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NOVEMBER, 1955

Journal of

MILK and FOOD TECHNOLOGY

Official Publication

International Association of Milk and Food Sanitarians, Inc.

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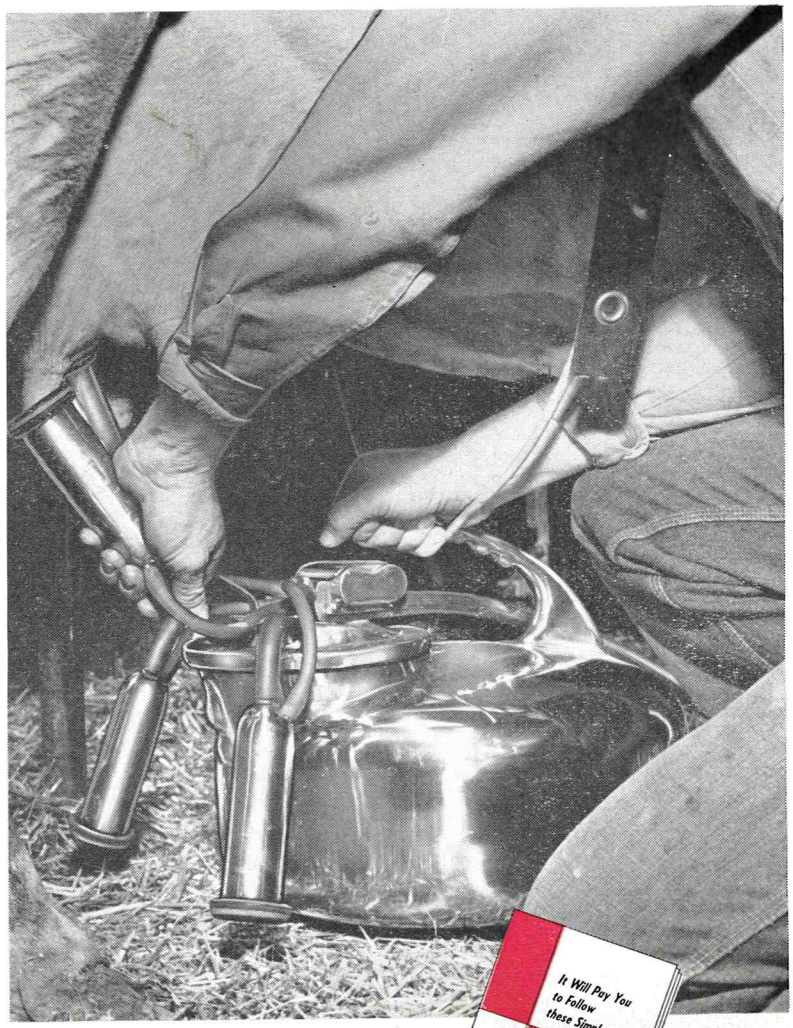

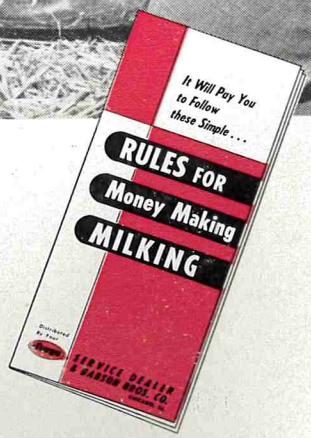

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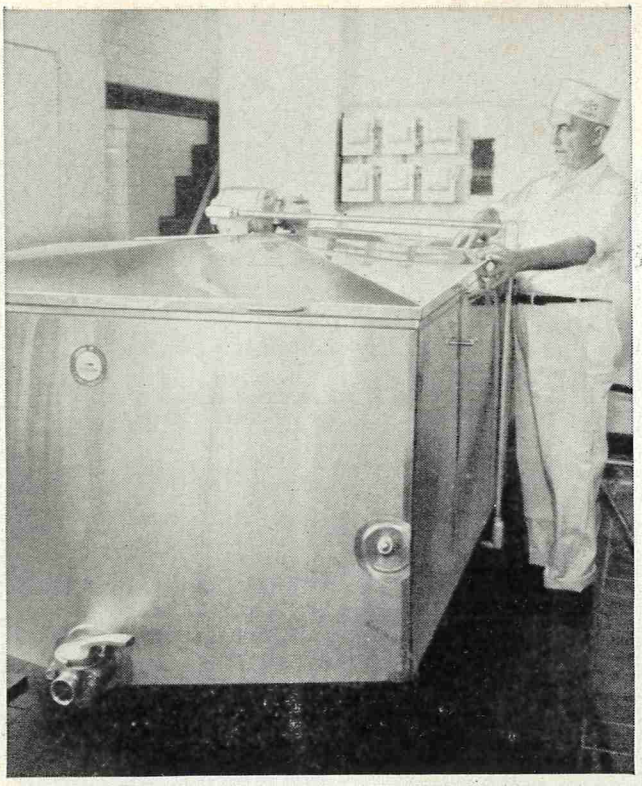

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Contents

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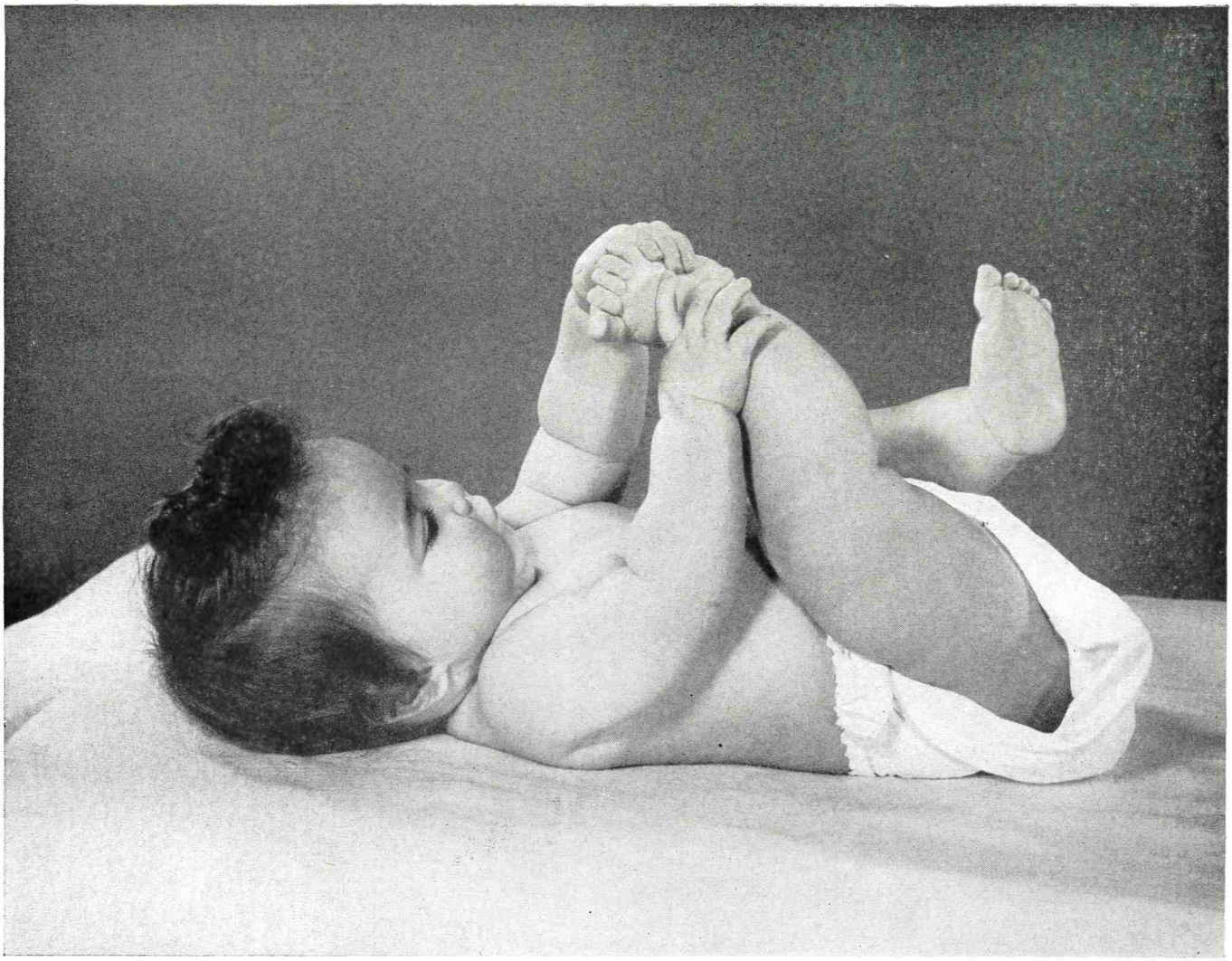

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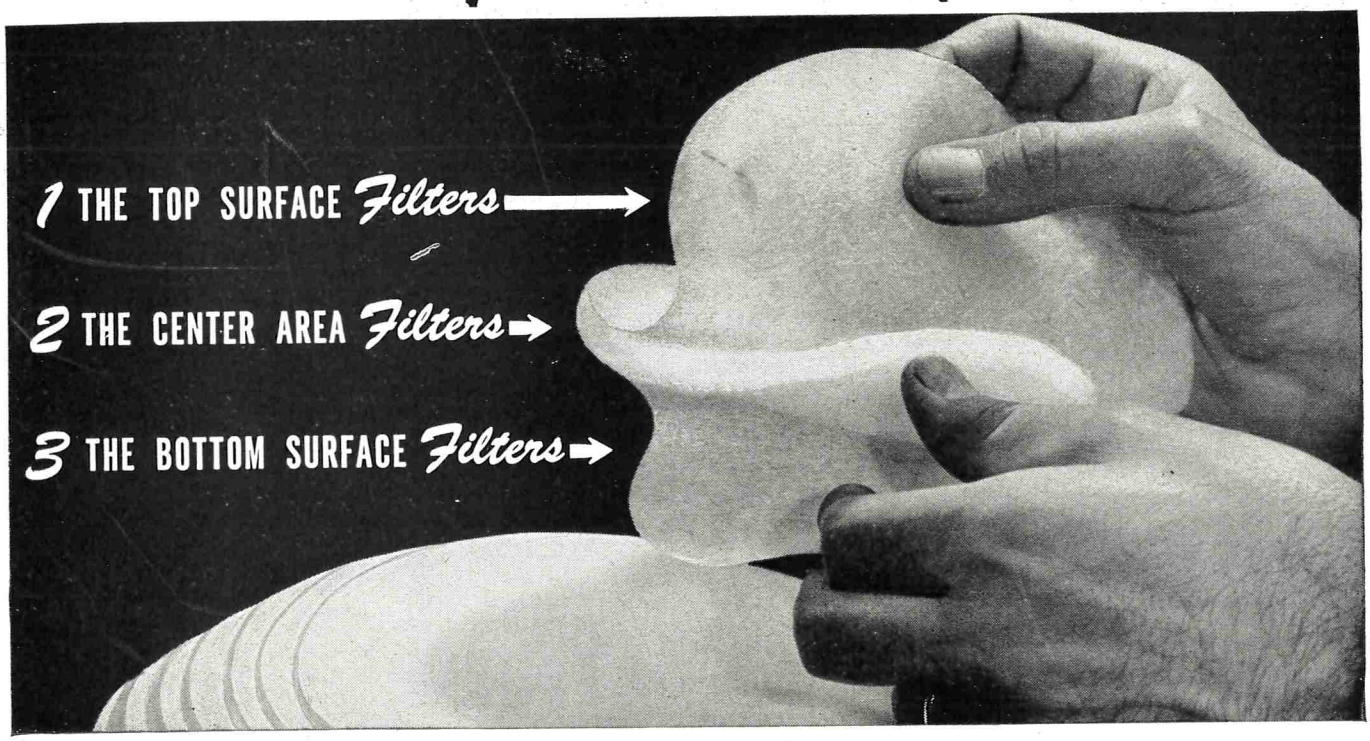

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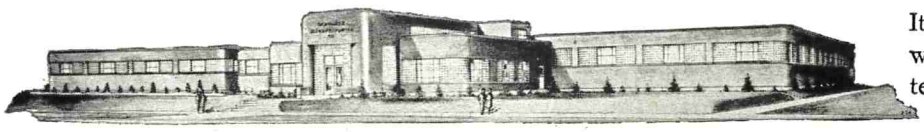

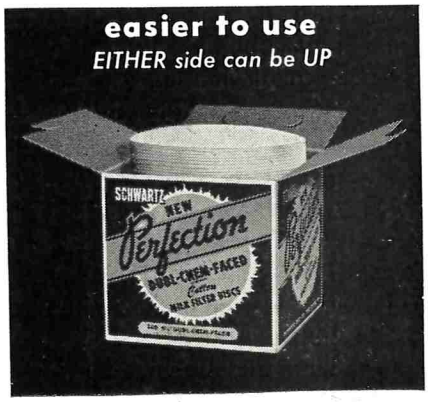

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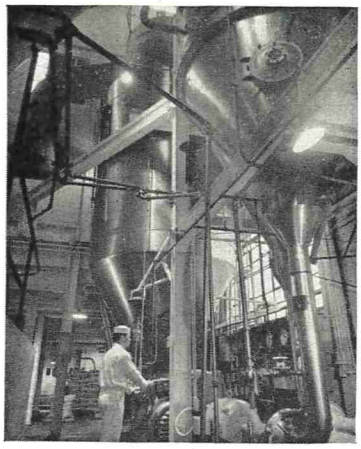

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COMMUNICATIONS[1]

IVAN E. PARKIN, *President*
International Association of Milk and Food Sanitarians, Inc.

Communications was chosen as the title of this presentation because by way of telephone calls, telegrams, letters, meetings, conferences, conventions and individuals, I have come to know many of you and through you, to know our association.

Even though you have been officially welcomed, let me, also, welcome you. Let us participate in this program with the express purpose of helping not only us but those we serve.

Recently it was my privilege to listen to Dr. E. C. Folkers of Meadow Gold Dairies, Pittsburgh, Pennsylvania deliver a presidential address.

He said, "The whole philosophy of our association can be summed up in three words: people working together."

Again quoting, "Business generally has found that the collective judgment of a group is greater than the judgment of the individuals. The individual, furthermore, eventually shares the prosperity that results from people working together".

Still quoting, "Our association works to inform and to direct progress. Mere payments of dues is not enough. An office staffed with professionals is not enough An association is "people working together" to accomplish what none of them can do alone".

I have quoted Dr. Folkers because those sentiments express, better than I can express them, the policy of the International Association of Milk and Food Sanitarians.

During your meeting you will hear our executive secretary's report, our secretary-treasurer's report and a report of the efforts of each committee.

To highlight a few accomplishments two new affiliates, Rhode Island and South Carolina, were added to the parent association. Our membership *has increased* both in number and in stature.

We should be proud also of our financial picture. A word of caution should be given because of added costs of operating the association business due to membership growth and to increased costs of publishing the Journal. These added costs of operation make it necessary to consider ways and means of increasing our revenues. Several suggestions have been made

such as increasing dues, (not a popular idea, however) increasing advertising and adding sustaining memberships. Perhaps you have other suggestions to make to the Board of Directors. We will be happy to hear from you.

The resignation of Ivan Van Nortwick as president-elect presented a problem. We did not want him to give up his office, but he felt it was necessary because of a change of employment. The President-elect's job is concerned not only with the general chairmanship of the annual program but also with the task of making all committee appointments. To resolve the problem presented by Mr. Van Nortwick's resignation our First Vice-president H. S. Adams was moved into the office of President-elect and our Second Vice-president Paul Corash to the office of First Vice-president. You will be called upon to appoint a Second Vice-president and a First Vice-president at the business meeting to secure a full complement of officers. H. S. Adams has had a busy year with his added duties plus his foreign assignment. Dick, Paul, and Howard are to be congratulated for their very fine program. The Georgia Chapter also should be congratulated on their fine work in providing for our comfort.

Several actions of the board in relationship to our growing national stature is indicated by the following:

H. L. Thomasson, A. L. Fletcher, and Archie Freeman were assigned to the Crumbine Award Committee. Harold Robinson represents us on the American Public Health Association Policy Advisory Committee. H. S. Adams serves in a liaison position be-

[1]Presented at the 42nd ANNUAL MEETING OF THE INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS, INC. at Augusta, Georgia, Ocotber 3-6, 1955.

tween International Association of Milk and Food Sanitarians and the School Food Service Association Sanitation Committee. John Fritz has been appointed as a member of the United States Public Health Service Advisory Board. John Faulkner and H. S. Adams were appointed to represent the International Association of Milk and Food Sanitarians along with representatives of the National Association of Sanitarians and the American Public Health Association to explore possibilities of a joint council of sanitarians' organizations. Ken Weckel, Paul Corash, and Mark D. Howlett, Jr. were selected as representing the International Association of Milk and Food Sanitarians on the 3A Symbol Administrative Council. Locally, John Sheuring was asked to become chairman of the steering committee of the Council. A new Baking Industry Equipment Committee was initiated this year. You will hear their first report this year.

To help publicize our organization, we were fortunate in being able to set up a publicity committee with a modest budget headed up by Thomas L. Jones of the Dairy Industry Supply Association. He already has been at work and I hope you have seen some of the releases he has prepared for us.

I would like now to recognize all members of all committees. Will they please stand so that we can appreciate the spirit of people working together.

Before I go any further will the members of the Executive Board please stand up. These men have given much time, effort, and personal sacrifice in attending to your business. Your communications have guided our judgment. Remember we can not do what you want done unless you communicate with us.

Personally and without board sanction, I want especially to recognize again your Past President and our Executive Secretary. Their talent for organization, their mental capacity, and their drive have led the International Association of Milk and Food Sanitarians to its present recognition.

As to problems of our Association, there are still the four major ones discussed year after year: Association and Journal financing, professional attainments and recognition, committee functions, and last but not least, the Council. Very frankly, while we have made progress, our position concerning their disposition needs your help. Please advise your board as to what to do about them.

As an educator I would be remiss if I did not say a word relative to education. In that regard I should like us to think especially about educating ourselves. Many scholarships, short courses, refresher courses, sanitarians' programs, our annual meetings, our Journal of Milk and Food Technology, books, leaflets, pamphlets and individual contacts can be used to help increase our stature This we must do to be worthy of the recognition we all so desire.

If it were only possible to look into the future! My vision is limited in scope. However, population is increasing and milk and food sanitation problems are not lessening; new chemicals and processes are waiting to be developed; increased recreational facilities need to be planned and developed; housing and many other major considerations will present additional problems in the future; and the protection of food, milk and water supplies at time of disasters must be given greater consideration in the future. In this regard, we should recognize that some of our sanitarians did heroic work in the hurricane stricken areas as well as in the flooded northeastern area this summer. As long as we work together to keep everyone informed, we have a glorious and useful future to look forward to.

I want to leave with you four questions to consider. They are: Who are we? Whom do we serve? Who pays us? Why are we here? For me, these questions are answered simply. We are dairy and food sanitarians, whether employed by regulatory bodies, industry, or educational units, serving the public, and we are here to help in the betterment of our fellowmen. Let us then by education, spirit and example and through our people working together bring our profession to the stage of recognition that we would like.

PANEL DISCUSSES NEW HIGH TEMPERATURE PASTEURIZATION PROCESSES

A feature of the recent meeting of International Association of Milk and Food Sanitarians, October 4-6 in Augusta, Ga., was a panel of four expert industry, education and government men on recent developments and research in high temperature pasteurizing. The panel was comprised of the four men pictured above, reading, from left to right, Dr. Franklin Barber, National Dairy Products Corp., Oakdale, N. Y.; Dr. Warren Litsky, University of Massachusetts, Amherst, Mass.; Harold

B. Robinson, U. S. Public Health Service, Washington, D. C., and Clarence W. Weber, State Department of Health, Albany, N. Y.

WIDE RANGE OF TOPICS COVERED IN SCIENTIFIC PAPERS READ AT SANITARIANS MEETING IN GEORGIA

Papers on an extremely wide range of topics — from silicones to rabies, from HTST pasteurization to antibiotics—were presented at the 42nd Annual Meeting of International Association of Milk and Food Sanitarians, which closed October 6 in Augusta, Ga.

More than 300 participants agreed that it was one of the most interesting meetings ever held, both from a scientific and professional standpoint. Because of the general interest of many of the papers, some of the leading papers which provoked much discussion are summarized below:

"Antibiotics in Milk," by Prof. W. A. Krienke, University of Florida — Antibiotics have been the subject of much concern within the dairy industries in recent years since buttermilk, cottage cheese and cheddar cheese cultures may fail to develop properly when milk containing antibiotics is used in the preparation of these products. Milk may contain antibiotics as a result of treating cows suffering from mastitis. Research was started on the problem, and a special committee of American Dairy Science Association was named to investigate. Studies revealed that milk from one cow treated with penicillin in a herd of 80 cows can result in all the milk from that herd being unsuitable for manufacturing purposes. Further, if cows are treated with antibiotics in an ointment base, frequently the antibiotic fails to leave the cow after the first milking, and traces of antibiotics may continue to show up in milk as long as seven days after treatment. The dairy industry is alert to possible undesirable situations which may arise from unwise use of antibiotics in the treatment of dairy cattle. Members of International Association of Milk and Food Sanitarians were requested to assist the dairy industry in an educational program directed toward the producers of milk and the veterinary profession designed to effect the judicious use of antibiotics for the treatment of cows.

"Recent Developments in Food Uses for Antibiotics," by Dr. C. L. Wrenshall, Chas. Pfizer and Company, Inc., Brooklyn, N. Y. — Speaking as a representative of an antibiotic manufacturer, Mr. Wrenshall recognized the possible conflict relative to antibiotics which may exist between health regulatory officials and manufacturers, but while agreeing that no food uses for antibiotics presently exist, he predicted that someday antibiotic preparations may be widely used in foods. For example, recent tests have shown that a few parts per million of an antibiotic added to water used for ice which a fishing vessel takes with it to preserve its catch will preserve fish much longer than plain ice, and thus extend the fishing period of vessels. Ten parts per million of antibiotics added to slush ice used to chill unfrozen poultry will extend its storage time from 50 to 100 percent. Applied to meat, if antibiotic solutions are injected into the carcass, either just before or just after slaughter, the meat will have a significantly longer storage life, and may be aged at a much higher temperature than at present. Applied to milk, one part per million of antibiotic in milk is sufficient to retard spoilage of raw milk without refrigeration for 24 hours, and if the milk is pasteurized and then the antibiotic added, its keeping quality may be extended several days. Sprayed on fresh salad preparations, antibiotic solutions may double their shelf life. Because farm animals are now widely treated with antibiotics, and because antibiotics are becoming more widely used in spray residues used to control plant disease, Dr. Wrenshall believes that eventually their use may be applied to food processing to help alleviate the five to 20 per cent loss which now occurs from spoilage in raw food products. Use of antibiotic-preserved food as a solution to certain logistic problems faced by the armed forces was also mentioned.

"Industry's Program on Crabmeat Plant Sanitation," by G. Clifford Byrd, National Fisheries Institute, Washington, D. C. — Crabmeat plant sanitation owes much in its development to innovations first tried out in the dairy industries, for both fields deal with a highly perishable product which must be processed immediately. Only 40 years ago, crabmeat was processed in wooden shacks at the shore, where the only water used was from rainbarrels, the meat was dug from crabs with unsanitary folding knives and packed in unclean gallon cans and stored without refrigeration. This method of production generally meant that crabmeat had to be consumed within 100 miles of the point of production. Unsanitary conditions surrounding crabmeat processing and distribution were a serious problem. In 1939, U. S. Public Health Service investigators suggested that all crabmeat processors cook thier product as soon as it was produced, and also made wide recommendations for improving sanitation in the processing plants. Seizures of crabmeat continued high, and in 1943, a group of crabmeat producers hired a bacteriologist whose recommendations were heeded, and seizures dropped by 98 per cent. Following this, New York City promulgated sanitary standards for crabmeat production which disqualified 50 per cent of the suppliers to the New York market, and finally, the producers turned to the National Fisheries Institute to develop a sanitary code which may be practised by all industry. This code worked out, and is now being adopted in various areas.

"Rancidity — A Problem in Farm Milk Supplies," by Dr. J. C. Olson, University of Minnesota — The development of a rancid flavor in milk is a growing problem. Pipeline milkers and longer periods of storage of milk on farms are factors which have contributed to this problem. Rancidity is caused by the enzyme lipase, which hydrolizes the fat in milk and releases fatty acids. Organoleptic (taste and smell) tests are not sufficiently sensitive to be fully useful in deecting causes leading to the development of rancidity. A rapid test to determine the fat acidity of milk was described. The formation of foam greatly enhances the action of lipase (lipolysis), and hence, agitation of raw milk when warm should be kept to a reasonable minimum. Milk from cows late in lactation appears to be more susceptible to lipolysis than other milk. Special care must be taken on farms where pipeline milking systems are used, for frequently the agitation and foaming of milk in the pipeline causes extreme rancidity. The effect of feed upon the susceptibility of milk to

lipolysis was indicated as being relatively unimportant.

"The Place of Sanitarians in the Development of Foreign Markets for Dairy Products," by C. J. Babcock, Foreign Agricultural Service, U. S. Department of Agriculture — Heretofore, dairy products have been an unimportant U. S. agricultural export. While during the war, between five and six per cent of total milk production was exported, in recent years exports have accounted for either just less or just more than one per cent of total production. In 1954, for example, exports amounted to 1.5 per cent of total production, but about two-thirds of dairy products exported were used in relief programs and were not sold in regular commercial channels. Nearly every exporting country has "export grades," but not the United States. This lack of grades is considered a drawback and has given rise to the belief that U. S. dairy products exported are of inferior quality. As one example, if Commodity Credit Corporation does not sort butter according to color before exporting it, trouble results in its disposal abroad. The way sanitarians may cooperate in setting standards for export was discussed, and the possibility that once such standards are set, the United States will cooperate with other countries for uniform international export standards was foreseen.

"New High Temperature Pasteurization Processes," a panel led by C. W. Weber, State Department of Health, Albany, N. Y., featured the following three papers:

"Bacteriological Evaluation of Pasteurization Treatments," by Dr. Franklin Barber, National Dairy Products Co.—Processes which use high temperatures really lie somewhere between pasteurization and sterilization, insofar as in recent experiments, temperatures ranging from 180° to 300° have been used. Why the trend to higher temperatures? Generally, higher temperature pasteurization speeds production by permitting a steady flow of product through plant; also, use of high temperature pasteurization may tend to eliminate some earlier heat processing and aging of product, as in the case of ice cream mix. To be effective, pasteurization must destroy a wide range of bacteria, and hence it is necessary to know the absolute thermal death time of each strain of bacteria. Various factors, however, affect the death time; for example, young and growing bacterial cultures are more susceptible to death than older, more established cultures. Development of a test organism used in checking the effectiveness of heat treatments of dairy products was described.

"Microbiological Criteria for Establishing Adequacy of Process," by Dr. Warren Litsky, University of Massachusetts—Using a machine which pasteurizes milk at high temperatures as it passes through two narrow stainless steel tubes, Dr. Litsky and his co-workers reported studies designed to find the exact heat treatment required for the destruction of various pathogens. The organism which causes diphtheria required the highest heat treatment, and this was considered as somewhat of a surprise, as judged from previous work reported.

"Instrumentation and Control Devices" by Harold B. Robinson, U. S. Public Health Service—Paying tribute to the work of Dr. Litsky and others, Mr. Robinson said it was the duty of Public Health Service to apply this research to machinery now being marketed, and to make absolutely certain that every particle of product which passes through a pasteurizer is fully treated. Specific equipment and its effectiveness in assuring proper pasteurization were discussed.

"Career Opportunities in the Food Industry," by Frank K. Lawler, Editor of Food Engineering—After surveying the expanding field of food engineering and technology, Mr. Lawler estimated that at the present time, 17,000 food technologists and engineers are required, and only 7,000 are available. Further, only about 300 food technologists were graduated from universities in the past year. Surveys among schools indicate that there are immediately available five jobs for every B. S. in food technology, six for every M. A., and three for every Ph. D., and all these are well paying jobs, with excellent futures, in extremely stable industries. These facts should be presented to young men and women interested in science, technology and engineering, for the accelerating rate of technical progress not only will require their services, but it will also assure their relatively rapid advancement to prominent positions.

"The Use of Silicones in the Dairy Industry and the Food Processing Industry," by Charles W. Todd, Dow Corning Corporation—Uses of silicones in the food industries at present include their application in defoamers, paints, lubricants, and electrical insulation. Recent research has indicated that glass bottles sprayed with a silicone solution at time of manufacture resist breakage to a much greater degree than non-treated bottles. Veterinarians use silicone solution to treat bloat in dairy cattle, and some research may indicate that its use in feed is feasible. Silicone treated kraft paper may furnish a sanitary disposable working surface for use in food processing plants where the product is viscous or sticky. Application of silicone solutions to baking and cooking equipment may prevent burn on.

"Efficacy of Disinfectants for Decontamination of Teat Cups," by Dr. James H. Stewart—In experiments at Washington State College, three types of disinfectants were studied in their efficacy on teat cups. A new type surface-acting disinfectant was described and reported as being effective for use as a bactericidal agent in treatment of dairy equipment.

"Wildlife Rabies at Home and Abroad," by Dr. Ernest Tierkel, Veterinary Public Health Section, Communicable Disease Center, Atlanta—While this topic has no direct relation to food and drug sanitation, it was included on the program because as a practical matter often sanitarians are called upon to treat with epidemics of the disease. Rabies is an old disease, with written references in pre-Mosaic literature; it knows no season, and is found in every country and every climate. It can only be induced by entrance of the virus, which is carried in saliva of a diseased individual, into a fresh wound. The type of rabies carried by dogs may be largely controled by immunization of pets and reduction of strays. When wildlife carry rabies, however, the situation is more difficult to correct. Foxes and skunks carry rabies in many parts of the United States, and bats are now being found rabid in some sections. Raccons, coyotes and mongooses also have been known to spread the disease. For prevention, chick embryo vaccine has been found to be the most effective of all types tested.

"Our Most Demanding Critics Can Be Our Best Friends," by A. J. Claxton, President, Meadowgold Dairies, Pittsburgh, Penn.—In order to survive, a business must work with four demanding "critics," who are producers, employees, consumers and government. If the criticisms of each of the four are considered wisely, they can aid immensely in profitable operation of a dairy enterprise.

"Milk Plant Waste Disposal," by Dr. Nandor Porges, Bureau of Agricutural and Industrial Chemistry, U. S. Department of Agriculture, Philadelphia, Penn.—While bacteria may be a bane to most sanitarians, they become allies in disposal of dairy wastes. Because dairy waste may be five times higher in orygen demand than municipal waste, it requires special treatment before being dumped into a stream. Bacteria which thrive on the waste, provided they are supplied sufficient oxygen, may be the solution to this ever present problem.

The papers summarized above will be published in future issues of *The Journal of Milk and Food Technology*, official publication of International Association of Milk and Food Sanitarians.

B. G. TENNANT IS "SANITARIAN OF YEAR" GETS AWARD, PLUS $1,000, AT MEETING OF INTERNATIONAL SANITARIANS GROUP

B. G. Tennant, Chief Sanitarian of the Escambia County Health Department, Pensacola, Fla., has received the Sanitarian's Award as the outstanding local milk and food sanitarian who made the most meritorious contribution to the health and welfare of his community in the past five years. The award carries with it a check for $1,000.

The presentation was made at the 42nd annual banquet of International Association of Milk and Food Sanitarians, October 5, at the Bon Air Hotel in Augusta, Georgia. Administered by IAMFS, and presented annually only to municipal or county sanitarians, the Sanitarian's Award is the highest national recognition bestowed upon professional local sanitarians.

The citation which accompanied Mr. Tennant's award was brief. It read:

"This Award is conferred for distinguished service to his county in the fields of public health; for his contributions to the advancement of the Sanitarian; for his meritorious achievements in the field of food sanitation; and for his ability to personalize the ideals of the Sanitarian."

Behind this brief statement, however, lie years of contructive community service by Mr. Tennant, both in a professional and scientific capacity, and as a willing worker in a number of service clubs and community enterprises.

Chief Sanitarian of the Escambia County Health Department since 1948, and in charge of milk and food sanitation activities, Mr. Tennant is widely known for the development of the booster heating technique which is an economical method of maintaining water at a sanitizing temperature for dishes and utensils in restaurants where the cost of other types of hot water facilities might be prohibitive. The booster method—also called the "Side Arm Heater Method of Sanitizing"—has been adopted by the Florida State Board of Education as a method of sanitizing utensils in school lunch rooms, thus contributing to improved sanitation practices in smaller institutions.

Pensacola is the site of a large Naval establishment, and through the efforts of Mr. Tennant, joint inspections of eating establishments were established with the United States Navy. Not only did this cooperative venture improve sanitation conditions in

"SANITARIAN OF THE YEAR — 1955"

B. G. Tennant, Chief Sanitarian of the Escambia County Health Department, Pensacola, Fla., here displays the testimonial of his having received the Sanitarian's Award—and with it a check for $1,000—as the local or county public health sanitarian who has made the greatest contribution to the health and welfare of his community in the fields of milk and food sanitation in the past five years. The award is administered annually by International Association of Milk and Food Sanitarians, which presented the commendation to Mr. Tennant at its 42nd Annual Meeting, October 5, in Augusta, Ga. Five national concerns make the award possible: Diversey Corporation, Klenzade Products, Inc., Oakite Products, Inc., Olin Mathieson Chemical Corporation, and the Pennsylvania Salt Manufacturing Company.

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eating and drinking establishments, but it also afforded the ground work for further cooperation between the local Health Department and the Navy in coordinating a mosquito spraying program. Mr. Tennant has also become an adviser to many food handlers' schools conducted by the Navy appearing frequently as a lecturer and presenting visual aids. He has obtained from the Navy the services of specialists and training films for his own food handlers' schools which he has conducted not only in Escambia County but in other counties as well.

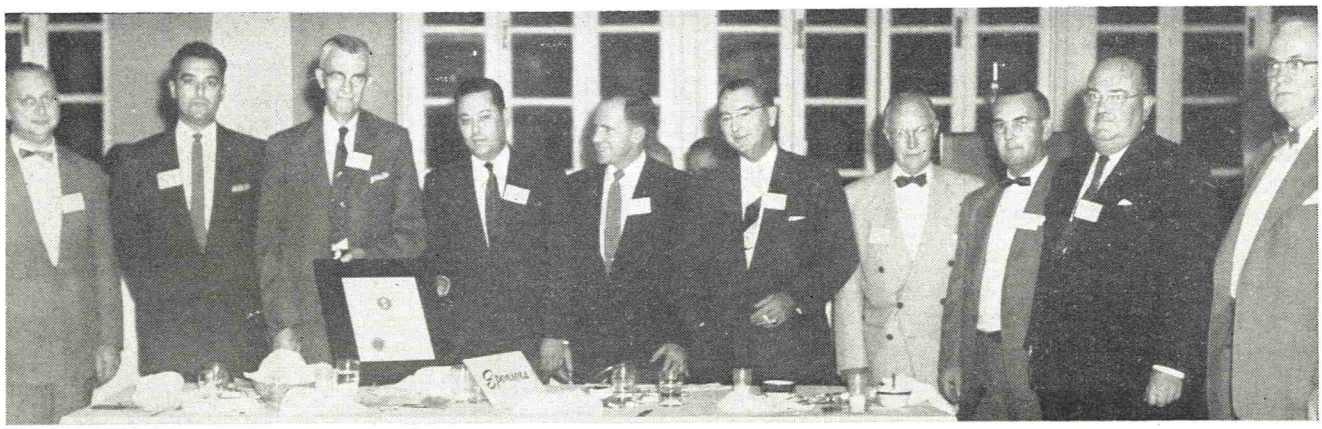
In 1950 in order to maintain and improve sanitary conditions in all public and parochial schools in Escambia County, Mr. Tennant made a thorough survey of the county's 70 schools including their food sanitation facilities, and then presented his recommendations for improving conditions to the Superintendent of Public Instructions. Since then, this survey and report have become an annual affair, being submitted each year in ample time for improvements to be made in existing conditions, and the improvement has been such that several other health departments in Florida have adopted the practice of annual reports on sanitary conditions in schools.

Mr. Tennant is responsible for the passage of a Pensacola city restaurant ordinance, passed in 1948, which embodied all regulations of the Florida State Board of Health Sanitary Code, thus furnishing his Health Department with a tool for faster and more positive enforcement of regulations affecting food sanitation. More recent legislative activity by Mr. Tennant was his preparation of a bill in 1953 providing for control of garbage collection by the Health Department. Prior to that time, there were no adequate laws concerning dumping of garbage, and outside of cities there were frequently no organized methods of garbage collection whatever. Before presenting his bill to the State Legislature, Mr. Tennant appeared before numerous civic clubs, PTAs, chambers of commerce, and other groups, seeking their support to assure the bill's passage.

Other achievements of Mr. Tennant include improvement of sanitation in Girl Scout summer camps, and expanding and directing a very active mosquito control program.

Community groups have recognized the worth of Mr. Tennant's work and he has been honored by them on a number of occasions. The Pensacola Junior Chamber of Commerce in 1954 presented him with the "Good Government Award for 1953", its highest honor to a man in public life. In reviewing Tennant's activities, one Jaycee remarked: "(Tennant's) accomplishments have not been attained by being just an eight-hour-a-day man. He has devoted his entire time, both day and night, to the service of his community. At any time his advice or service is needed in the community, he has been ready and willing to go. People from all walks of life have found his integrity beyond reproach."

Other public citations for Mr. Tennant include one, in 1950, from the Pensacola Lions Club, "for honest, faithful and efficient service," and another, in 1952, from the Northwest Florida Girl Scouts of America,



"SANITARIAN OF THE YEAR" AND SPONSORS OF THE AWARD

Standing with representatives of the five national concerns which sponsor the Sanitarian's Award is B. G. Tennant, recipient of the 1955 honor, at the annual banquet of International Association of Milk and Food Sanitarians, October 5, in Augusta, Ga. Chief Sanitarian of the Escambia County Health Department, Pensacola, Fla., Mr. Tennant received the award and a check for $1,000, for his meritorious contribution to the health and welfare of his community in milk and food sanitation in the past five years. Left to right above are John P. Greze, Oakite Products, Inc.; Larry Dormuth and William A. Hadfield, Pennsylvania Salt Manufacturing Company; Mr. Tennant; Mr. Finnegan and M. L. Duggan, of Olin Mathieson Chemical Corp.; C. A. Abele and A. K. Saunders, The Diversey Corporation; and C. B. Shorgren and Wm. J. Dixon Klenzade Products, Inc.

"for outstanding service to Girl Scout Camping."

The Sanitarian's Award is the highest professional honor which a local sanitarian may attain. It has been presented annually since 1952.

Earlier winners of the Sanitarian's Award, with its accompanying $1,000 check, are Paul Corash, Chief of the Milk Division, New York City Health Department (1952); Dr. E. F. Meyers, Chief of the Milk, Meat and Food Division of the Grand Rapids, Michigan, Health Department (1953); and Kelly G. Vester, Senior Sanitarian of the Rocky Mount, North Carolina, City Health Department (1954).

The Sanitarian's Award is sponsored by five companies: Diversey Corporation, Klenzade Products, Inc., Oakite Products Inc., Olin Mathieson Chemical Corporation, and the Pennsylvania Salt Manufacturing Company. It is entirely administered by IAMFS, however, the firms have no voice in selecting recipients.

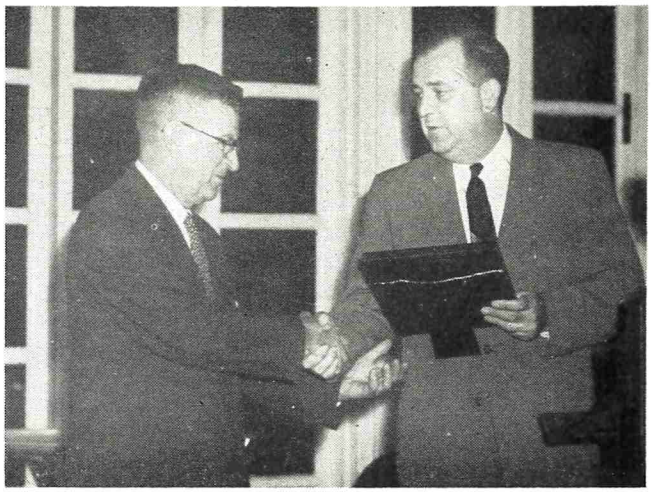
DR. R. G. ROSS, A. W. FUCHS RECEIVE CITATION AWARDS AT 42ND ANNUAL IAMFS MEET

Two sanitarians—one a city health department employee and the other a veteran of the U. S. Public Health Service—were honored with Citation Awards at the 42nd Annual Banquet of International Association of Milk and Food Sanitarians, October 5, at the Bon Air Hotel in Augusta, Ga.

Receiving the awards were Dr. R. G. Ross, chief milk sanitarian of the Tulsa (Oklahoma) City-County Health Department, and Abraham W. Fuchs, long-time top administrator of the milk and food program of the U. S. Public Health Service, and currently serving in Jamaica with International Cooperation Administration as adviser on environmental sanitation problems.

The Citation Award is presented annually to the person whose contributions over a period of years, have furthered the professional advancement of the Association, enhancing its growth and reputation. This year, for the first time, two Citation Awards were made because the cumulative work of both men had been so great that it was not possible for the IAMFS Executive Board to decide between them.

Dr. Ross joined the Association in 1934, served a term as president in 1947, was a long-time member of the Executive Board, and has been active on numerous important IAMFS committees. He has been chairman of committees dealing with the Annual Meeting, Dairy Farm Methods, Resolutions and Nominating. Additionally, he served on the Special Committee to the Dairy Branch of the War Production Board during World War II. He was for several terms auditor of the Association.

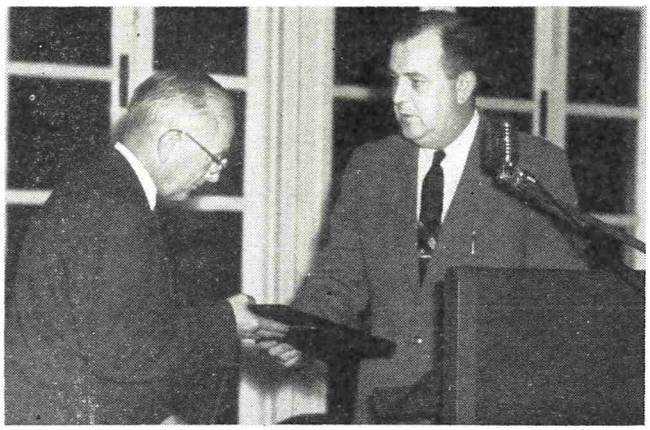


DR. R. G. ROSS RECEIVES IAMFS "CITATION AWARD"

Dr. R. G. Ross, standing left, Chief Milk Sanitarian of the Tulsa (Oklahoma) City-County Health Department, here receives the Citation Award of International Association of Milk and Food Sanitarians, from John D. Faulkner, Chairman of the Recongnition and Awards Committee, at the 42nd Annual Banquet of IAMFS, held October 5 in Augusta, Ga. The award is presented to persons whose contributions over a period of years have furthered the professional advancement of the Association, enhancing its growth and reputation. Dr. Ross was president of IAMFS in 1947, and he has served on, or been chairman of, numerous important committees. This year, another Citation Award was also presented to A. W. Fuchs, currently serving in Jamaica with International Cooperation Administration as advisor on environmental sanitation problems.

Mr. Fuchs joined IAMFS in 1928, and became its president in 1949. He served on the IAMFS Executive Board for six years. He has served as chairman of the Advisory Committee to The War Production Board, and has been active on committees dealing with Sanitary Procedure, Milk Regulations and Ordinances, and Communicable Diseases Affecting Man. He has been Associate Editor of the Journal of Milk and Food Technology since 1947, and he has contributed numerous papers to that journal. Mr. Fuchs also was quite active in bringing about the participation of IAMFS and the U. S. Public Health Service, with proper dairy industry bodies in the formulation of 3-A Sanitary Standards for Dairy Equipment and in establishing standards for other food equipment.

The Citation Awards—framed testimonials to their distinguished service—were presented to Dr. Ross and Mr. Fuchs by John D. Faulkner, currently serving as Chairman of IAMFS' Committee on Recognition and Awards.



IAMFS "CITATION AWARD" TO A. W. FUCHS

John W. Faulkner, standing right, here presents the Citation Award of International Association of Milk and Food Sanitarians to Dr. Milton Fisher, who accepted the award on behalf of A. W. Fuchs, for whom the award was intended. Given only to persons who have advanced the growth and professional standing of the sanitarian's association, the award signalized years of valuable contributions by Mr. Fuchs, who is now serving with the International Cooperation Administration on the island of Jamaica as an advisor on environmental sanitation problems, and hence was unable to be present to receive the award October 5 at the 42nd Annual Banquet of International Association of Milk and Food Sanitarians in Augusta, Ga. Mr. Fuchs, a long-time top administrator of the milk and food program of U. S. Public Health Service, was President of IAMFS in 1949, and through the years has served on or been chairman of, many committees and a frequent contributor to the Journal of Milk and Food Technology, official IAMFS publication. A similar Citation Award was also presented this year to Dr. R. G. Ross, chief milk sanitarian of the Tulsa (Oklahoma) City-County Health Dept.

HAROLD S. ADAMS IS PRESIDENT, PAUL CORASH PRESIDENT-ELECT AS IAMFS CLOSES 42ND GATHERING

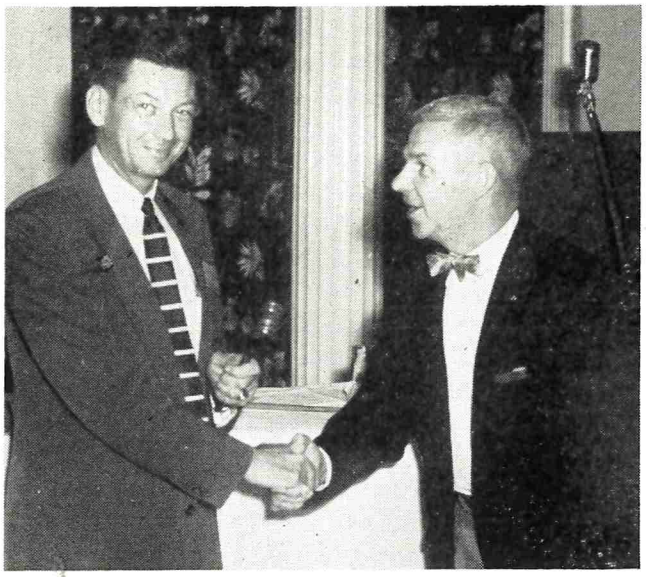
Harold S. Adams, Indianapolis, Indiana, was formally installed as President of International Association of Milk and Food Sanitarians as some 300 participants from the United States and Canada brought their 42nd Annual Meeting to a close October 6 at the Bon Air Hotel in Augusta, Ga. He succeeds Ivan Parkin, University Park, Penna.

Paul Corash, New York City, was unaimously named President-Elect.

Dr. W. A. Hoskisson, Superintendent of Sanitation and Quality, Arden Sunfreze Creameries, Salt Lake City, Utah, was elected First Vice President .

Harold B. Robinson, Milk and Food Program, U. S. Public Health Service, Washington, D. C., was elected Second Vice President.

Howard Wilkowske, Gainesville, Fla., was unanimously re-elected Secretary-Treasurer.



NEW PRESIDENT OF IAMFS GETS CONGRATULATIONS OF PREDECESSOR

Harold S. Adams, left, of Indianapolis, Indiana, here receives the congratulations of retiring President Ivan E. Parkin, University Park, Penn., as the 42nd Annual Meeting of International Association of Milk and Food Sanitarians draws to a close in Augusta, Ga., on October 6. Other officers elected with Mr. Adams were Paul Corash, New York City, as President-Elect; Dr. W. A. Hoskisson, Salt Lake City, Utah, as First Vice President; Harold B. Robinson, Washington, D. C., as Second Vice President; and Howard Wilkowske, Gainesville, Fla., as Secretary-Treasurer.

"LET'S GO TO WASHINGTON STATE IN 1956!"

That seems to be the message from these assembled committee chairmen and members of the Executive Board of International Association of Milk and Food Sanitarians. Having just completed their successful 42nd Annual Meeting at the Bon Air Hotel in Augusta, Ga., October 4-6, the association announced its 1956 meeting would occur in Seattle, Washington, where the Washington State Affiliate Chapter is already making plans to act as host. More than 300 sanitarians from all parts of the United States and Canada attended the sessions in Georgia in October, and an equal or greater attendance is expected for next year's meeting in the Northwest.

A MODIFIED DISC ASSAY METHOD FOR DETECTING ANTIBIOTICS IN MILK

JOSEPHINE CERNY AND R. L. MORRIS
State Hygienic Laboratory, Iowa State Department of Health, Iowa City

(Received for publication June 16, 1955)

The gross economic loss to the modern dairy farmer from acute and chronic mastitis has promoted widespread use of antibiotics for mastitis control. Experience has shown that the quality of milk has steadily increased when a controlled program of antibiotic treatment has been coupled with improvements in general dairy sanitation and handling methods on the farm and in the processing plant.

Prior to the initiation of a controlled mastitis elimination program in January of 1953, the average standard plate count of milk from approximately 100 producers of a nearby milk shed was 240,000 per ml. Ninety per cent of these pooled samples from the herd showed leucocyte counts above 500,000 per ml., and 48 per cent of these samples indicated the presence of mastitis in the respective herds as judged from the appearance of bacterial types observed during microscopic examination of stained milk films.

Two years later, producers in this same milk shed had an average bacterial count of 17,000 per ml.; only 63 per cent of the pooled samples from the herd showed cell counts above 500,000 per ml.; and only 8 per cent of the samples indicated the presence of mastitis in the herds involved. The occurence of extremely high cell counts above one million fell off sharply and closely paralleled the percentage of samples showing evidence of mastitis.

The significant reduction in bacterial count was, in a large part, due to marked improvements in general sanitation and should not be attributed solely to the the decrease in the incidence of mastitis. However, the frequency of very low standard plate counts and the abnormal morphology and staining characteristics of bacterial cells observed in stained milk films prompted our laboratory to initiate an investigation of the possibility that the presence of residual antibiotics in the milk samples was responsible, in some measure, for these observations. It was noted on some of our slides that the bacterial cells were stained poorly and often presented a moth eaten appearance which made interpretation of sanitary quality quite uncertain.

Difficulties encountered in manufacturing processes involving culture techniques were brought to our attention and this strengthened our suspicion that significant quantities of inhibitory substances were present in the milk supplies. A series of replicate antibiotic residual tests using the technique as described in "Standard Methods" (1) gave very non-precise low level results, and a sensitivity of only 0.1 unit of penicillin per ml. could be obtained. It has been reported (2) that 0.1 unit of penicillin per ml. of milk can retard acid production appreciably. Therefore, the lack in sensitivity obtained at lower levels of antibiotic concentration through use of the Standard Methods antibiotic residual test limited the usefulness of this procedure. Consequently, a modification of the Standard Methods procedure was developed and evaluated.

Miss Josephine Cerny holds a B. S. in Chemistry from the State University of Iowa, and is now associate Chemist of the State Hygienic Laboratory in Iowa City, Iowa.

Mr. Robert L. Morris graduated from the State University of Iowa in 1940 wtih a B.S. in Chemistry and joined National Aluminate Corporation as Research Chemist. He received his M. S. in Chemistry from the State University of Iowa in 1950 and is now Chief Chemist of the State Hygienic Laboratory in Iowa City, Iowa. He also is an instructor in Hygiene and Preventive Medicine at the State University of Iowa.

DESCRIPTION AND EVALUATION OF METHOD

This modification involved the use of Difco dehydrated whey agar, prepared according to the manufacturer's directions, distributed in 100-ml. portions in glass containers and sterilized. The sterile medium was cooled to 50°-55°C. and each 100-ml. portion

was inoculated with 1 ml. (1 ampule) of standardized inoculum culture (ATCC6633, Subtilis Spore Suspension Bacto B453). The inoculated medium was mixed throughly but gently in order to avoid incorporating air bubbles. Six milliliters of the medium was pipetted into a sterile flat bottom petri dish and allowed to solidify and dry before adding the milk sample.

Two sterile superimposed 0.5″ No. 740-ES&S filter paper discs were removed from their container with a dry sterile forceps and were dipped carefully into the milk sample which had been heated previously to 180°F. for 5 minutes and then cooled to about room temperature. The dics were completely saturated with the milk and were immediately pressed lightly on the surface of the agar, one on top of the other. Milk in excess of that necessary for saturation was not allowed to be carried over to the plates. The plates were inverted and incubated at 37°C. for 8 hours. Another method of incubation found to be suitable was the holding of the inverted plates over night (16 to 18 hours) at room temperature. The temperature in this case, however, must not exceed 77°F. A temperature greater than 77°F. is not satisfactory because it promotes a very overgrowth of the test organism which may cause false negative results.

The plates may be read with or without the aid of magnification. A clear 360° zone indicates a positive test. Reasonable correlation between zone diameter and antibiotic concentration is possible. Data given in Table 1 shows that the double disc method

TABLE 1 — DETERMINATION OF PRECISION AND SENSITIVITY OF 0.25″ AND 0.5″ DISC METHOD TO PENICILLIN.

Units of penicillin per ml.	0.25″ disc replicatees				0.5″ double disc replicates			
	A	B	C	D	A	B	C	D
0.10 u	+	+	+	+	+	+	+	+
0.09 u	+	+	d	+	+	+	+	+
0.08 u	+	+	−	+	+	+	+	+
0.07 u	d	+	d	d	+	+	+	+
0.06 u	+	+	+	+	+	+	+	+
0.05 u	−	+	d	−	+	+	+	+
0.04 u	d	−	d	+	+	+	+	+
0.03 u	−	−	−	−	+	+	+	+
0.02 u	+	+	+	−	+	+	+	+
0.01 u	−	−	−	−	+	+	+	+

Legend: + = complete clear zone; d = partial zone; − = negative zone.

is sensitive and precise to at least 0.01 unit of penicillin per ml. of milk while the 0.25″ disc procedure loses precision below 0.1 unit per ml. Penicillin ointment (Squibbs) was used in this trial. Each tube contained 3.75 gms. of ointment containing 100,000 units of crystalline penicillin G. Dilutions were made with antibiotic free milk. The double discs absorb about 10 times the milk volume as compared to the 0.25″ discs, which accounts for the increased sensitivity of the modified procedure. Also, absorbtion of milk by the double discs is much more uniform than by the 0.25″ discs, and it is reasonable to assume that the top disc deters evaporation of the absorbed milk thus allowing more complete diffusion of the sample into the agar.

Silverman (3) stated that more sensitive antibiotic tests are needed and that use of the 0.25″ disc procedure is restricted to penicillin. We have found that the large disc modification discussed here is quite sensitive to other antibiotics and the method readily detects their presence in the low concentration levels as demonstrated in Table 2 using terramycin ointment.

TABLE 2 — DETERMINATION OF PRECISION AND SENSITIVITY OF 0.25″AND O.5″ DISC METHOD TO TERRAMYCIN.

No.	Units of Polymyxin B per ml.	Mg. of Terramycin per ml.	0.25″ disc duplicates		0.5″ double disc duplicates	
			A	B	A	B
1	100	4.3	+	+	+	+
2	1	0.043	+	+	+	+
3	0.01	0.00043	−	−	+	+
4	0.009	3.80×10^{-4}	−	−	+	+
5	0.008	3.44×10^{-4}	−	−	+	+
6	0.007	3.00×10^{-4}	−	−	+	+
7	0.006	2.58×10^{-4}	−	−	+	+
8	0.005	3.15×10^{-4}	−	−	+	+
9	0.004	1.72×10^{-4}	−	−	d	+
10	0.003	1.29×10^{-4}	−	−	−	−
11	0.002	0.86×10^{-4}	−	−	−	−
12	0.001	4.30×10^{-5}	−	−	−	−

Legend: + = complete clear zone; d = partial zone; − = negative zone.

Each tube of ointment used in obtaining the results shown contained 30 mg. terramycin per gm. and 10,000 units of polymyxin B. Dilutions were made with antibiotic free milk.

Other trials have shown that this double disc test is sensitive to low concentration levels of seven different commercially available bovine mastitis antibiotics containing such materials as penicillin, aureomycin, terramycin, streptomycin, polymyxin B, neomycin, bacitracin and sulfa combinations. The test is not specific for individual antibiotics, however.

Additional experiments showed that this disc assay method is sensitive to quaternary ammonium compounds only when present in concentrations, above 50 ppm. It is unlikely that such concentrations would be encountered very frequently in milk supplies. Control samples containing no antibiotics were frequently tested and negative results always were obtained.

Results of Application of Method

Statistics gathered in the early part of our antibiotic residual survey on raw milk samples showed 22 per cent positive on 365 individual pooled samples from the herd. At the present time, results indicate that only 6 per cent of our producer samples contain measurable amounts of residual antibiotics. This major reduction is due to the much lower level of mastitis existing in the herds involved, and to the fact that each inhibitory raw sample is immediately investigated by the sanitarians in an effort to eliminate the source of antibiotic residual. The sanitarians have been able to demonstrate that each case of inhibitory milk could be traced to actual use of antibiotic treatment on the farm recently enough to be responsible for the inhibitory characteristics observed. Our experiments indicate that the milk collected over a 24 hour period from a single treated udder can produce a measurable residual when pooled with the milk of approximately 25 cows. Also, the discarding of milk from treated quarters for 72 hours following the last treatment has been shown to be necessary except with a few of the combination antibiotics which tend to be retained even longer in the average udder.

Case histories are numerous where antibiotic residual was traced by inhibitory tests from the animal to the farm bulk holding tank, to the tanker transport, to the raw milk storage vats, and finally to the finished pasteurized bottled product ready for delivery.

Unfortunately, procsesed or tanker transport samples were not analyzed in the early part of our survey, and no data were available on the incidence of inhibitory characteristics in such samples until recently. Inhibitory reactions now are being obtained in 9 per cent of the tanker samples and in slightly less than 3 per cent of our processed milk samples.

If we assume that the same ratio of inhibitory raw, tanker and processed samples existed prior to the detailed laboratory and field investigations, we may postulate that 33 per cent of the tanker samples and 11 per cent of the pasteurized samples were inhibitory at that time.

Undoubtedly, the occurrence of inhibitory characteristics in milk is much greater in pasteurized milk from areas where antibiotics are used for mastitis control without being accompanied by rigid laboratory and field programs.

Some medical people feel that continued usage of these low level antibiotic residuals in milk supplies and other foods can result in the establishment of resistances and possible allergy sensitivities which can cause serious difficulties when antibiotics are administered for theraputic purposes.

The morphology and staining difficulties previously referred to have correlated closely with the presence of positive inhibitory substances in the milk and it is felt that uncontrolled antibiotic treatment programs may have a direct influence on total bacterial counts by both plate and direct microscopic methods.

The modified disc assay method herein described was found to be a sensitive, precise and convenient method for determination of inhibitory substances in fluid milk. It is felt that this modified method would be useful as a routine control test in those milk sheds where extensive antibiotic treatment of mastitis occurs.

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3. Kosikowsky, F. V., Silverman, G. J. Systematic Testing of Inhibitory Substances in Milk. J. Milk & Food Technol., 15: 120-124. 1952.

A COMPARISON OF THE EFFECT OF FOUR MILKING MACHINE CLEANING AND SANITIZING PROCEDURES ON THE STANDARD PLATE COUNT OF RAW MILK[1]

G. H. Watrous, Jr., E. M. Kesler, and H. V. Atherton[2]

The Pennsylvania State University, University Park

(Received for publication July 16, 1955)

A study of four milking machine washing and/or sanitizing methods indicates that an adequate washing procedure using the proper alkaline detergent, coupled with dry storage and a warm water rinse before use was as satisfactory as chlorine sanitizing, the use of a quaternary ammonium cleaner sanitizer, or lye rack storage. The plate counts obtained on milk where machines were thus treated showed no statistical difference attributable to the method employed.

A review of the literature relative to suggested cleaning and sanitizing procedures of milking machines will reveal that a multitude of methods have been suggested, with excellent results obtained from many methods. This paper will not attempt to review completely, or at any length, the voluminous data that have been published on this subject. Any review of the literature, however, will indicate that while cleaning and sanitizing methods are in use which are satisfactory as a whole, there is little agreement among sanitarians and health officials concerning which technics are essential.

Sanitarians have recognized that the most important point in producing acceptable milk, bacteriologically, lies in proper cleaning of the milking equipment, with sanitizing procedures of secondary importance. Most authorities have recommended rinsing milking machines immediately after use, with at least one suggestion (6) that the rinse water contain a calcium sequestering agent. Flush methods of cleaning have been found satisfactory by some workers (5, 7, 8), but others (4) disagree. Most methods include sterilization by heat or chemicals (2, 3, 4, 9). Lye storage of rubber parts has long been practiced and recommended by some sanitarians (2,5).

Experimental Procedures

In the present study four stainless steel milking machine units were thoroughly cleaned with alkaline and acid cleaners, as a preliminary treatment to insure physical cleanliness of the equipment, and the machines were equipped with new rubber parts.

Dr. G. H. Watrous received the B. S., M. S. and Ph. D. degrees from The Pennsylvania State University in 1942, 1947, and 1951, respectively. He was employed by the New Jersey Dairy Laboratories, New Brunswick, New Jersey during 1942-1944. Dr. Watrous has been a member of the staff of the Department of Dairy Science, Pennsylvania State University since 1944.

The four cleaning and/or sanitizing methods studied were as follows:

Method 1

1. Immediately after each morning and evening milking the unit was flushed by surging about ten quarts of water at 110° – 120° F. through inflations, milk-hose and pail.

2. The unit was completely dismantled after each morning milking. Subsequent to the evening milking the inflations were not removed from the shells, the milk-hose was disconnected from the lid but not from the claw assembly, and the pail lid gasket was removed, as was also the rubber claw plug.

3. After dismantling as described, all the milker parts were soaked in an alkaline type detergent solution, at a temperature of 110° – 120° F. for 5 minutes, after which the various parts were thoroughly

[1]Authorized for publication on June 27, 1955 as Paper No. 1991 in the Journal Series of the Pennsylvania Agricultural Experiment Station.

[2]Present address: Department of Dairy Husbandry, University of Vermont, Burlington, Vt.

scrubbed with brushes. The alkaline detergent was used at the concentration recommended by the manufacturer. This compounded cleaner was reputedly formulated of sodium carbonate, sodium metasilicate, tetrasodium pyrophosphate and a wetting agent.

4. All milker parts were rinsed in 120° F. water, reassembled and suspended in such a manner as to permit rapid drainage and drying.

5. Immediately before use the entire milker unit was flushed with approximately ten quarts of water at 120° F.

Method 2

The procedure in Method 2 differed from Method 1 in that the milker unit was flushed with a 200 p.p.m. chlorine solution, rather than plain water, immediately preceeding milking. In flushing the unit, the chlorine solution was drawn through the teat cups and into the milker pail, and the solution then swirled around in the milker pail.

The chlorine solution was prepared from a calcium hypochlorite powder containing 35 per cent available chlorine.

Method 3

1. Identical to Method 1.
2. Identical to Method 1.
3. The cleaning solution used was a commercially prepared cleaner sanitizer, used at the rate of one ounce in each 10 quarts of cleaning solution. This cleaner sanitizer was compounded of sodium tripolyphosphate, alkyl-dimethyl-benzyl-ammonium chloride, Triton X-100, and sodium carbonate. At use concentration this compound gave 150 p.p.m. of active sanitizer.
4. Following brushing of all parts, the parts were not rinsed, but were reassembled and suspended to permit drainage.
5. Immediately preceeding milking the unit was flushed with about ten quarts of lukewarm water.

Method 4

1. The unit was flushed with about 10 quarts of water at 110° – 120° F. immediately after milking.
2. Without disassembling the rubber parts other than to remove the claw plug and the pail lid gasket, the parts were placed in the same alkaline detergent solution as used in Methods 1 and 2 and soaked for approximately five minutes.
3. All parts were brushed as thoroughly as possible.
4. Following rinsing with 120° F. water, the teat cup assembly and long milk hose were placed on a lye storage rack and filled with a 0.5 per cent lye solution.
5. Immediately preceeding milking the unit was flushed with about 10 quarts of lukewarm water.
6. The unit was completely dismantled once a week and washed in alkaline detergent.

Four groups of seven Holstein cows each were selected for this trial. Over a period of four weeks each group was machine milked and machine stripped with the four milker units according to the pattern shown in Table 1. It was hoped that such a Latin square design would help eliminate some of the variations in bacterial counts due to individual cows or groups of cows.

TABLE 1—SCHEDULE FOR USE OF MILKING MACHINES

	Cow Group			
	1	2	3	4
Week	Machine*	Machine*	Machine*	Machine*
1	2	3	1	4
2	1	2	4	3
3	3	4	2	1
4	4	1	3	2

*Each milker unit continuously washed by method described during course of the study. Machine 1 washed by Method 1, etc.

Samples for bacterial analysis were aseptically removed with sterile milk thiefs from each milker unit, and a composite representing the seven cows in each group were collected in sterile test tubes. Samples were collected daily, both morning and evening, from Monday evening through Saturday morning, but not from Saturday evening through Monday morning. All samples were iced immediately and removed to the laboratory within two hours for analysis.

Bacterial plating procedures were in conformity with Standard Methods (1), duplicate plates at each dilution being incubated for 48 hours at 32° C.

EXPERIMENTAL RESULTS

The data in Table 2 represents the logarithmic averages of plate counts on the morning and evening samples for five days of each week as well as the data for successive weeks.

Analysis of variance of the data presented in Table 2 indicated that the differences in counts due to washing and/or sanitizing treatment were not significant. A significant but not highly significant difference was found between morning and evening counts while differences due to cow groups and weeks were highly significant.

Table 3, a rearrangement of the data in Table 2, is presented to show more clearly the effect of cow groups.

TABLE 2—A COMPARISON OF BACTERIAL COUNTS ON MILK OBTAINED WHEN MILKER UNITS WERE WASHED AND/OR SANITIZED BY VARIOUS METHODS

Method	Week	Log. Av. Plate Count/ml. (A.M.)	Log. Av. Plate Count/ml. (P.M.)	Log. Av. Plate Count/ml. (A.M. & P.M.)	Cow Group
1	1	2,300	1,800	2,000	3
	2	5,100	3,600	4,300	1
	3	4,100	4,800	4,500	4
	4	13,000	11,000	12,000	2
Logarithmic Av/ml		5,000	4,300	4,600	
2	1	7,000	5,200	6,100	1
	2	4,900	7,400	6,000	2
	3	2,600	1,300	1,800	3
	4	10,000	6,700	8,300	4
Logarithmic Av/ml		5,500	4,600	4,900	
3	1	2,500	2,300	2,400	2
	2	9,700	5,900	7,600	4
	3	8,000	4,400	5,900	1
	4	4,500	5,900	5,100	3
Logarithmic Av/ml		5,400	4,300	4,800	
4	1	16,000	7,500	11,000	4
	2	2,200	1,300	1,700	3
	3	3,900	1,900	2,800	2
	4	12,000	5,900	8,500	1
Logarithmic Av/ml		6,400	3,200	4,600	

TABLE 3—DISTRIBUTION OF BACTERIAL COUNTS BY COW GROUPS ON A WEEKLY BASIS

Cow Group	Week	Log. Av. Plate Count/ml A.M.	Log. Av. Plate Count/ml P.M.	Log. Av. Plate Count/ml A.M. & P.M.
1	1	7,000	5,200	6,100
	2	5,100	3,600	4,300
	3	8,000	4,400	5,900
	4	12,000	5,900	8,500
Logarithmic Av/ml		7,700	4,700	6,000
2	1	2,500	2,300	2,400
	2	4,900	7,400	6,000
	3	3,900	1,900	2,800
	4	13,000	11,000	12,000
Logarithmic Av/ml		5,000	4,400	4,700
3	1	2,300	1,800	2,000
	2	2,200	1,300	1,700
	3	2,600	1,300	1,800
	4	4,500	5,900	5,100
Logarithmic Av/ml		2,700	2,000	2,400
4	1	16,000	7,500	11,000
	2	9,700	5,900	7,600
	3	4,100	4,800	4,500
	4	10,000	6,700	8,300
Logarithmic Av/ml		8,900	6,200	7,400

DISCUSSION

Perhaps the most significant fact apparent from the data presented is that an adequate washing of the milker unit, coupled with dry storage and a water rinse before use, was as effective as either of the sanitizing methods or lye storage under the conditions employed in this study. This study in no way invalidates the effectiveness of sanitizing procedures under laboratory conditions, but it does indicate that the sanitizing methods or lye rack storage employed have little advantage over a good washing and water rinsing procedure under practical farm conditions, provided the water supply is adequate bacteriologically.

Obviously the physical condition of the machine, and especially of the inflations and milk-hose, are in part determining factors in any cleaning and sanitizing operation. It is possible that certain procedures, when employed with rubber parts showing physical deterioration, might show results differing from those obtained. On the other hand, few sanitarians would approve physically deteriorated inflations or milk-hoses regardless of the cleaning or sanitizing method used. Aside from the bacteriological significance associated with badly erroded or physically poor inflations they should be condemned if for no other reason than the longer time required to milk.

The practical significance of this study is that sanitarians and field men increasingly should stress the physical cleanliness of milking machines and perhaps de-emphasize chlorine or quaternary ammonium sanitizing agents as the proper control of bacterial counts. Under such a program the selection of the proper cleaning compound, adapted to the water supply, is of utmost importance. While numerous compounded cleaners are available, too frequently the use of an alkaline cleaning agent inadequate for the water supply may be basically the cause of water stone, milk stone and bacterial problems. Certainly the use of sanitizing agents is not the proper cure for bacterial troubles arising from the use of an improper cleaner, poor cleaning methods, or badly worn inflations.

SUMMARY AND CONCLUSIONS

1. A statistical study of the influence of four milking machine cleaning and/or sanitizing methods indicates that under the conditions of this study, an adequate cleaning procedure coupled with a lukewarm water rinse prior to use is as satisfactory as either chlorination of the milker units, the use of a quaternary ammonium cleaner sanitizer, or the use of

lye rack storage. No significant difference in the bacteria levels found in this study could be attributed to the method employed.

2. A significant but not highly significant difference was found between the morning and evening counts while differences due to cow groups and weeks were highly significant.

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A COMPARISON OF 32°C. AND 35°C. AS INCUBATION TEMPERATURES FOR THE COLIFORM COUNT OF MILK AND CREAM.

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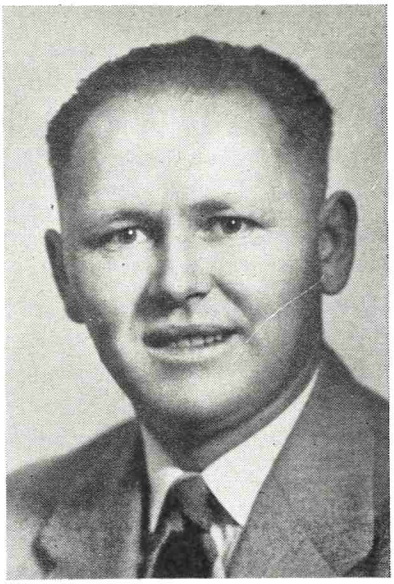
The tenth edition of *Standard Methods for the Examination of Dairy Products* (2) states that standard plate counts may be made at 32° or 35° C., however, 35° C. is the recommended temperature for incubation of plates for the coliform count. Some laboratories would like to use 32° C. for the standard plate count but hesitate to do so because it would necessitate maintaining a separate incubator at 35° C. for the incubation of coliform plates.

There are some suggestions in the literature that temperatures lower than 35° C. may be desirable for coliform enumeration. Allen *et al.* (1) isolated a coliform which would grow in lactose-bile-salt broth at 30° C. but not at 37° C. In enumerating the numbers of coliforms present in fresh grass silage, they found much larger numbers with incubation at 30°C. than at 37° C. Similarily, Greene and Jezeski (5) isolated an organism, identified as *Aerobacter aerogenes*, from creamery water supplies. This organism did not produce gas at 37° C. and growth was retarded at 35° C., although it grew satisfactorily and produced gas at lower temperatures. Murray (6) reported that raw and pasteurized milk yielded higher coliform counts in MacConkey's broth at 30° C. than at 37° C. However, he pointed out that both medium and temperature were limiting factors because all cultures grew at 37° C. on yeastrel agar slants. The Coliform Sub-Committee of the Society for Applied Bacteriology (England) (4) recommended that all biochemical tests for the identification of coliforms should be carried out at 30° C. They cautioned that coliforms from non-fecal sources may outgrow those of fecal origin when incubation was at 30° C., hence, tests for sanitary significance should be made at 37° C. to give a true picture of fecal contamination. They suggested that a full examination should include incubation in MacConkey's broth at both 30° and 37° C. Boniece and Mallmann (3) found that the optimum growth temperature for *Escherichia coli* and *Aerobacter aerogenes* was in the 37° – 39° C. range but the most favorable incubation temperature for the primary isolation of coliforms from water was 35° C. They also found that 32° C. was superior to 37° C. although a longer incubation period was required at 32° C. than at 35° C.



Dr. W. C. Lawton received the B. S. A. degree from the University of Saskatchewan and the M. S. Degree from the same institution. He received the Ph. D. degree in dairy bacteriology from Iowa State College in 1954. Dr. Lawton is a member of the Applied Laboratory Procedures Committee of the International Association. His present position is Director of Laboratories, Minneapolis and St. Paul Quality Control Committee. This laboratory is sponsored jointly by the Minneapolis and St. Paul Health Departments, The Twin City Milk Producers Association, and The Minneapolis and St. Paul Milk Dealers. Members of the staff of the Department of Dairy Husbandry, University of Minnesota serve on this Committee in an advisory capacity.

This work was undertaken to determine if plates incubated at 32° C., in the routine examination of commercially pasteurized milk and cream, would give a coliform count comparable to that obtained using the recommended temperature of 35° C.

Methods

Milk and cream used in this study were from the regular samples submitted for analysis by various plants in Minneapolis and St. Paul. No attempt was made to select the samples used. The bottles of milk and cream were emptied into sterile flasks and thor-

oughly agitated. One ml. and 0.1 ml. amounts from each sample were plated in duplicate. Plates were poured with violet red bile agar, and an overlay was added after plates hardened. One set was incubated at 32° C. ± 0.5° C., the other at 35° C. ± 0.5° C. All plates were counted after 20-24 hours incubation and all counts were recorded, even if they had colonies outside the 30-300 limit set by standard methods (2).

RESULTS

A paired comparison of the counts obtained on 416 samples was made and an analysis of variance was applied to test the hypothesis that there was no difference between the count obtained on a sample after incubation at 32° C. or at 35° C.

Table I shows the statistical data pertaining to the 416 samples examined. These data indicate that there were no significant differences between the results obtained at the two temperatures. The null hypothesis was substantiated and the differences observed were as likely to occur by chance as they were when different temperatures of incubation were used.

The frequency distribution of the counts on the samples is shown in Table 2 and indicates that the number of samples falling into any one of the arbitrary classifications were similar for both temperatures.

TABLE 2 — FREQUENCY DISTRIBUTION OF COUNTS OBTAINED

Coliform Counts as number per milliliter	Incubation at 32°C.		Incubation at 35°C.	
	Number of samples	Percent of samples	Number of samples	Percent of samples
> 1	266	63.94	257	61.78
1 - 10	88	21.15	98	23.56
11 - 100	44	10.10	39	9.37
>100	20	4.81	22	5.29

DISCUSSION

The study of 416 consecutive samples brought into the laboratory for routine analysis indicated that 32° C. was a suitable temperature for the incubation of coliform plates. When all samples having less than one coliform per milliliter were eliminated from the study group, the analysis still showed that there was no significant difference between the two temperatures when measured by the "t" test. Counts on samples examined ranged from less than one per milliliter to greater than 3,000 per milliliter.

The further consideration and adoption of 32° C. as the incubation temperature for coliform plates would reduce the equipment needed and the inconvenience caused by maintaining a different temperature for the standard plate and coliform counts.

ACKNOWLEDGMENT

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TABLE 1 — STATISTICAL DATA FOR COLIFORM COUNTS AT 32° C. AND 35° C.

Sum of differences = $Sd = 103$

Mean difference = $\bar{d} = 0.25$

Variation of the means = $Vd = \frac{Sd^2 - \frac{(Sd)^2}{n}}{n-1} = \frac{1{,}290{,}964 - \frac{10{,}609}{416}}{415} = 3{,}111$

Standard deviation of the mean = $\sigma d = \sqrt{Vd} = 55.8$

Standard deviation of the mean difference = $\sigma \bar{d} = 2.75$

"t" value = $\bar{d} = 0.09$

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NEWS AND EVENTS

GEORGE E. HOLM RETIRES

George E. Holm, special assistant to the chief of the U. S. Department of Agriculture's Eastern Utilization Research Branch and former head of the Dairy Products Research Laboratories retired from the Department on September 1.

His research activities were in the biochemistry of fats, proteins and colloids; hydrolysis and analysis of proteins; chemistry of the spoilage of fats and oils; heat coagulation of milk proteins; phospholipids in milk; manufacture of dried milk and butteroil; deterioration of butter; and the chemistry of milk and milk products. His chief interests have concerned the effects of heat on the protein systems of milk and the oxidative deterioration of fat in dairy products. Dr. Holm was both a contributor to and editor of the 1928 and 1935 editions of the American Chemical Society monograph, "Fundamentals of Dairy Science."

He was the third recipient of the Borden Award conferred by the American Chemical Society in 1942. He was cited "for research in basic causes and control of oxidative deterioration of fats and oils, prevention of spoilage of dairy products by oxidation of milk fat, and the constitution of fats and other compounds of milk."

In 1948 he received the Superior Service Award of the Department "for outstanding contributions to the dairy industry through research on the preservation of quality in milk and milk products, the development of techniques for estimating the constituents in milk, and methods of utilizing milk solids in various forms."

Dr. Holm was born and raised on a farm in Minnesota. He obtained his B. S. degree in chemistry from Carleton College in 1914; and from the University of Minnesota he received the M. S. in 1916 and the Ph. D. in 1919. Thereafter he was for a year an assistant professor in the Department of Biochemistry at Minnesota. In 1920 he joined the research staff of what was then the Dairy Division of the Bureau of Animal Industry. In 1942 he became head of the Dairy laboratory and in January of this year, special assistant to the chief of the Eastern Branch.

OAKLAND HEALTH DEPARTMENT SUBMITS WINNING ENTRIES

Oakland Health Department won the Gold Medal for the ten highest scoring entries of milk and cream

at the California State Fairs in competition with cities of 300,000 to 500,000 population.

Samples for the contest are picked up by the local inspector and delivered to the Fair Grounds where they are judged and awards made.

Sixty-two percent of all entries of milk and cream from the Oakland plants won awards; 34% Gold Medals, 25% Silver Medals and 1% Bronze Medals.

Judges of the fluid products this year were M. P. Tarassuk and Walter Dunkley of the University staff at Davis, California; R. L. Van Buren and George Hassler of the State Bureau of Dairy Service; Jack L. Covert, Senior Milk Sanitarian for the City of Los Angeles and Gardner C. MacFarland, Los Angeles County Milk Inspection Service. There were a total of 600 entries received from Northern California and Oregon exhibitors.

GHOLSON NAMED DAIRY PRODUCTS MARKETING SPECIALIST

An extension dairy products marketing specialist has been appointed at the University of Minnesota, filling a long-felt need for a well-trained authority to carry the results of dairy products research to the state's dairy processors.

To fill the new position, the University selected James H. Gholson, 40, a native of Hallsville, Missouri, and an assistant professor of dairy husbandry at the University of Missouri, Columbia.

Announcement of Gholson's appointment came today (Saturday, October 1) from Skuli Rutford, director of the University of Minnesota Agricultural Extension Service.

Gholson is a graduate of the University of Missouri and holds a bachelor's degree in agriculture and master's and doctor of philosophy degrees in dairy husbandry, granted him there.

He will work closely with all branches of the dairy processing industry—market milk, butter, cheese and ice cream manufacture and dry and concentrated milk processing—acting as a direct contact between the industry and the research workers of the University's dairy industry staff.

Among Gholson's duties will be conducting schools for dairy plant workers to be held at the University's outlying agricultural experiment stations. At the schools, such subjects as improved butter quality and spread-ability, cheese starter making and dairy products quality improvement will be discussed.

The new specialist also will work closely with county, home and 4-H club agents in conducting milk and cream grading schools and in bulk tank installation on farms.

He has been a member of the University of Missouri staff since 1946. Before World War II, he served as a county supervisor for the Farm Security Administration, a dairy research assistant at the University of Missouri and as a laboratory technician with a St. Louis milk company.

He served three years in the U. S. Army Air Force during World War II, two as a pilot in the European Theater. He is married and the father of one child.

SHELBY ROBERTS JOINS ADA RESEARCH STAFF

Shelby Robert Jr., head of the Merchandising Methods Section, Agricultural Marketing Service, USDA, will join the staff of the American Dairy Association research department October 1, it has been announced by Lester J. Will, general manager.

Robert has been head of the Merchandising Methods Section for the past seven years and was with the Bureau of Agricultural Economics from 1934 until going into the marketing research work.

He received his B. A. degree from Mississippi State College and his M. A. from Louisiana State University. He also did graduate work at the University of Wisconsin.

In his work with the Agricultural Marketing Service, Robert has been directing research aimed at selling more agricultural products. His interest in the agricultural field stems back to his infancy, having been born on an agricultural experiment station in Jackson, Tennessee.

Mr. and Mrs. Robert have three children, Shelby III, 9, Maury, 7, and Mary Louise, 3. The family will move from Washington to Chicago at a later date.

OFFICIAL CHEMISTS DISCUSS LAW ENFORCEMENT METHODS

Almost 200 papers dealing with the application of science to the practical problems of protecting the health and pocketbook of consumers and farmers were delivered at the 69th Annual Meeting of the Association Official Agricultural Chemists at the Shoreham Hotel in Washington, D. C., October 10, 11, and 12.

The "A. O. A. C." is the scientific organization of state and federal employees which develops the laboratory methods for testing soils, feeds, fertilizers, pesticides, foods, drugs, and cosmetics which are required for the enforcement of laws regulating these commodities. The Association, founded in 1884 by Harvey W. Wiley, of the U. S. Department of Agriculture, and a number of state chemists, antedated

Federal control in the field which did not come until the passage of the Pure Food and Drugs Act of 1906. The society made plans this year for participation in the 50th Anniversary celebration of the passage of this Act which will be held in 1956.

At this meeting the Association released the Eighth edition of its publication "Official Methods of Analysis of the Association of Official Agricultural Chemists," a 1000-page compilation of methods of analysis for agricultural commodities which is used by law-enforcement, industrial, and research scientists throughout the world. This volume, which is revised every five years, was edited by William Horwitz of the U. S. Food and Drug Administration assisted by H. J. Fisher of The Connecticut Agricultural Experiment Station, A. H. Robertson of the New York State Food Laboratory, and Helen Reynolds, Assistant Editor of the Association.

Heading the list of speakers at the scientific sessions was Dr. I. M. Kolthoff, head of the department of analytical chemistry at the University of Minnesota. He spoke at the general session at 2:00 pm, October 10, on the analytical applications of the rotated platinum electrode, a newly-developed electrometric method of analysis capable of detecting very minute amounts of substances.

At the banquet session, Monday evening, October 10, Mr. George P. Larrick Commissioner of Food and Drugs, was the featured speaker. Dr. W. F. Reindollar of the Maryland State Board of Health and President of the A. O. A. C., delivered the presidential address at the Tuesday afternoon general session.

The impact of the Miller Amendment of 1954 to the Food, Drug and Cosmetic Act setting up the machinery for the establishment of tolerances for poisonous pesticide residues in foods was felt at this meeting. Dr. A. K. Klein of the Food and Drug Administration described the methods used to isolate and identify trace amounts of endrin in leafy vegetables which were volunterily destroyed by the packer before were reached consumer channels. The growers of the vegetables had used this substance contrary to state and federal recommendations with the result that dangerous residues remained on the food. Other reports on methods of analysis for pesticidal residues were given by chemists of the Food and Drug Administration and by Dr. Charles W. Gehrke of the University of Missouri.

The addition of very small amounts of certain drugs to animal feeds often produces astonishing increases in the growth of animals used for food. The amounts of these drugs added to the feed, however, must be carefully controlled to avoid harm to the animal and deposition in the meat intended for human consumption. Methods for their determination was the subject of papers by R. T. Merwin of the Connecticut Agricultural Experiment Station (Sulfaquinoxaline, Arsanilic Acid, and Nitrophenide), C. A. Luhman of the California Department of Agriculture (Furazolidone), W. J. Mader of Merck & Co. (Nicarbazine), W. R. Flach of Eastern States Farmers' Exchange, (Nitrofurazone), V. E. Munsey of the Food and Drug Administration (Diethylstilbestrol), and J. A. Buzard, V. R. Ells, and M. R. Paul of Eaton Laboratories, Norwich, N. Y. (Nitrofurazone and Furazolidone).

Rauwolfia Serpentina is a plant grown in India which is the source material for a recently introduced "miracle drug" for the control of high blood pressure and certain mental disorders. Very closely related plants of the same species, Rauwolfia, however, are useless for this purpose. How the valuable drug product can be differentiated from the others by the use of the microscope and by chemical tests was the subject of papers by W. V. Eisenberg, A. E. Schulze, D. Banes, and J. Carol of the Food and Drug Administration.

Five papers on various aspects of fertilizer analysis were presented by U. S. Department of Agriculture scientists at Beltsville (W. L. Hill, W. H. Armiger, H. E. Batson, Jr., W. M. Hoffmann, B. M. Olive, P. Chichilo, A. W. Specht, C. W. Whittaker, and C. J. Schollenberger), two on disinfectant analysis from the Pesticide Regulation Section, and several papers and reports on methods for food analysis from the Utilization Research Laboratories.

Methods of analysis for the determination of the degree of carbonation of non-sparkling wines, a new type of product which is being considered for domestic production, was the subject of a paper by A. Etienne and A. P. Mathers of the Alcohol and Tobacco Tax Division Laboratory of the Internal Revenue Service. Other papers from this laboratory discussed color in distilled spirits, fusel oil determinations, and the determination of the drugs heroin and quinine.

O. E. REED HONORED IN SURPRISE PRESENTATION FOR 50 YEARS OF SERVICE TO DAIRY INDUSTRIES

Ollie E. Reed, who "retired" this past year after fifty years of service to the dairy industries, nearly half of which was as chief of the Bureau of Dairy Industry of the U. S. Department of Agriculture, was presented with a camera and projector as a token of esteem and affection with which he is regarded

by the industries he has served, at the Dairy States Rally and Awards Night ceremonies in St. Louis, October 25. St. Louis is serving as host city to the conventions of Milk Industry Foundation and International Association of Ice Cream Manufacturers, the week of October 23-28.

The award, presented on behalf of the Dairy Industry Committee by F. Bruce Baldwin, Vice President of Abbotts Dairies, Philadelphia, Pa., and Vice Chairman of the Dairy Industry Committee, was a complete surprise to Mr. Reed.

The Dairy Industry Committee is composed of official representatives of American Butter Institute, American Dry Milk Institute, Dairy Industries Supply Association, Evaporated Milk Association, International Association of Ice Cream Manufacturers, Milk Industry Foundation, National Cheese Institute, and National Creameries Association.

Mr. Reed's "retirement" is only partial; he is soon to go to Puerto Rico in a governmental advisory post, and Dr. Baldwin, in presenting the camera and projector, expressed the hope that he would find much enjoyment in taking pictures in years to come, on assignments all over the world.

MISSISSIPPI STATE COLLEGE WINS OVER 25 OTHER COLLEGES IN TOP DAIRY PRODUCTS JUDGING TOURNEY

Paced by the performances of Joe A. Sims, a 27-year old Air Force veteran, and L. B. Barton, a 24-year old Army veteran, Mississippi State College's three-man dairy products judging team walked off with top honors, beating 25 other colleges, in the 21st Collegiate Students' International Contest in Judging Dairy Products, held October 25 in St. Louis, Mo.

The win gives Mississippi State, coached by Prof. F. H. Herzer, permanent possession of the coveted All Products Bowl, which it has won twice previously, as well as a Fellowship worth $1,380 which will be awarded to one of the three team members by the Mississippi faculty.

Second, third, and fourth place teams in the Contest, which has been co-sponsored since 1930 by American Dairy Science Association and Dairy Industries Supply Association, were:

Second—Iowa State College, coached by Prof. W. S. Rosenberger, which received a Fellowship worth $1,280 and the Cheese Cup;

Third—South Dakota State College, coached by Dr. R. J. Baker, which received a $1,180 Fellowship and the Ice Cream Cup;

Fourth—Ohio State University, coached by Dr. W. L. Slatter, which received a $900 Fellowship.

The team cups for Milk and Butter Judging went to two teams which did not place in the "top four" for all around performance in the Contest. The Milk Cup went to the team from the University of Connecticut, whose coach, Prof. L. R. Dowd, is himself a former contestant. The Butter Cup was taken by the University of Tennessee, coached by Prof. H. N. Carringer.

Awards to the leading teams were presented at the close of a gala States Dairy Rally and Awards Night, held October 26 in the Gold Room of the Jefferson Hotel. The setting for the affair, which honored both the young college students and the state dairy associations which represent the industry regionally, was a "political convention." Cheers by the state association representatives for their "favorite sons"—the college students—sparked an evening of songs, surprises and awards, arranged as a joint-entertainment event by Milk Industry Foundation, International Association of Ice Cream Manufacturers, and Dairy Industries Supply Association.

The top team—Mississippi State—had on it two of the top rated individuals in the contest. Joe A. Sims, of Starkville, Miss., was proclaimed the best all-round judge of dairy products in the world, and presented with a Gold All Products Medal. L. B. Barton, of State College, Miss., who was originally scheduled only as an "alternate" member of the Mississippi team, was entered into the Contest at the last moment, and asquitted himself so well in Butter Judging that he received the Gold Medal in this category.

The second-place team—Iowa State College—which has always been a leading contender for prizes in the unique Contest, also boasted two students who took medals for individual judging performances. They are John Pollei, a 21-year old native of Fairmont, Minnesota, who was awarded Bronze Medals for Cheese and Butter Judging; and James Riekens, a 20-year old native of Belmond, Iowa who received the Bronze Medal for Ice Cream Judging.

The third place team—South Dakota State College—also had two individual medalists on its roster. They are Charles W. Sapp, a 21-year old senior of Brookings, S. D., who received the Bronze Medal for Judging All Products; and Kenneth C. Seas, a 25-year old Navy veteran of White, S. D., who took the Silver Medal for Ice Cream Judging.

The fourth place team—Ohio State University—had Ronald Perkins, a 21-year old senior of Springfield, Ohio, who received the Silver Medal for All Products Judging and the Gold Medal for Ice Cream Judging.

Other individual medalists in the Contest were:

From the University of Georgia team, Walter E. Verity, Jr., a 25-year old Air Force veteran from Long Island, N. Y., who received the Gold Medal for Cheese Judging.

From the University of Maryland, Calvin Scott Tabler, a 24-year old senior from Dunellen, N. J., who received the Bronze Medal for Milk Judging.

Fron the University of Minnesota, Edward E. Brugler, a 20-year old junior from St. Paul, Minn., who received the Silver Medal for Butter Judging.

From Cornell University, in Ithaca, N. Y., Donald S. Gay, a 21-year old senior from Owego, Tioga County, N. Y., who received the Silver Medal for Cheese Judging.

From North Carolina State College, Charles Thaddeus Weatherly, a 22-year old senior from Raleigh, N. C., who received the Silver Medal for Milk Judging.

From Pennsylvania State University, Richard Mong, a 20-year old Junior from Seneca, Pa., who received the Gold Medal for Milk Judging.

The Contest itself was held Monday morning, October 24, in Kiel Auditorium in St. Louis. Nearly 100 college juniors and seniors comprised the teams from 26 of the nation's leading land grant colleges. The contestants judged ten samples each of milk, butter, cheese and ice cream, and recorded their impressions on complicated scoring cards. These students whose findings came closest to those of the official judges were declared the winners in the Contest.

C. J. Babcock, of the Foreign Agricultural Service of the U. S. Department of Agriculture, served as the Superintendent of the Contest. D. R. Stroebel, also of FAS-USDA, served as Assistant Superintendent.

Official judges were:

Milk—Donald A. Pettee, The Creamery Package Mfg. Company;

Butter—Dr. N. E. Fabricius, Ladysmith (Wisconsin) Milk Producers Cooperative Association;

Cheese—H. L. Wilson, Kraft Foods Company;

Ice Cream—J. Hoffman Erb, The Borden Company.

Chairman of the Committee which represented American Dairy Science Association in arrangements for the Contest was Dr. G. Malcolm Trout of Michigan State College. Charles Weinreich, Cherry-Burrell Corporation, headed a similar committee in Dairy Industries Supply Association.

All the team awards in the Contest—Fellowships and silver cups—are presented by Dairy Industries Supply Association, except the Ice Cream Cup which is presented by International Association of Ice Cream Manufacturers. The medals to the individual winners are presented, for their respective products, by the American Butter Institute, International Association of Ice Cream Manufacturers, Milk Industry Foundation, and National Cheese Institute. Dairy Industries Supply Association awards the All-Products medals.

FINANCIAL REPORT (1955)

Howard H. Wilkowske, *Secretary-Treasurer*

For the last fiscal year ending July 15, 1955 the International Association of Milk and Food Sanitarians had a total gross income of $41,701.66. This includes all forms of income derived primarily from membership dues from 4,033 members and advertising and reprint income from the Journal of Milk and Food Technology with a circulation of 5,000 issues monthly.

All financial transactions are handled in the office of the Executive Secretary and Managing Editor Mr. H. L. Thomasson in the main office of the Association in Shelbyville, Indiana. All receipts are deposited in a General Fund from which withdrawals can be made only upon co-signature of the Executive Secretary and the Secretary-Treasurer. Withdrawals are made to an Operating Fund maintained at a level of around ten thousand dollars which is necessary for an efficient operation of an organization of this size.

The firm of Robert E. Eck, Certified Public Accountant, of Shelbyville, Indiana, is retained to maintain accurate and reliable accounting of all finances of the Association. His services consist of monthly audits, quarterly reports to the Executive Board and an annual complete audit and report. The Executive Board has carefully and thoroughly reviewed the annual report and has found the finances of the Association in proper order.

The Balance Sheet shows the present financial position of the Association. By dividing the Total Current Assets by the Total Current Liabilities a working capital ratio of 4.1 is obtained; a ratio of 2.0 is usually considered satisfactory. Since the Association agrees to render certain services for a definite future period (such as sending Journals to members which have been paid for in advance), this deferred income liability should be recognized, which is estimated at seven thousand dollars. The net addition to the Reserve for Contingencies for the year was $2,709.57. At the present time the financial position of the Association is excellent, but it should be

pointed out that increasing needs for additional funds in the future may require additional income to conduct the overall activities of the Association in a more effective manner.

BALANCE SHEET

Assets

Current Assets	
Cash	$11,679.79
Accounts receivable	2,490.45
Inventory of supplies	1,645.84
Prepaid expenses	30.21
Total Current Assets	$15,846.29
Fixed Assets	
Office, addressing and mailing equipment, at cost less accumulated depreciation	2,133.84
TOTAL ASSETS	$17,980.13

Liabilities and Reserves

Current Liabilities	
Accounts payable	$ 1,651.42
Accrued salaries and bonus	456.33
Accrued payroll taxes	565.10
Reserve for special award	1,153.06
Total Current Liabilities	3,825.91
Reserve for Contingencies	14,154.22
TOTAL LIABILITIES AND RESERVES	$17,980.13

SANITARIANS' MEETING PASSES RESOLUTION ON ANTIBIOTICS, FOOD AND DRUG ACT ANNIVERSARY

Resolutions dealing with antibiotics in milk, the anniversary of the Pure Food and Drug Act of 1906, and certain other matters were unanimously adopted at the closing business session of the 42nd Annual Meeting of International Association of Milk and Food Sanitarians, October 5, at the Bon Air Hotel in Augusta, Ga.

The resolution dealing with antibiotics reads as follows:

WHEREAS

Antibiotics are widely used to treat mastitis in dairy cows, and WHEREAS

Significant amounts of residual antibiotics are frequently found in samples of herd milk, and WHEREAS

These amounts interfere with the lactic acid fermentation in cheese, cottage cheese, fermented milks, etc., as well as possibly sensitizing milk consumers to the antibiotic present,

BE IT THEREFORE RESOLVED THAT THE INTERNATIONAL ASSOCIATION OF MILK AND FOOD SANITARIANS strongly urge the various governmental bodies concerned to enact and enforce legislation aimed at the elimination of milk supplies containing significant quantities of antibiotics; and that the Executive Board be instructed to see that proper action is taken to implement this Resolution.

The resolution on the anniversary of the Pure Food and Drug Act reads as follows:

WHEREAS

It is — due to the complexities of our civilization — no longer practical for each consumer or family to produce, preserve, and prepare a great portion of those foods consumed, and WHEREAS

A great and complex industry in which many of us are employed has grown up to provide such foods, and WHEREAS

The benefits derived by our citizens from those food industries would have been unattainable had not wisely drawn and wisely enforced laws given protection both to consumer (who can be confident of these commercially prepared foods) and to producer or manufacturer (who has been protected from the unscrupulous few who might have damaged the good name of the industry), and WHEREAS

The year of 1956 will mark the 50th Anniversary of the passage of the Food and Drugs Act of 1906, the law which so contributed to these benefits.

THEREFORE BE IT RESOLVED that the members of International Association of Milk and Food Sanitarians recognize:

1. That it is fitting for 1956 to be marked by special recognition of those who worked tirelessly for the passage of the Food and Drugs Act of 1906, and also those who pioneered and followed in its wise enforcement;

2. That by such recognition, we would honor also those who have been responsible for improvements and revisions in that Act, which lead to the Federal Food, Drug and Cosmetic Act which now exists;

Be it further resolved that this resolution be spread on the minutes of this Association, and the Secretary be instructed to forward a copy to the Secretary of Health, Education and Welfare, and a copy to the Commissioner of Food and Drugs.

Additionally, resolutions were also passed praising the work of the Georgia Host Chapter to the international association, thanking the speakers, commending the sponsors of the Sanitarian's Award, and memorializing deceased members of the association of the past year.

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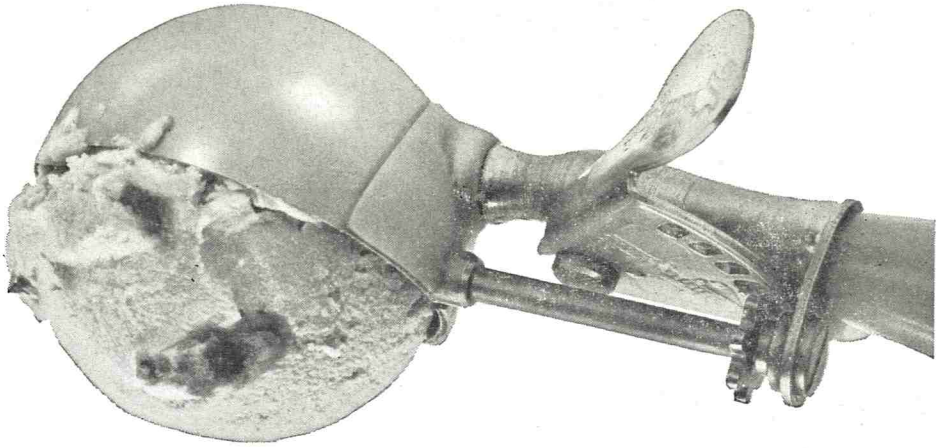

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Because of its high calcium and phosphorus content, ice cream meets specific dietary requirements for the tubercular patient[1] and the pregnant[2] and lactating woman.[3]

An ideal food with which to tempt the older person, ice cream supplies many elements necessary in building resistance to infection[4]—in retaining nutritional status in osteoporosis,[5] in chronic colitis and other gastrointestinal diseases that interfere with digestive processes.[6]

For the pediatric patient, too, ice cream is not only traditional in the post-tonsillectomy period, but is also useful during recovery from poliomyelitis.[7]

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[1]Brewer, W. D., et al: J. Am. Dietet. A. 30:21 [Jan.] 1954. [2]Murphy, G. H., and Wertz, A. W. : J. Am. Dietet. A. 30:34 [Jan.] 1954. [3]Spies, T. D. : J. A. M. A. 153:185 [Sept. 19] 1953. [4]Zeman, F. D., in Stieglitz, E. J. : Geriatric Medicine, ed. 2, Philadelphia, W. B. Saunders Company, 1949, p. 136. [5]Sebrell, W. H., Jr., and Hundley, J. M., in Stieglitz, E. J. : Geriatric Medicine, ed. 3, Philadelphia, J. B. Lippincott Company, 1954, pp. 186-187. [6]Barborka, C. J. : Treatment by Diet, ed. 5, Philadelphia, J. B. Lippincott Company, 1948, pp. 607-608. [7]Seifert, M. H. : J. Am. Dietet. A. 30:671 [July] 1954.

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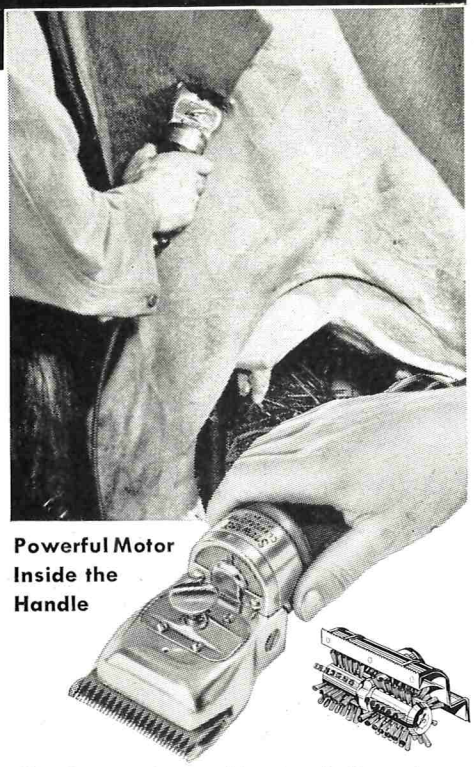

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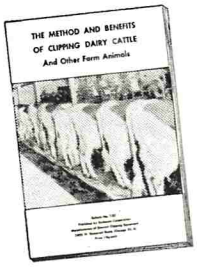

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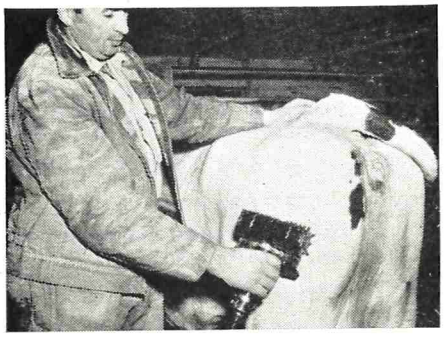

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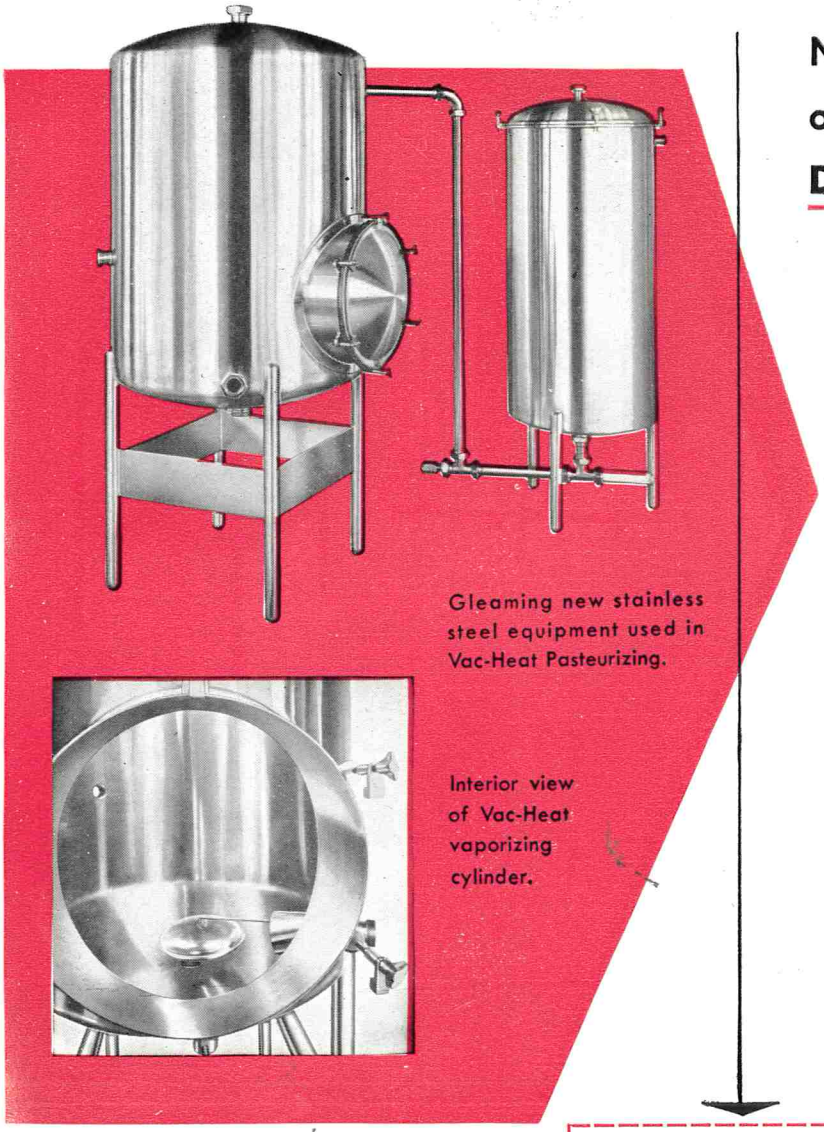
announces
NEW VAC-HEAT PASTEURIZING PROCESS



Gleaming new stainless steel equipment used in Vac-Heat Pasteurizing.

Interior view of Vac-Heat vaporizing cylinder.

Now the Flavor of Your MILK Can Be DOUBLE PROTECTED

Now—with the best equipment that money can buy you can bring your customers finest tasting milk and dairy products that nature and science can produce!

In addition to protecting the quality of your milk by scientific H.T.S.T. plate heat exchanger pasteurizing, you can now add the very latest in Vacuum Pasteurizing equipment (see the pictures). Cows will be cows—and even the selected beauties that produce your milk sometimes eat weeds. This new Vac-Heat Process—latest and most modern of its kind—helps remove odor or off-flavor resulting from weeds or other seasonal forage. It's a real sales builder that you can cash-in with in a BIG way!

If You Aren't Already Giving Your Customers This Business-Boosting Flavor-Protection, Ask Your CP Salesman About the New, Exclusive CP Vac-Heat Process

The Whole Family Will Like the Double Protected Flavor of Your Milk. You can Build Business by Advertising and Merchandising VAC-HEAT Pasteurizing

FREE—ADVERTISING MATS!

The Creamery Package Mfg. Company
General and Export Offices
1243 West Washington Blvd., Chicago 7, Illinois

☐ Please send us further information on CP Vac-Heat Pasteurizing.

☐ Have your representative call.

Name _____

Title _____

Company _____

Address _____

City _____ Zone ___ State _____

DIFCO

Bacto-Dehydrated Media for Microbiological Assay of VITAMINS and AMINO ACIDS

These media contain all the necessary nutriments for the growth of specified test organisms for the microbiological assay of vitamins and amino acids except for the component under assay. These basal media require only the addition of specified increasing amounts of the vitamin or amino acid being assayed to obtain a growth response which may be measured by acidimetric or turbidimetric methods for the construction of standard curves. The vitamin or amino acid content of the material under assay is determined by adding appropriate concentrations of the test substance to the basal medium and comparing the growth response obtained with that of the standard.

BACTO-RIBOFLAVIN ASSAY MEDIUM
BACTO-NIACIN ASSAY MEDIUM
BACTO-THIAMIN ASSAY MEDIUM
BACTO-PANTOTHENATE ASSAY MEDIUM
BACTO-B_{12} ASSAY MEDIUM USP
BACTO-CS VITAMIN B_{12} AGAR
BACTO-FOLIC ACID ASSAY MEDIUM
BACTO-PYRIDOXINE ASSAY MEDIUM
BACTO-BIOTIN ASSAY MEDIUM
BACTO-CHOLINE ASSAY MEDIUM
BACTO-CF ASSAY MEDIUM
BACTO-TRYPTOPHANE ASSAY MEDIUM
BACTO-LEUCINE ASSAY MEDIUM
BACTO-METHIONINE ASSAY MEDIUM
BACTO-LYSINE ASSAY MEDIUM
BACTO-ISOLEUCINE ASSAY MEDIUM
BACTO-ARGININE ASSAY MEDIUM
BACTO-TYROSINE ASSAY MEDIUM
BACTO-CYSTINE ASSAY MEDIUM

The method employed in carrying stock cultures of the test organisms and preparing the inoculum for microbiological assay is important. The following media have been developed especially for carrying stock cultures and for preparation of the inoculum:

BACTO-MICRO ASSAY CULTURE AGAR
BACTO-MICRO INOCULUM BROTH
BACTO-B_{12} CULTURE AGAR USP
BACTO-B_{12} INOCULUM BROTH USP
BACTO-NEUROSPORA CULTURE AGAR

BACTO-VITAMIN FREE CASAMINO ACIDS, dehydrated, is an acid hydrolysate of vitamin free casein prepared especially for laboratories investigating microbiological assay of vitamins.

Descriptive literature available upon request

DIFCO LABORATORIES
DETROIT 1, MICHIGAN

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