food additive sorbitol may be safely used in food provided that the amount used does not exceed that reasonably required to accomplish the intended physical or technical effect."

¹Reprinted from *Dairy Industry Newsletter*, Vol. VIII, No. 24.

PHS AWARDS WASTE WATER CONTRACT

A seven months' contract to study evaporation as a means of treating waste in water has been awarded according to an announcement made early in December by the United States Public Health Service.

The contract is part of extensive PHS waste treatment research. This program has as its objective the development of physical-chemical processes that will remove and dispose of contaminants in municipal waste waters which are not removed by conventional treatment methods now in use. Presently, PHS is investigating such processes as adsorption, foaming, ion exchange, electrochemical decomposition, evaporation, extraction, electrodialysis and others.

¹Reprinted from *Dairy Industry Newsletter*, Vol. VIII, No. 25.

REPORT OF EXECUTIVE SECRETARY JULY 15, 1961—JULY 16, 1962

The year was begun with our Annual Meeting in August at Des Moines, Iowa. Due to the splendid work of the Iowa Association and their wonderful cooperation, we had a good meeting with over 300 paid registrants.

I attended two Mastitis Council Meetings in Chicago during the year as a representative of International, which was the sponsoring agency of the Council. My observations were reported to the Executive Board.

I attended the Klenzade Seminar at their invitation. I had the opportunity to meet with numerous International members and many non-members engaged in the field of sanitation. This seminar in Chicago also offered the opportunity to acquire new ideas pertaining to sanitation and program development.

I attended two 3-A Standards Committee meetings as I am an ex-officio member of the Sanitary Procedure Committee. Our Association enjoys the privilege of publishing and distributing this vital information so it is necessary for me to keep current on the activities of this committee. These meetings were held in Washington, D. C. and Madison, Wisconsin.

In June, I was present at the Rocky Mountain Association and the Wyoming Dairy Products meetings at the University of Wyoming and Centennial, Wyoming respectively. At the Centennial meeting, I had the opportunity to appear on the program and discuss the activities of International. In a similar capacity, I appeared on the program of the Indiana Association meeting. This is my home affiliate where it is my privilege to serve as a permanent member of the Indiana Executive Board.

In July, I met with the local arrangements committee of the Pennsylvania affiliate to finalize plans for our Annual Meeting here in Philadelphia. At the same time, I attended their Annual Meeting.

It is my pleasure to report the affiliation of the newly organized Mississippi Association which now has over 100 members. We of the International extend our sincere welcome to this fine group and you will, I'm sure, offer every assistance possible.

During the past year the Manpower Resources Commission of the United States Public Health Service conducted a nationwide survey for the purpose of listing all personnel engaged in sanitation. I served as a consultant on the development of the questionnaire which was used to collect data for this project. This is the first time an effort has been made to collect such data.

The following will give you some indication of the scope and activities of our Association.

1. Thirty affiliates with 3600 members.
2. Seven hundred direct members located in the United States and 56 foreign countries.
3. One thousand Journal subscriptions in addition to members.
4. Twenty-five companies advertise in the Journal.
5. Twenty-five Journal subscriptions are exchanged yearly with other publications of allied fields. These exchange subscriptions are sometimes useful in the preparation of our News and Events section in the Journal.
6. One thousand Anniversary issues were purchased for

use in obtaining new members.

In order to implement further changes and carry on the present situation, I suggest the following: (1) reduce expenses wherever possible, (2) publication of more income-producing material such as a Sanitarian's Manual, Ten-Year Index and the Food-borne Investigation booklet, (3) increase advertising as much as possible within ethical limits.

I am happy to report that John D. Simpkins, our assistant, began his duties on August 20th and has shown great progress in assuming his responsibilities. He did most of the work on the September News and Events section, and the mechanical details of publication. He has done all of the work on the October issue. I am very pleased with his progress to date.

New Members of International

SINCE JULY 15TH, 1962

Direct Members

Donald Capellaro Westport, Conn.	Robert L. Hicks Van Nuys, Calif.
Glenwood Mutton Oakland, Calif.	Ellis E. Cline Saskatoon, Sask., Can.
Dr. Edwardo E. Toro Bayamon, Puerto Rico	James McQuillan Coaldale, Alberta, Can.
Harry Haverland Boston, Mass.	Ronald B. Douglas Rockford, Ill.
George A. Perry Elmhurst, N. Y.	Karl W. Moseley Zion, Ill.
Guillermo Herrera Solis San Jose, Costa Rica	R. Dean Carboni Quincy, Mass.
Eugene L. Solomon Miami, Fla.	Austin Presby Concord, N. H.
Paul Pashkevich Parkersburg, W. Va.	Reed Harris Elmhurst, Ill.
L. K. Crowe Lincoln, Neb.	Stuart W. Rabb Chicago, Ill.
William E. McKissick Chatham, Va.	W. E. McLennan Halifax, Nova Scotia
Richard McKim Yonkers, N. Y.	Dr. R. P. Joslin Omaha, Neb.
H. E. Erickson St. Paul, Minn.	Paul R. Campbell Butler, Ky.
Travis Plunkett Birmingham, Ala.	Abdo E. Shehata Madison, Wis.
T. J. Crowley Waterloo, N.S.W., Australia	Violet Du Bois Omaha, Neb.
Lois Hunsicker Akron, Ohio	Paul S. Cardaciotto Trenton, N. J.
Charles W. Kormanik Akron, Ohio	Marvin Freed Englewood, Ohio

California Association of Dairy and Milk Sanitarians

M. L. Reznicek South Gate	William M. Ryan Fresno
Louis Nygaard Los Angeles	Howard L. Reynard Whittier
Quentin Nelson La Mirada	Donald D. Gladson Fullerton
Roger W. Browne Los Angeles	Fritz Reber South Gate
Richard L. Kraber Duarte	Lee B. Stout Santa Ana
Arthur A. Swart Temple City	Solomon Ono Baldwin Park
Daniel K. Shepard Walnut Creek	

Florida Association of Milk and Food Sanitarians

Allen R. Kretschmar Bradenton	Edwin H. Connell Ocoee
F. A. Lambert Bradenton	

Indiana Association of Sanitarians

William C. Boyd Evansville	Don R. Lyon Indianapolis
John R. Ferguson Indianapolis	Paul T. McCain Hammond
R. Blaine Harter Kokomo	James H. McCoy Indianapolis
Robert E. Kerr Madison	Stanley Means St. Joe
B. M. Hull Hamilton, Ohio	B. M. Milenbaugh Indianapolis
Paul Asmussen Indianapolis	Herbert Murray New Castle
Leonard I. Ade Lafayette	Larry L. Phillips Indianapolis
L. C. Burchell Lebanon	Joseph B. Saladino Indianapolis
Earl Francis Greenwood	Phil Sherman Frankfort
Lloyd J. Grannan Indianapolis	James A. Spicer Bloomington
T. H. Kunneke Fort Wayne	Veral M. Swenby Indianapolis
Jay A. Linn Union City	Dean Trummel Holland

Jim E. White
Washington

Kansas Public Health Sanitarians' Association

Richard Bassette Manhattan	Herman Janzen Olathe
Norris Brooner Wichita	Carl Kinish Emporia
Charles Fussenegger Topeka	Joe Reed Topeka

Minnesota Sanitarians Association

Kenneth Anderson Sleepy Eye	Paul O'Connell Fergus Falls
Phil Holman Battle Lake	Donald C. Pike White Bear Lake
Dale Kennen Rush City	W. G. Page Minneapolis
Elmer Klett Buffalo	Earl Herdegen Minneapolis

Mississippi Association of Sanitarians

Alvin Wayne Peters Hazelhurst	Brutus R. Campbell Hattiesburg
Carl Kenneth Spencer Gulfport	Ellis C. Wildmon Ripley
Hubert Walley Pascagoula	George S. Bradshaw Jackson
Arthur Howard Britt Kosciusko	Howard E. Upton Pascagoula

Pennsylvania Dairy Sanitarians Association

James V. Blake Bentlyville	Karl Barnard Millersburg
J. Robert Glenn Bloomsburg	John H. Brenneman York
Oscar F. Keiter Allentown	A. B. Dressman Pittsburgh
Edwin Schmid Beloit, Ohio	Walter M. Yingling Littlestown
Ray Ward Tioga	George Fouse Aitah

Rocky Mountain Association of Milk and Food Sanitarians

W. H. Tiberend Cody, Wyo.	Verne Nelson Thayne, Wyo.
------------------------------	------------------------------

South Dakota Association of Sanitarians

Robert A. Newell Rapid City	Robert J. Wermers Rapid City
--------------------------------	---------------------------------

MONOKLOR

completely soluble chlorine

POWDER

... Less corrosive than liquid—more stable in storage and in use solutions too. Dissolves rapidly in water to form non-filming sanitizing solutions.

Practically unaffected by hardness in water. Highly recommended for sanitizing all dairy equipment and utensils just prior to milking. Makes an excellent teat and udder wash. Use with economy on every sanitizing job on the farm.

AVAILABLE IN:

5 lb. plastic jars
25 lb. metal or plastic pail

ASK YOUR
MILK HAULER

or write



Monarch Chemicals, Inc.

3801 N.E. 5th St. Minneapolis, Minn.

Reprint Of Ten-Year Annual Index

Journal Of Milk And Food
Technology

**VOLUMES 15 (1952)
THROUGH 25 (1962)**

Price — \$2.50

**BOUND IN DURA-PRONG BINDER
ADDITIONAL 5 YEAR SERVICE — \$2.50**

Write: IAMFS, Inc.
Box 437, Shelbyville, Ind.

FISKE MILK CRYSCOPE...the leader in the field



The NEW compact laboratory model of the FISKE MILK CRYSCOPE is economically priced; includes all the leadership features of the previous model and is available for immediate delivery.

The problem of added water in milk concerns you, both from the profit angle and the quality control necessary in maintaining the reliability and reputation of your products.

Fiske MILK CRYOSCOPES determine accurate water content in milk and other dairy products by the freezing point method. It enables you to process small test samples rapidly and easily, with a minimum of technically trained personnel.

A decisive factor in Fiske leadership in precision cryoscopy is continuous research and development. The Fiske MILK CRYSCOPE is the instrument around which the official procedures are written, as described in latest Standard Methods for the Examination of Dairy Products, A.P.H.A., and in Laboratory Manual Milk Industry Foundation. The Fiske Cryoscope also meets the specifications of the A.O.A.C.

Address any inquiries directly to the plant, or through our authorized agents.



FISKE ASSOCIATES, INC.
BETHEL, CONNECTICUT
Creators of
Precision Electronic Devices

INDEX TO ADVERTISERS

Advanced Instruments	II
Babson Bros.	Back Cover
Britex Corp.	II
Chamberlain Engineering Corp. ...	Inside Front Cover
Difco Laboratories	II
Fiske Associates	34
Haynes Mfg. Co.	35
IAMFS, Inc.	34, 36
Monarch Chemicals, Inc.	34
Pennsalt Chemicals	IV
Universal Milking Machine, Division of National Coop, Inc. ...	Inside Back Cover

EVENTS IN FEBRUARY

- February 1-2:** American Society for Quality Control, two-day course "Evolutionary Operation: A Method for Increasing Industrial Productivity," write: Norman A. Olson, National Canners Association, 1950 Sixth Street, Berkeley 10, California.
- February 4-15:** Short Course, **Ice Cream**, Michigan State University, write: Short Course Department, Michigan State University, East Lansing, Michigan.
- February 6-8:** Mississippi Dairy Products Association, Annual Convention, The Buena Vista, Biloxi, Mississippi, write: James J. Edwards, Jr., 465 Morgan Building, Jackson, Mississippi.
- February 7:** Evaporated Milk Association, Bi-monthly Meeting of the Industry, Chicago, Illinois, write: Fred J. Greiner, 228 N. LaSalle St., Chicago 1, Illinois.
- February 12-13:** Michigan Allied Dairy Association, Convention, Statler-Hilton Hotel, Detroit, Michigan, write: Frank Koval, 3030 Vine St., Lansing 12, Michigan.
- February 12-14:** Oregon Dairy Industries, Conference, Withycombe Hall, Oregon State University, Corvallis, Oregon, write: Roy W. Stein, Dairy Prods. Lab., Corvallis, Oregon.
- February 13-14:** South Carolina Dairy Association, Inc., Annual Meeting, Francis Marion Hotel, Charleston, South Carolina, write: W. L. Abernathy, Jr., P. O. Box 5, Chester, South Carolina.
- February 13:** Purdue University, Soft Ice Cream Conference, Memorial Center, Purdue University, West Lafayette, Indiana, write: Professor D. R. Frazeur, Dairy Manufacturing Section, Purdue University, W. Lafayette, Indiana.
- February 14:** Dairy Products Improvement Institute, Inc., Annual Meeting, Hotel Governor Clinton, New York, New York, write: Harold J. Barnum, P. O. Box 117, Ithaca, New York.
- February 17-19:** Dairy Products Institute of Texas, Inc., Annual Convention, Granada Hotel, San Antonio, Texas, write: George M. Clarke, 1006 Perry Brooks Bldg., Austin 1, Texas.
- February 20-21:** Missouri Ice Cream and Milk Institute and the Dairy Institute of Kansas, Joint Educational Conference and Convention, Muehlebach Hotel, Kansas City, Missouri, write: W. H. E. Reid, Eckles Hall, University of Missouri, Columbia, Missouri.
- February 26-27:** Nebraska Dairy Industries Association, Annual Meeting, Castle Hotel, Omaha, Nebraska, write: Arell J. Wasson, 1002 S. 24th Street, Omaha 8, Nebraska.

A HEAVY DUTY SANITARY LUBRICANT

Available in both
SPRAY AND TUBE

All Lubri-Film ingredients are approved by F.D.A. and can be safely utilized as a lubricant for food processing equipment when used in compliance with an existing food additive regulation.

ESPECIALLY DEVELOPED FOR LUBRICATION OF FOOD
PROCESSING AND PACKAGING EQUIPMENT

For Use in Dairies — Ice Cream Plants — Breweries —
Beverage Plants — Bakeries — Canneries — Packing Plants

SANITARY • NON TOXIC • ODORLESS • TASTELESS

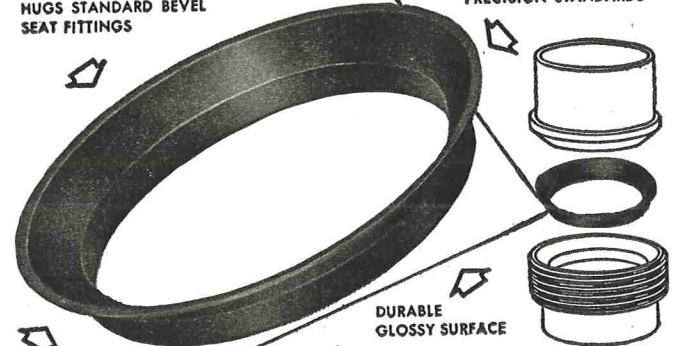
SPRAY — PACKED 6 — 16 OZ. CANS PER CARTON
TUBES — PACKED 12 — 4 OZ. TUBES PER CARTON

THE HAYNES MANUFACTURING CO.
CLEVELAND 13, OHIO

HAYNES SNAP-TITE GASKETS

"FORM-FIT" WIDE FLANGE
HUGS STANDARD BEVEL
SEAT FITTINGS

MOLDED TO
PRECISION STANDARDS



DESIGNED TO
SNAP INTO
FITTINGS

▶ **LOW COST...RE-USABLE**

▶ **LEAK-PREVENTING**

NEOPRENE GASKET for Sanitary Fittings

Check these **SNAP-TITE** Advantages

Tight joints, no leaks, no shrinkage
Sanitary, unaffected by heat or fats
Non-porous, no seams or crevices
Odorless, polished surfaces, easily cleaned
Withstands sterilization

Time-saving, easy to assemble
Self-centering
No sticking to fittings
Eliminate line blocks
Help overcome line vibrations
Long life, use over and over

Available for 1", 1½", 2", 2½" and 3" fittings.
Packed 100 to the box. Order through your dairy supply house.

THE HAYNES MANUFACTURING CO.
4180 Lorain Avenue • Cleveland 13, Ohio

Application for Membership
**INTERNATIONAL ASSOCIATION OF MILK & FOOD
 SANITARIANS, INC.**

Box 437, Shelbyville, Indiana

Name ----- Date -----

Please Print

Address ----- New

----- Renewal

Business Affiliation ----- Re-instatement

Annual Dues \$7.00 Check Cash

(Membership Includes Subscription to Journal of Milk & Food Technology.)
 (Please Print)

Recommended by -----

Shelbyville, Ind.
 Box 437

Subscription Order

JOURNAL OF MILK & FOOD TECHNOLOGY
 (Monthly Publication)

Name ----- Date -----

Please Print

Address ----- New

----- Renewal

Educational Institution & Public Libraries Individual Non-Member Subscription (Annually) \$8.00
 (Annually) \$6.00. Check Cash Governmental Agencies, Commercial Organizations
 (Please Print)

I. A. M. F. S. & J. M. F. T.
 Box 437, Shelbyville, Ind.

Change of Address

FROM

Name ----- Date -----

Please Print

Address -----

TO

Name -----

Please Print

Address -----

(Please Print)

I. A. M. F. S. & J. M. F. T.
 Box 437, Shelbyville, Ind.

Order for 3A Standards

Name ----- Date -----

Please Print

Address -----

() Complete Set @ 2.50 = ----- () Complete set bound (durable cover) @ \$4.25 = -----
 () HTST Std—with cover = .50
 () HTST Std—without cover = .45
 5 Year Service on Standards as Published = 2.50 additional

Order for Reprints of Articles

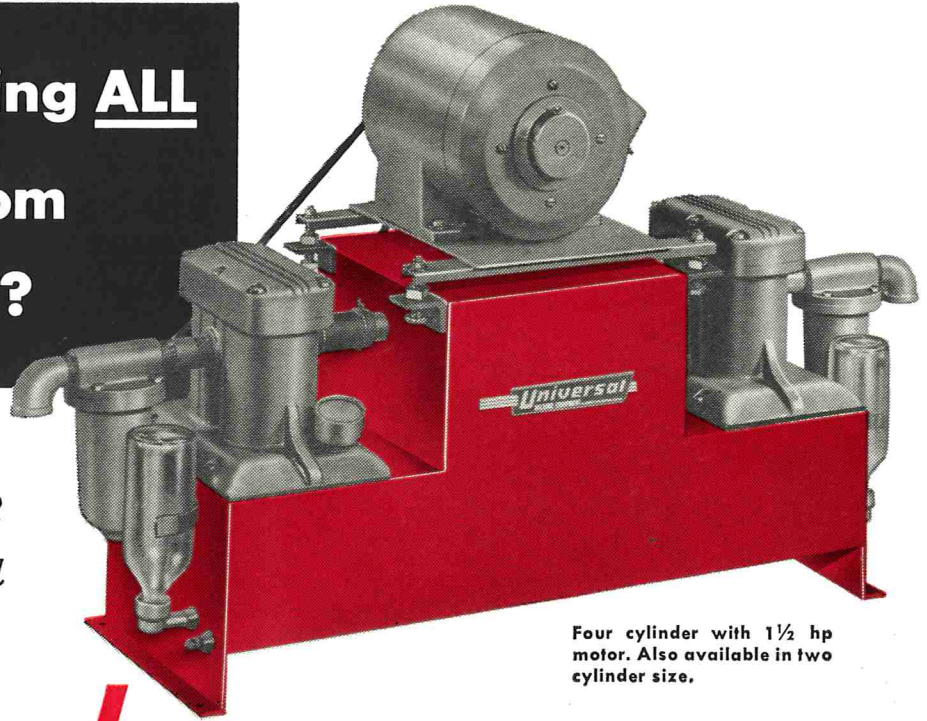
Amt. ----- Title -----
 Schedule of prices for reprints F. O. B. Shelbyville, Indiana

	1 Page	2 Pages	3 & 4 Pages	6 & 8 Pages	12 P.	Cover
100 or less	\$12.50	\$15.00	\$21.00	\$30.00	\$50.00	\$21.67
Add'l. 100's	1.60	1.60	3.00	4.20	7.00	3.37

Are you getting **ALL**
the milk from
your cows?

...to assure
*Full Volume
Milking*, you
need a

Universal® VACUUM PUMP

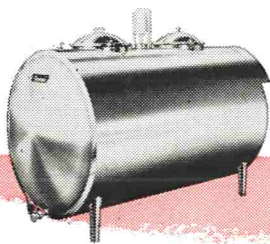


Four cylinder with 1½ hp motor. Also available in two cylinder size.

Yes... an adequate, even vacuum supply is a "must" for full volume milking. A Universal Vacuum Pump provides this unchanging constant supply and enables you to get easier milking, faster milking and most im-

portant... more milk. A new Universal Pump will prevent possible udder injury caused by weak recovery action of a work-worn, under-powered pump. Select the capacity that fits your needs.

...Keep Milk Cleaner...Protect
Quality With **UNIVERSAL
BULK MILK COOLERS**



VACUUM TYPE UNITS

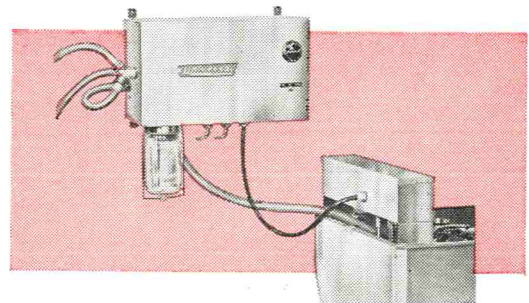
For direct cow-to-cooler milking. No Releasers or Milk Pumps required when used with Pipeline System. Stainless steel tank, inside or out, uniform fast cooling, tank cleaned automatically. Sizes available from 300 to 1,000 gallons.



ECONO-COOL MODELS

For the "Family-size Farm" or smaller herd owners. 3-A approved... fast cooling... easily cleaned... highly efficient copper refrigeration plates. Smooth agitation for Fast Cooling. Sanitary dipstick location. Tank empties rapidly. Factory calibrated. Available in 125-155-200-275 gallon sizes.

Get Completely Automatic
Washing and Sanitizing with
Universal® KLEEN-O-MATIC



Just set the dial; the Kleen-o-Matic does the washing and sanitizing of the pipeline milking system. Automatically fills the wash tank with water, rinses the system, mixes the cleanser and then washes the entire system including the milker units.

GRADE "A" ALL THE WAY

FARMER-OWNED
Universal

MILKING MACHINE DIVISION
NATIONAL COOPERATIVES, INC.
Albert Lea, Minn.; Dept. UN-6



SEND FOR YOUR FREE COPY of the Planning Kit Showing

How to Profitably Streamline Your Milking Operation

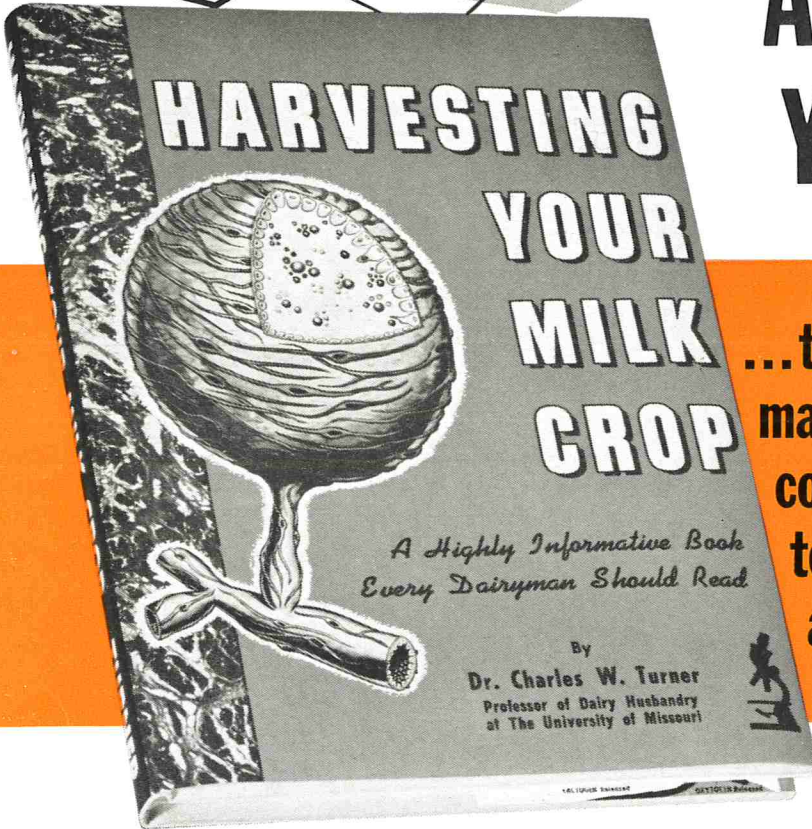
(FILL OUT COUPON AND SEND TO UNIVERSAL MILKING MACHINE DIVISION, ALBERT LEA, MINNESOTA; DEPT. UN6)

Name _____

Address _____

No. of Cows _____ Other Than Farmer

76 PAGES
46 ILLUSTRATIONS



ANSWERS YOU NEED

...to understand the milk-making machinery of the cow...and its importance to herd health and quality milk

Herd health is fundamental to quality milk production. Now Babson Bros. Research Department makes available for the first time, a book by the nationally-known authority, Dr. Charles W. Turner of the University of Missouri. It is specially written to help dairymen harvest the maximum milk crop, and to understand some of the mechanical and physical factors which are a cause of mastitis. In handsome, hard-cover format, this new book is informative, educational and useful to everyone associated with the dairy business. The many diagrams and factual copy will help you become a better sanitarian by being more helpful to producers.

\$1.95 POSTAGE PAID
(\$2.10 in Canada)

BABSON BROS.
DAIRY RESEARCH SERVICE

2843 West 19th Street
Chicago 23, Illinois

© Babson Bros. Co., 1963

BABSON BROS. DAIRY RESEARCH SERVICE

2843 West 19th Street, Chicago 23, Illinois

Yes, I'd like this informative book. Send me
copies, postage paid, of Dr. Turner's new book, "Harvesting
Your Milk Crop," at \$1.95 each. I am enclosing \$.....
(We request no C.O.D. orders, please.)

NAME

ADDRESS

CITY STATE