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SANITARY CONDITION OF DAIRIES

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HEARINGS

BEFORE

U. S. Congress, House.

THE COMMITTEE ON RULES

HOUSE OF REPRESENTATIVES

SIXTY-FOURTH CONGRESS

FIRST SESSION

ON

H. RES. 137

PROVIDING FOR A COMMITTEE TO INVESTIGATE
THE SANITARY CONDITION OF DAIRIES

TUESDAY, APRIL 11, 1916



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SANITARY CONDITION OF DAIRIES.

COMMITTEE ON RULES,
HOUSE OF REPRESENTATIVES,
COMMITTEE ROOM, CAPITOL,
Washington, D. C., Tuesday, April 11, 1916.

The committee this day met, pursuant to notice, at 10.30 o'clock a. m.

Present: Hon. Edward W. Pou (presiding), Hon. Finis J. Garrett, Hon. James C. Cantrill, Hon. Pat Harrison, Hon. Philip P. Campbell, Hon. Irvine L. Lenroot, Hon. Burnett M. Chipperfield.

Mr. Pou. Mr. Linthicum, you have charge of the hearing.

STATEMENT OF HON. J. CHARLES LINTHICUM, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND.

Mr. LINTHICUM. Mr. Chairman, I will not take the time to read this resolution. It is House resolution No. 137, and I ask leave to insert it in the hearing.

(The resolution under consideration is as follows:)

[H. Res. 137, Sixty-fourth Congress, first session.]

Whereas it is reported by the Bureau of Animal Industry that ninety-four and five-tenths per centum of the creameries of the country are insanitary to a greater or less degree; that sixty-one and five-tenths per centum of the cream used is unclean or decomposed, or both; that seventy-two and six-tenths per centum of the cream is not pasteurized, but is made into butter to be consumed in raw state, in which state disease germs retain their virulence for a long period of time; that a large percentage of all dairy cattle are affected with tuberculosis; and that infected dairy products are among the active agents in the spread of tuberculosis, typhoid fever, and other infectious diseases; and

Whereas dairy products are the most widely used of all human foods; and Whereas dairies and dairy products are not subject to Federal inspection, so that there is a growing sense of alarm among the consumers. Therefore be it

Resolved, That the Speaker of the House of Representatives appoint a committee of five Members of the House whose duty it shall be to investigate and report as speedily as practicable (a) whether conditions prevailing in dairies and dairy products seriously menace the health and property of people of the United States; (b) whether Federal inspection and supervision, either alone or in cooperation with State and municipal inspection and supervision is necessary to the reasonable protection of the health and property of the citizens of the United States; (c) if so, then the best and most economic methods of inaugurating and enforcing such inspection and supervision.

Second. That for the purpose of fulfilling its functions said committee is empowered to summon and examine witnesses, enforce the production of records, and to do all other things needful and lawful to accomplish its purpose.

Resolve further, That the expenses of said inquiry and investigation shall be paid out of the contingent fund of the House upon vouchers approved by the chairman of said committee, to be immediately available.

Mr. LINTHICUM. I do not propose to go into any argument on the resolution myself, because it is a subject which requires very deep study—more than I have been able to give to it—and we have a number of experts here to-day—men who have devoted many years of their active life to the study of this question.

The main feature I want to bring out is this fact, that we are not asking for legislation; we are asking for the appointment of a committee to hear witnesses and to determine whether legislation is necessary or not, and if they shall determine that legislation is necessary, then to say what legislation is necessary to cover the whole situation, properly and fairly to all parties concerned.

I have taken this matter up in the interest of humanity, I might say, because I feel that the insanitary condition of the dairies and dairy products of the country is a menace to the health of our people. I feel that tuberculosis, typhoid fever, and other diseases are being spread among the children, in particular, of this country—those who are absolutely unable to protect themselves, and, to a large extent, among adults—the grown people of the country; but more particularly among the children, and it is my object to have such legislation eventually enacted as will cure this present state of affairs, just as we did with respect to the meat-inspection question as to defective meat or meat which should not be sold, just as legislation was passed in the interest of the people on the meat question, and on many other questions which have come before Congress.

Now, in order to lessen my work on this subject, I have asked my friend, Mr. Ralph H. Case, a member of the bar of this District, and a resident of my State, to assist me in the hearing to-day, if that meets with the approval of the chairman.

Mr. POU. Just conduct the hearing as you see fit, Mr. Linthicum.

Mr. LINTHICUM. Yes; and the first gentleman we want to bring before the committee is Dr. Melvin, of the Department of Agriculture.

Mr. POU. Dr. Melvin, we will be pleased to hear from you.

Mr. LINTHICUM. Dr. Melvin is Chief of the Bureau of Animal Industry, in the Department of Agriculture.

STATEMENT OF DR. A. D. MELVIN, CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

Mr. CASE. Dr. Melvin, you are familiar with the resolution that has been laid before the committee?

Dr. MELVIN. Yes, sir; I have read it.

Mr. CASE. You are the Chief of the Bureau of Animal Industry of the Department of Agriculture, are you not?

Dr. MELVIN. Yes.

Mr. CASE. Will you make a general statement along such lines as you may see fit, in regard to the merits of this resolution?

Dr. MELVIN. Probably I could best express that by introducing a letter prepared by the Secretary of Agriculture, which has been used quite generally in answering correspondence with reference to this bill. If I may be permitted, I will read this letter.

Mr. CASE. Certainly, sir.

(Dr. Melvin thereupon read aloud a letter dated April 5, 1916, addressed to Hon J. Charles Linthicum, by Hon. D. F. Houston, Secretary of Agriculture, which appears below in full, as follows:)

DEAR MR. LINTHICUM: I have your letter of March 23, requesting data in connection with H. Res. 137, which provides for a committee to investigate the sanitary condition of dairies and dairy products in this country.

The Bureau of Animal Industry already has done a good deal along the line of renovated butter factory and dairy inspection; milk examination, quarantine of, tuberculin tests of, and experimentation with dairy cattle. Much good undoubtedly has been accomplished, resulting in the destruction of tubercular dairy cattle and improved sanitation in dairies and renovated butter factories. The work is being continued to the fullest extent possible with the funds available under existing authority of law.

Much has also been done by the Bureau of Chemistry under the food-and-drugs act, which has been beneficial in securing better sanitation in dairies and greater cleanliness of milk products shipped in interstate commerce. This statute provides that an article of food shall be deemed to be adulterated "if it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance." Under this provision milk containing bacteria and dirt indicating the presence of filth or decomposition has been sampled and the shippers have been prosecuted. These prosecutions have resulted in great improvement in the milk supply of some of our larger cities. The bureau is continuing to perform this work, but, of course, its operations are confined solely to milk and milk products shipped in interstate commerce, or sold in the District of Columbia, or the Territories of the United States.

From a large amount of correspondence received by the department, it appears that a campaign has been started having for its object the securing of Federal legislation governing the inspection of milk and milk products, and that this subject is involved in trade controversies which have long existed between people financially interested in dairying and the resultant industries, and others who are active business competitors. While this condition should not interfere with the securing of effective legislation to protect the public against impure milk and milk products, nevertheless it emphasizes the necessity of proceeding carefully to analyze the situation in order properly to understand what evils are intended to be remedied and how the personal and property rights of citizens will be affected by the proposed legislation. Were Congress to enact a statute providing an effective and comprehensive system of inspection of milk and milk products shipped in interstate commerce, this would require extremely large appropriations, at least equivalent to those now provided for meat inspection.

Unquestionably, some of the dairies and creameries are insanitary, but the data available, especially on the subject of creameries, are probably not sufficient to be used as a basis for legislation. The terms "dairies" and "creameries" have often been erroneously used as synonyms, which has led to some confusion and misunderstanding. The word "dairy" is commonly accepted as meaning a dairy farm where milk is produced; while the term "creamery" implies a manufacturing establishment where butter is made.

Our officials, in the course of their educational work, have been in close contact with State and municipal health authorities, and have inspected hundreds of dairy farms annually during the past decade. Nearly every State of the Union, and most of the cities, have statutes, ordinances, and regulations to control the milk supply, and dairy inspections are required by most of these regulations. The quality of milk supplied for use in the fluid state has improved considerably within the last few years, due to better sanitary conditions at the dairy farms and the more extensive use of pasteurization.

The regulation of creameries and the material used for manufacture in such establishments has not been so extensive or complete as that of dairies producing milk for city and town consumption. The Bureau of Animal Industry has made investigations to determine the sanitary condition of creameries and cream-buying stations, and has found that while some of them were in excellent condition, others were very unsatisfactory. Recent observations, however, indicate that there is a desire on the part of those interested to secure improvement.

The department has in its files much valuable information regarding the production of milk and milk products. This was not collected for the purpose

of furnishing a basis for legislation, but was obtained in the course of investigations which the department has been authorized to undertake from time to time. You will understand, of course, that a large number of the dairies and creameries of the country operate only locally, and consequently could be dealt with only by the State or local authorities. It would not be possible to determine what Federal legislation might be needed governing those which engaged in interstate commerce unless the Congress directs that special investigations be made with that definite object in view.

Very truly, yours,

D. F. HOUSTON, *Secretary.*

MR. CASE. Dr. Melvin, do you wish to make any further statement, other than the reading of that letter?

DR. MELVIN. That deals with the question quite specifically. I do not know in what regard I could make a further statement.

MR. CASE. Dr. Melvin, does your bureau recognize it as a fact that there is a need for better milk and better dairy products in the United States of America?

DR. MELVIN. We feel that there is. We have been working toward that end constantly, as far as we were able to.

MR. CASE. Doctor, I call your attention to Hoard's Dairyman of November 5, 1915, page 458, and to the following extract from an article appearing therein entitled "Good cows and good cream," as follows:

Much is said, and too little done, about the importance of patrons delivering a better quality of cream to our creameries. Too many feel that if they refuse to accept anything but good cream they will suffer financially, that competitors will drive them out of business.

Do you regard it as a fact that competition has forced down the grade of cream used in the manufacture of butter that goes into interstate commerce?

DR. MELVIN. I think that it has been forced down through fear of competition, in the same way that the quality of eggs have been forced down, and has resulted in changing the system of buying and selling and which has resulted in the improvement of the egg supply; that is, where eggs were bought strictly on the quality of the eggs, without reference to the number, and I think that cream perhaps has been accepted by creameries which would not ordinarily care to handle such cream, except through fear that their competitors would handle it.

MR. CASE. The quality of cream to which you refer, Doctor, is that such as to be unfit for food or dangerous as food?

DR. MELVIN. I presume—I am only speaking of general information and reports; not from personal knowledge—that some of this cream is unfit; of course that is not the majority of it; the bulk of it is fit, but some has somewhat deteriorated in quality, and probably a small part of it would be unfit for food.

MR. LINTHICUM. Doctor, I want to call your attention to the fact that this resolution is merely asking for the very thing that the Secretary of Agriculture recommends. I want to read this part from that letter:

It would not be possible to determine what Federal legislation might be needed governing those which engage in interstate commerce unless the Congress directs that special investigations be made with that definite object in view.

I quote that from the Secretary's letter. You will note that this resolution has as its object and purpose the appointment of a committee to determine what legislation, if any, is necessary.

Dr. MELVIN. I so understand.

Mr. LINTHICUM. And that, I believe, is in conformity with the Secretary's letter, is it not?

Dr. MELVIN. Yes.

Mr. CASE. Dr. Melvin, you stated that you believed that the bulk of the cream used in the manufacture of butter is good cream. I will call your attention to a statement contained in Chicago Dairy Produce of March 21, 1916, page 18, under the heading of "Cream on the farm," an article covering an address by J. D. Jarvis, of the De Laval Dairy Development Department, as follows:

According to the Dairy Division of the United States Department of Agriculture, there is manufactured annually over 627,000,000 pounds of creamery butter and 995,000,000 pounds of farm butter, or a total of over 1,500,000,000 pounds of butter. From reliable information only 15 per cent of this butter grades as extras or best-quality butter, while the remaining 85 per cent grades from firsts to packing stock, the poorest quality of butter.

Is it not a fact that the element which enters into the 85 per cent of poor butter, and which makes it the poor grade of butter, is the fact that low grade, dirty, rotten, or putrid cream is used in the manufacture of that butter?

Dr. MELVIN. Mr. Rawl, of our dairy division, is here and will be able to speak with more authority than I could; but the fact is that your previous question referred to cream. What you are now referring to is butter. A small amount of poor cream would render a large amount of good cream unfit to make this high-grade butter; so that I think my previous answer would still stand, although, as I said, that was a personal impression from various sources, and not from personal investigation.

Mr. CASE. Doctor, the American Food Journal of November, 1915, under the heading "Impending storm in the butter world," makes the following statement:

It will behoove certain of our friends engaged in the administration of food control in a number of States to give serious thought to the gathering war cloud in the butter and dairy world. It is not commonly known among consumers that the great bulk of butter is colored in imitation of the June product.

Mr. CHIPERFIELD. What is the name of that publication?

Mr. CASE. The American Food Journal.

Mr. CHIPERFIELD. Who publishes that?

Mr. CASE. This magazine is published the 1st of each month at 15-21 South Market Street, Chicago, by the American Food Journal, incorporated, H. B. Meyers, president.

Mr. CHIPERFIELD. Formerly food commissioner of Illinois, I believe. I know he was a chemist for the board, or he was officially connected with the board in Illinois.

Mr. CASE. I will read that again:

It is not commonly known among consumers that the great bulk of butter is colored in imitation of the June product.

Doctor, is the coloration of butter permitted under the statutes of the United States?

Dr. MELVIN. I would prefer if you would ask one of the Bureau of Chemistry men here who have to deal specifically with the food-and-drugs act.

Mr. CASE. Very well, sir; we will reserve that for the present.

Dr. MELVIN. If you please.

Mr. CASE. I call your attention, Doctor, to the American Food Journal, Chicago, December, 1915, page 613—

Mr. POU (interposing). You gentlemen will have to sort of speed up. You can conduct it in your own way, but there will have to be a time set when we will wind up this investigation; and the way you are starting out it looks to me as if it will be almost interminable.

Mr. CASE. We have a considerable mass of data, which has been arranged and compiled.

Mr. POU. This committee is not supposed to make a complete and exhaustive investigation of any of the subjects that have been presented here. Our investigations are largely preliminary and directed to the purpose of deciding whether it is advisable to report the resolution. I merely want to throw that out, by way of intimation, so that you gentlemen will have in view some definite time when you can bring the matter to a close. We can not be here day after day, as an ordinary legislative committee might sit.

Mr. LINTHICUM. If you think, Mr. Chairman, that perhaps we had better go along and ask the doctor his views about this matter, and then get permission from the committee to introduce these matters into the hearing later, we can do that.

Mr. POU. Certainly. If I may be permitted to make a suggestion with respect to these excerpts from these papers, it does not seem to me, speaking for myself alone, necessary that they should all be read here in the presence of the committee. If you have any data that you desire to have incorporated in the hearings, you may put in whatever you see fit at your convenience, and we will take them under consideration.

Mr. LINTHICUM. Yes; then we will pursue that course, Mr. Case.

Mr. CHARLES H. SLOAN, of Nebraska. This resolution itself, coupled with statements that have followed its distribution throughout the country, has, of course, made a rather serious charge against one of our most important industries in this country, and there are representatives here of the dairy products producing interests—two or three of them—but if there is to be an investigation, it seems that it might be set at some future date, so that the side which represents, or those who represent, this industry, attacked as it is, shall have an opportunity to be heard, and a convenient time for them would be the fifth or sixth of the coming month, as there is to be a gathering of dairy and creamery people in the National Capital here at that time.

Mr. POU. I think you may be sure, Mr. Sloan, that this committee will not take any action without giving any interest that desires to be heard a reasonable opportunity to present any matter they may desire to present to the committee.

Mr. SLOAN. Then, if we may have until that time, it would give them that opportunity. I will call the attention of the chairman to this fact: That the dairy interests are represented in every State in the Union, and there will be men from probably every State in the Union here, and they can take advantage of being here to present the testimony which they will have ready to present at that time, and save the expense of a double trip.

As I understand, the dairy-producing industry of this country is not attempting to defeat any investigation or to resist the appoint-

ment of any committee; they recognize, as I understand it, the fact that the only real occasion for the appointment of this committee or for this investigation would be the rather serious charge presented in a report of 1912, and the very serious blackwashing that has been presented against the industry since the introduction of this resolution.

Mr. POUL. This hearing is on a resolution introduced by Mr. Linticum, and he, for the time being, is offering his witnesses here. There will be opportunity, I am sure, for a hearing for the others.

Mr. LINTICUM. I want to say, in answer to my colleague, Mr. Sloan, that we are not asking for an investigation by this committee of the dairies and dairy products of the country, but we are asking that a committee be appointed by the House, which will take up the question as to whether an investigation is necessary or not, and whether legislation is necessary. I have a night letter or rather a telegram from Mr. W. E. Skinner, secretary of the National Dairy Council, in which he says that they are to meet here in May, I believe it is; and I also had an interview with the Speaker of the House last night in which he said some gentleman had wired him in reference to it. My idea was that we would produce our case as rapidly as we can, and then when those gentlemen come, let them take up the question a little further. I will introduce this telegram in the hearing.

(The telegram referred to appears in full below, as follows:)

CHICAGO, ILL., April 10, 1916—2.28 p. m.

HON. J. CHARLES LINTICUM,

House of Representatives, Washington, D. C.:

Your favor of 5th instant received this morning and at the same time advice that hearing on your resolution affecting the dairy industry is set for tomorrow forenoon before Committee on Rules. We beg to submit that we have not had an advice on the hearing of this resolution until this morning and can not possibly reach Washington to be heard. The dairy interests have a meeting on May 5 and 6 in Washington to discuss constructive legislation and at this meeting men from every branch of dairying will be present who can give valuable information to the committee upon all of the dairy and creamery methods and interests and I would urge that the hearing be deferred until following that meeting if not to some date when we can adjust ourselves to attend the hearing at Washington. Our only interest in this is to aid you in securing such testimony from experts as will equip you to reach constructive legislation upon the subject.

Mr. CAMPBELL. Have you men here who can give us the reasons, if any, why a committee should or should not be appointed?

Mr. LINTICUM. I think we have.

Mr. CAMPBELL. Why, then, go into all this laborious detail before this committee?

Mr. CHIPERFIELD. There surely would not be any question in the minds of this committee that pure cream is desirable in dairy products and that good butter is better than contaminated butter. Those are matters of ordinary observation, and they do not require proof.

Mr. LINTICUM. We will get along as rapidly as we can, then.

Mr. CASE. Dr. Melvin, the statutes of the United States and the pure food and drugs act in particular, do not require or provide for pasteurization of milk or butter going into interstate commerce?

Dr. MELVIN. No, sir.

Mr. CASE. Prior to the passage of the act of June 30, 1906, providing for Federal meat inspection, and prior to the passage, even, of

acts antecedent to that, which made the meat-inspection service what it is to-day, the condition existing was precisely the same as it is to-day with regard to the product of dairies; that is to say that if a man shipped diseased meat in interstate commerce and he was apprehended he was prosecuted; that is the fact, is it not?

Dr. MELVIN. There was no comprehensive system of meat inspection prior to 1906. While there were acts that provided and authorized inspection for export meats, there were no specific laws dealing with interstate shipments of diseased meat, and it was generally taken care of by the laws of the various States in which the violations occurred.

Mr. CASE. A condition arose under that set of laws, did it not, Doctor, which was a public scandal?

Dr. MELVIN. The previous laws referred only to the inspection of the animals before slaughter and at the time of slaughter. They made no provision for the subsequent inspection of the meats, nor did they make any provision for the sanitary conditions surrounding the slaughter and the packing of the meats. Those things were, however, corrected by the present law.

Mr. CASE. Today, under the pure food and drugs act, if a man ships in interstate commerce dairy products the result of diseased animals and he is apprehended he is prosecuted, is he not?

Dr. MELVIN. Oh, yes; the food and drugs act provides for that.

Mr. CASE. Then the difference between the status of the meat-inspection service and that of dairy products is that, while all the meat going into interstate commerce is inspected at the killing plant, the dairy product, regardless of what it may contain, depends solely upon the activity of the Government officials in apprehending the particular offender?

Mr. CHIPERFIELD. May I ask Dr. Melvin a question?

Mr. POU. Yes.

Mr. CHIPERFIELD. There is also this further distinction, is there not, Doctor, that the inspection in the meat industry is confined to a few centers, whereas the inspection in the milk industry or dairy industry would be multiplied many times and countrywide, would it not?

Dr. MELVIN. The meat inspection is countrywide, but as to the numbers, of course, the meat-inspection establishments are comparatively few.

Mr. CHIPERFIELD. How many?

Dr. MELVIN. Well, roughly, 900; between 900 and 1,000.

Mr. CHIPERFIELD. This proposed inspection would cover wherever there was a dairy, would it not?

Dr. MELVIN. One that was engaged in interstate business. We figure or estimate that the meat inspection includes about 60 per cent of the meat consumption of the United States.

Mr. CHIPERFIELD. If you will develop that line of thought, Mr. Case, I will thank you to do so, and I will not interrupt you.

Mr. CASE. I appreciate that very much. The inspection, let me say, is not intended or not called for in this resolution. The question—

Mr. CHIPERFIELD (interposing). But this resolution, the scope of it, could go to that, and I merely had in mind this point while you were passing with Dr. Melvin, and it was not for the purpose of

interfering with your examination, but for the sake of much needed information on my own part.

Mr. CASE. I have one further question, Dr. Melvin. From time to time people have been apprehended and prosecuted for shipping in interstate commerce adulterated butter. This butter, in many cases, has been adulterated with foreign fats; sometimes it has been cottonseed oil, and sometimes it has been oleomargarine. Is it not a fact, Doctor, that the plants wherein oleomargarine is manufactured for human consumption are inspected under the meat-inspection act?

Dr. MELVIN. Yes. Oleomargarine has been determined as a meat food products, and, for that reason, comes under the provisions of the meat-inspection act.

Mr. CASE. Doctor, the butter which has been found to be adulterated with foreign fats came from plants where there was no such inspection; is not that a fact?

Dr. MELVIN. I am not familiar with the adulteration of butter with foreign fats. The usual adulteration of butter is through an excessive amount of moisture.

Mr. CASE. I call your attention to a reference in the annual report of the Commissioner of Internal Revenue for 1915, page 27, as follows:

In addition to the completion of these four cases, one other case was discovered during the current fiscal year where the amount out of which the Government had been defrauded amounted to \$1,503,203.30, which sum represented to tax of 10 cents per pound on the product manufactured for a period of six years that these frauds had continued undetected, and during which time all of the product in this case was placed on the market as butter, without payment of any tax.

Could frauds continue undetected in a plant having Federal inspection of meat and meat food products?

Dr. MELVIN. I think not.

Mr. CHIPERFIELD. Let me inquire there, Doctor: Suppose dirty cream came from a milk producer and went to some dairy and was manufactured, would that be observable at the creamery where it was manufactured, through the tests that your department carries on? If it were contaminated and dirty, but not perhaps infected, but so as to be repulsive for human use, would that be detected by your inspection?

Dr. MELVIN. We have no systematic inspection of—

Mr. CHIPERFIELD (interposing). But you could detect it if it were a filthy product, contaminated, and not fit for human use?

Dr. MELVIN. Not necessarily; not in the finished product.

Mr. CHIPERFIELD. Would you not have to know the dairy conditions under which it was produced?

Dr. MELVIN. Yes; we would have to know the conditions at the dairy, and to have access to the creamery where it was manufactured. They could centrifugalize the cream so as to take out all the sediment, so it could not be observed.

Mr. CHIPERFIELD. But merely taking them out would not make it delectable for human use, would it?

Dr. MELVIN. It is remarkable what apparently nice butter can be made from very inferior cream by modern methods.

Mr. CASE. Doctor, can butter made from inferior or infected cream, or from cream infected with tubercular bacilli, be rendered free from those contaminating influences by any mechanical process?

Dr. MELVIN. It could be rendered free from contamination of diseased organisms through pasteurization.

Mr. CASE. I simply asked in regard to a mechanical process—the centrifugal process—to which you referred.

Dr. MELVIN. I referred to pasteurization.

Mr. GARRETT. Mr. Chairman, unfortunately I had to be a little bit late in getting in this morning. I understood this hearing was to obtain information upon this resolution introduced by Mr. LINTHICUM. Is the gentleman desirous of giving us information touching on this, or just what is he driving at with this questioning about the milk? I should be very glad to have information upon this resolution, but nothing yet has touched upon it.

Mr. LINTHICUM. We are endeavoring, I will say to my colleague, Mr. Garrett, to bring out from the best testimony which the Government can afford and has, the fact of the necessity for a committee to be appointed by the Speaker to investigate as to whether legislation is necessary. We can not do any better than to go right to the Government officials themselves to get this information, and that is what we have Dr. Melvin and Dr. Schroeder here for, and other gentlemen, to tell you. Now, if you would prefer Dr. Melvin to go on and tell you just what he knows about the situation—

Mr. POU (interposing). I think we would get along very much more rapidly in that way.

Mr. GARRETT. Your resolution does not provide for any legislation.

Mr. LINTHICUM. No.

Mr. GARRETT. It sets forth in the preamble a certain state of facts?

Mr. LINTHICUM. Yes.

Mr. GARRETT. And then asks for a committee to ascertain whether the facts set forth in the preamble are true.

Mr. LINTHICUM. No; I think not. The resolution sets forth facts which have been gathered from the Bureau of Animal Industry, and then it goes on to ask that a committee be appointed to determine whether legislation is necessary, in view of those facts, if substantiated by witnesses.

Mr. GARRETT. I beg your pardon, neither the resolution nor the preamble says anything about legislation.

Mr. LINTHICUM. No; we are not asking for legislation. We are asking for a committee to be appointed by the Speaker of the House to determine whether legislation is necessary or not.

Mr. GARRETT. It does not say "whether legislation is necessary or not." All that is in your resolution is that it provides for a committee to inquire whether the facts set forth in your preamble are true.

Mr. LINTHICUM. I think that if my colleague will look at section (c) he will find "if so, then the best and most economic methods of inaugurating and enforcing such inspection and supervision."

Mr. POU. It seems to me that we had better discontinue this method of examination by questions and answers. Suppose we just ask these gentlemen from the departments to make their statements?

Mr. LINTHICUM. Very good, sir.

Mr. POU. And then, Mr. Case, who has made a long study of the matter, I think it would be advisable for him to make his statement, rather than to ask questions and have the witnesses say "yes" or "no" as to whether or not so and so is the case.

Mr. CASE. If such a course will save the time of the committee, we shall be glad to adopt it.

Mr. POU. Yes; it certainly will. The way you have started out it will be something almost interminable.

Mr. CASE. Then, that is all, Doctor.

Mr. POU. I would like to ask the doctor one or two questions, if you will permit me.

Mr. CASE. Yes.

Mr. POU. Have you made a comprehensive study of the dairy conditions in the United States?

Dr. MELVIN. As indicated in the Secretary's letter; it has not been comprehensive—with a view to framing legislation.

Mr. POU. But you have made some study of it?

Dr. MELVIN. Yes; we have made a considerable study of the dairy conditions in the United States.

Mr. POU. Do you feel that there is a necessity for Government inspection? Is that your opinion?

Dr. MELVIN. I think it is very desirable; yes, sir.

Mr. POU. Is a large percentage of the dairy products that are consumed by the American people unfit for food or not?

Dr. MELVIN. We think so.

Mr. POU. Would you care to express an opinion as to what per cent?

Dr. MELVIN. No; I do not believe I could make an intelligent answer to that.

Mr. LENROOT. I would like to ask you, Dr. Melvin, do you believe that your department now has sufficient information upon which to base legislation or action of Congress?

Dr. MELVIN. No; I think it ought to be extended further than what we have done.

Mr. LENROOT. What have you in mind, in a general way, that could be secured through such an investigation as is proposed, that you do not have?

Dr. MELVIN. In a practical way, we would have to investigate as to what this inspection should consist of—this closer inspection should consist of—and what the expense would be; how many inspectors would be required; the amount of expense involved, and I could not now give you an estimate within probably two or three million dollars as to what it would cost. It may cost four or five million dollars, at least; and it may cost ten million dollars. I could not give you a comprehensive answer as to that, and before any legislation is enacted, I think these points should be carefully considered.

Mr. LENROOT. Do you think, Doctor, that a special committee of the House could better secure that information than an investigation by the Department of Agriculture, under the direction of Congress?

Dr. MELVIN. I think they would have more authority, more weight; they could summon witnesses that we could not summon, and they could get information that we could not. Of course, I think the department should assist in that work with the committee, and we will be glad to assist any committee in obtaining that information.

Mr. GARRETT. Doctor, you think it is not covered under the pure food law in any way now?

Dr. MELVIN. I do not think the pure-food law is sufficiently specific. The pure-food law provides for violations, not for control. That is the difference between the present inspection and the meat inspection. Now, in the case of meats, if they were to go ahead and dress their animals, and remove all the evidence of disease, we could not prosecute, because the evidence would have been removed. In the case of dairy products, diseased animals and filthy establishments, ways are known which overcome, to a very great degree, these things on the part of unscrupulous people. I do not want to convey the idea that the industry in general is engaged in this kind of business, because I do not think it is; but there are some engaged in it.

Mr. GARRETT. From your observation, Doctor, you think the local inspection laws are not sufficient?

Dr. MELVIN. No; I do not think so. I do not think that any city would be especially interested in the dairy industry, except as it affected that particular city. I think if farms in that vicinity were producing dairy products for shipment away, they would be without authority, in fact, to handle it.

Mr. GARRETT. What about State inspection laws? Are there any State inspection laws?

Dr. MELVIN. There are State inspection laws, but I do not know of a single State that has a comprehensive State inspection system. It is a very extensive field to undertake, because of the multitude of farms and places which produce more or less milk or cream for dairy products.

Mr. GARRETT. Is it your idea that there should be an inspection of the products shipped in interstate commerce? Is that your idea, that there should be an inspection by Federal officials of dairy products shipped in interstate commerce?

Dr. MELVIN. Yes; but before they reach the interstate trade.

Mr. CHIPERFIELD. They would have to go to the dairy?

Dr. MELVIN. I think, if it is going to be comprehensive at all, it should go back to the dairies and creameries.

Mr. CHIPERFIELD. That would also mean, then, an inspection of the animals, too?

Dr. MELVIN. To a great degree, probably; not necessarily in all cases; but it would be necessary to have control over the products from diseased animals.

Mr. CHIPERFIELD. Is it not true, Doctor, that Illinois has an inspection law that includes and embraces every dairy within the State of Illinois?

Dr. MELVIN. I am not informed as to that.

Mr. CHIPERFIELD. And requires a test of all the milk produced? I think it has; I would not say positively, but that is my recollection. I think the city of Chicago sends its inspectors out to the country even.

Dr. MELVIN. Oh, yes; the city does, but that is not the State.

Mr. POU. I think we have some other gentlemen here from the department.

Mr. CANTRILL. Dr. Melvin, in your opinion is this indictment set out against the creamery industry of the United States in the first section of this resolution approximately correct?

Whereas it is reported by the Bureau of Animal Industry that 94.5 per cent of the creameries of the country are insanitary to a greater or less degree; that

61.5 per cent of the cream used is unclean or decomposed, or both; that 72.6 per cent of the cream is not pasteurized, but is made into butter, to be consumed in raw state, in which state disease germs retain their virulence for a long period of time; that a large percentage of all dairy products are among the active agents in the spread of tuberculosis, typhoid fever, and other infectious diseases.

Do you think that is approximately correct?

Dr. MELVIN. That was the result of an investigation.

Mr. CANTRILL. I would like to get your view as to the correctness of that indictment against the industry, because I think that is really the meat of the investigation. If these things are true, there might be some need of investigation; if they are not true, that should be known; and that is why I want your official opinion to go into the record on that indictment.

Dr. MELVIN. That statement, I presume, is based upon a report by the department regarding an examination of 144 creameries and cream-buying stations, located in six different States. Those figures do not represent the whole industry of the United States, but are based upon the figures obtained by an examination in those 144 places.

Mr. CANTRILL. In six States?

Dr. MELVIN. Yes; in six States.

Mr. CANTRILL. What are those six States? That shows in the record, does it?

Dr. MELVIN. The names of the States are not given here. I could not repeat them; I do not remember them.

Mr. SLOAN. May I ask the date of that report?

Dr. MELVIN. 1912.

Mr. CANTRILL. From your long experience in that department, in general terms, would you consider this statement approximately correct—not getting down exactly, but in a general way, whether this indictment is deserved as set out in this resolution? Is it approximately correct?

Dr. MELVIN. I think there has been improvement in dairies since that report was made, but I think that that was a fair estimate of conditions at that time.

Mr. CANTRILL. And is it fairly correct now, would you say?

Dr. MELVIN. As I say, I think there has been some improvement since then, but I think still there is room for further improvement.

Mr. CANTRILL. Do you consider that the conditions set out in this resolution are of sufficient importance for Congress to make it a matter of investigation and legislation? Do you think the conditions are bad enough in the United States to require that?

Dr. MELVIN. Even if I knew they were good and perfect, still I think an investigation would be necessary on account of the charges that have been brought up against the industry. Yes; I think that an investigation would be very helpful.

Mr. CHIPERFIELD. About how many inspectors do you think it would be necessary to have in the service? Of course that would be only a wide approximation; I understand that, with no substantial basis on which to make it; but about how many inspectors do you think the service would call for?

Dr. MELVIN. Several thousand; I do not believe I could make it any more definite than that.

Mr. CHIPERFIELD. What would you embrace within the term "several thousand"? How many thousand?

Dr. MELVIN. We have at present, under our meat-inspection law, about 2,600.

Mr. CHIPERFIELD. What did you have in mind when you said "several thousand"?

Dr. MELVIN. That would depend on how exhaustive the inspection was; there would be probably three or four or maybe five thousand men.

Mr. CHIPERFIELD. And in the immature stage in which the plan is, what would be your idea, or where would it be your idea, that the payment of the compensation of these inspectors would come from? The General Government?

Dr. MELVIN. I think it should come from the General Government.

Mr. CHIPERFIELD. Have you in mind inspection charges that would be charged against the dairy, making it self-sustaining?

Dr. MELVIN. Making the inspection self-sustaining?

Mr. CHIPERFIELD. Yes.

Dr. MELVIN. Well, I do not know. It would be even more difficult to collect revenue in this way than it would be under the meat-inspection law. There would be deliveries of fresh milk direct from the farm to cities in other States; there would be the shipment of cream from one State to another, and the shipment of butter; and you would have to collect that all from the creamery back to the farm.

Mr. CHIPERFIELD. What I have in mind is this: Is the cost of the inspection ultimately to rest on the product? Is that what you have in mind, thereby, of course, increasing the cost of production?

Dr. MELVIN. No; I have not any definite plan in mind as to that.

Mr. CHIPERFIELD. I did not know but what you might have outlined some tentative idea.

Dr. MELVIN. No. I think it should be as it is in the meat inspection—by appropriation from Congress.

Mr. CHIPERFIELD. Do you charge any inspection fees to the meat producers?

Dr. MELVIN. No.

Mr. CAMPBELL. Dr. Melvin, what per cent of the dairy products are now inspected by State or municipal authorities?

Dr. MELVIN. I could not answer that.

Mr. CAMPBELL. Do you not think that is an important base from which to start a Federal inspection?

Dr. MELVIN. I think it would be very important; yes, sir.

Mr. CAMPBELL. Would you duplicate inspections?

Dr. MELVIN. No; I do not think that it should be duplicated.

Mr. CAMPBELL. How could you separate them?

Dr. MELVIN. By the ultimate disposition of the product, whether it was intended for interstate or for local consumption, the same as they do in the meat inspection. Establishments doing an interstate business—not wholly, but even in part—are required to have all their product inspected.

Mr. CAMPBELL. Then Mrs. O'Reilly's brindle cow ought to be inspected, if she sells her butter in the market?

Dr. MELVIN. No; there could be an exception as to that, as there is in meat inspection, which exempts retail butchers and dealers and farmers.

Mr. CAMPBELL. But suppose this butter should pass immediately into interstate commerce?

Dr. MELVIN. I think in the case of an individual of that sort, that exemption could be made—that the inspection should apply to the manufacturers.

Mr. CAMPBELL. But I buy this butter at the end of its transportation in interstate commerce, and it is infected. Am I not entitled to protection on that the same as any other butter?

Dr. MELVIN. Reasonable protection, I suppose. We have to deal with all of these things in a practical way.

Mr. LINTHICUM. May I ask you a question, Mr. Campbell?

Mr. CAMPBELL. Yes.

Mr. LINTHICUM. Suppose I should say to you that 15 per cent of all the tuberculosis in the country in children is caused by bovine tuberculosis, would you not think that Mrs. O'Reilly's brindle cow should be inspected as to whether she had tuberculosis, if she were selling it to your children.

Mr. CAMPBELL. That is what I am asking the doctor—why exempt Mrs. O'Reilly's cow?

Dr. MELVIN. Of course, in cases of this sort, such as you instance, the requirement could be made that all milk should be pasteurized before shipment. That is not a difficult thing; it could be done in a homemade way or in an elaborate way and would overcome the danger of transmission of disease of that sort.

Mr. CAMPBELL. I wish, Doctor, before the committee meets again, you would outline a plan whereby Federal inspection and State inspection and municipal inspection would not overlap in the plan outlined in the resolution.

Dr. MELVIN. That is a pretty big proposition.

Mr. CAMPBELL. That is the proposition that is before the committee, is it not?

Dr. MELVIN. As I understand it, if you make such an investigation—

Mr. CAMPBELL (interposing). The investigation would have to be with that sort of thing in view, would it not?

Dr. MELVIN. Yes, sir.

Mr. CAMPBELL. Then, do you not think that we should know about where to start?

Dr. MELVIN. If we had all of that information now, further investigation would not be necessary; but we have not.

Mr. CAMPBELL. The Bureau of Animal Industry does aid in the inspection of dairies, does it not?

Dr. MELVIN. Yes, sir.

Mr. CAMPBELL. And makes tuberculin tests?

Dr. MELVIN. In a limited way; yes, sir; not in a comprehensive and nation-wide way; no, sir; nor do we inspect milk products in a comprehensive and nation-wide way. We have assisted various cities in bettering their milk supply. The Bureau of Chemistry has undertaken, in cooperation with our bureau, to investigate milk sup-

plies of cities that were located near State lines, like St. Louis, Mo., which receives a great per cent of its milk from Illinois, and in Cincinnati, where quite a little comes from Kentucky, and in cities of that sort there has been quite a little work done, but to take the whole field, it has hardly been touched.

Mr. CAMPBELL. Your bureau inspects the dairy products that come into Washington, does it not?

Dr. MELVIN. We assist the local health department in doing that work. The health department looks after the milk itself, and we have undertaken to test the cattle that supply the milk to the District, within the District and in Maryland and in Virginia, but they are getting milk from way beyond our borders—as far as New York State and West Virginia.

Mr. CAMPBELL. Milk comes to Washington from New York and West Virginia?

Dr. MELVIN. Cream, I think, does, instead of milk.

Mr. LINTHICUM. Does not a large part of it come from Ohio, Doctor?

Dr. MELVIN. No; I think the bulk of it comes from Virginia and Maryland. There may be some that comes from Ohio also.

Mr. CAMPBELL. Do you know whether or not the milk that comes from Ohio is inspected before it leaves that State by the local authorities?

Dr. MELVIN. I do not imagine it is.

Mr. CAMPBELL. Have you any information on that subject?

Dr. MELVIN. No, sir.

Mr. CAMPBELL. Why, then, do you imagine that it is not?

Dr. MELVIN. I do not know what interest the State people would have in it. I do not think they would have any interest in it. They have more than they can do to look after the supply which they consume themselves.

Mr. CAMPBELL. Is it inspected immediately prior to consumption, or inspected when it leaves the dairy or the creamery?

Dr. MELVIN. The health officer, of course, could give you better information on that point than I could. I think it is their practice to send their inspectors to the various places and inspect the dairies, and see whether they are in fit condition to receive a permit to ship cream or milk into the District. I think it is one of the requirements that these milkmen should have a permit from the health department before they can ship into the District.

Mr. CHIPERFIELD. Doctor, just one other question. Is there any well-authenticated case where tuberculosis has been transmitted to human beings from butter, or is that a mooted question amongst scientific men?

Dr. MELVIN. It is probably upon the same basis that the transmission of tuberculosis from meat to man. I do not know of any authentic case, but the presence of the tubercular bacilli in butter renders it reasonable to believe that a susceptible person might contract the disease in that way.

Mr. CHIPERFIELD. Would you attribute the present high condition of infectious and contagious diseases in Washington—typhoid fever, measles, and scarlet fever, and various epidemics that have prevailed of late—as in any way due to a contaminated milk supply?

Dr. MELVIN. They can generally trace those cases pretty definitely. I have not any information that they have traced it to the milk supply; no, sir.

Mr. CASE. Doctor, the question was asked you in regard to whether or not tubercular germs in butter had caused tuberculosis. Would it be possible to say what was the medium of transmission, after the patient was dead, by an autopsy?

Dr. MELVIN. Oh, no.

Mr. CASE. Obviously, no.

Dr. MELVIN. No.

Mr. CASE. The fact, however, remains, does it not, that bovine tubercular bacilli are found in the human body, and do cause a large percentage of deaths among children?

Mr. GARRETT. I do not think the Doctor should be placed in a wrong attitude about that. He was not asked the question which the gentleman has suggested. He was asked if there was any well-authenticated case in which there had been a transmission of tuberculosis from butter. That was the question which the Doctor was asked.

Mr. CHIPERFIELD. Yes; and I was just about to ask counsel—

Mr. GARRETT (interposing). I do not think the doctor should be placed in the attitude of answering a question which was not asked.

Mr. CHIPERFIELD. The question I was about to ask counsel was, Did he understand me to ask if an autopsy could determine definitely the particular cow from which the germ came?

Mr. CASE. No.

Mr. CHIPERFIELD. This matter is a serious question, and I am seeking information earnestly and seriously. I saw no humor whatever in the question I asked the doctor, and none was intended.

Mr. CASE. And I saw no humor, either.

Mr. CHIPERFIELD. It would be a matter of indifference to me, sir, whether you had or not. I wanted to make my position plain.

Mr. LENROOT. How many creameries are there in the United States?

Dr. MELVIN. Creameries or dairies? There are 6,000 creameries.

Mr. LENROOT. And how many dairies?

Dr. MELVIN. We were estimating on that yesterday. There are about 22,000,000 dairy cows in the United States, and I think they estimate from 7 to 9 head in each dairy, so even at that 10 to each dairy would make it 2,200,000.

Mr. LENROOT. If we had Federal inspection, it would require a Federal inspector for each creamery, practically speaking?

Dr. MELVIN. No; I think it would be possible in some instances to group them.

Mr. LENROOT. In some instances, but in a very large majority it would require a separate inspector for each creamery, would it not?

Dr. MELVIN. I think that probably it would be possible for one inspector to care for several creameries. I do not think the constant presence after the inspection was established would be necessary.

Mr. HAUGEN, of Iowa. I understood the doctor to say it would be necessary to carry the inspection to the farm. If so, that would include every dairy in the country. There are about 6,000,000 farmers, and there is a dairy on nearly every farm, is there not?

Dr. MELVIN. I just said there were about 22,000,000 dairy cows, and I think the estimate is from about seven to nine to each dairy.

Mr. HAUGEN. About 3,000,000; between three and four million dairies, according to your estimate?

Dr. MELVIN. That is as near as I can get at it.

Mr. HAUGEN. Between three and four million dairies; it would be necessary to carry the inspection into three or four million dairies in this country. Am I correct in that?

Dr. MELVIN. Yes; I think so.

Mr. LINTHICUM. That is, if they were engaged in interstate shipment?

Dr. MELVIN. Yes.

Mr. LINTHICUM. Now, I will ask, Mr. Chairman, that Dr. Schroeder be allowed to testify.

Mr. SLOAN. What proportion of the cream and dairy butter enter into interstate commerce?

Dr. MELVIN. I believe Mr. Rawl could answer that. I can not answer the question.

Mr. SLOAN. Is it not a fact, Doctor, that a very large percentage of the butter which enters into interstate commerce is made by the large creameries?

Dr. MELVIN. I should say yes.

Mr. SLOAN. Is it not true that in nearly every instance those large creameries pasteurize all of their products?

Dr. MELVIN. I think most of them do.

Mr. SLOAN. Is it not a further fact, Doctor, that pasteurization is increasing by leaps and bounds in nearly every State in this Union, beginning especially in the large cities, and being followed out in the States?

Dr. MELVIN. They are making attempts at pasteurization, but a great deal of this is imperfectly done, and even the pasteurization should be supervised.

Mr. SLOAN. Certainly, but they are pasteurizing?

Dr. MELVIN. So-called. Of course, if they do not heat the milk to a certain temperature and hold it for a certain length of time it is not properly pasteurized.

Mr. SLOAN. And that temperature is what, Doctor?

Dr. MELVIN. The ordinary temperature recommended is 140 for 20 minutes.

Mr. CHIPERFIELD. Is not the more important stage the reduction from that point down?

Mr. SLOAN. Yes. That is not a difficult temperature to obtain, is it, Doctor?

Dr. MELVIN. No.

Mr. SLOAN. Is it not a fact that in nearly every State in the Union—a great many of them in most recent years—legislative enactments have been passed with special reference to dairy products and their supervision, and has not nearly every State in the Union now a system of dairy and creamery inspection?

Dr. MELVIN. I do not think they have, sir; not comprehensive.

Mr. SLOAN. Can you mention one, sir, that has not? I mean in the dairy States, that do anything in a commercial way?

Dr. MELVIN. I do not think there is complete and systematic inspection of all dairies and creameries in any State.

Mr. CHIPERFIELD. There is in Illinois.

Mr. SLOAN. Is it not true that they have an excellent system in the State of Illinois, and in Nebraska, and in Colorado, and in Wisconsin, and in Iowa?

Dr. MELVIN. I do not know about the laws. I am speaking about the inspection. I know it has been found by the Bureau of Chemistry very important to look into the milk supply of Illinois that passes into the city of St. Louis.

Mr. SLOAN. And, of course, the inspection they have to-day by the State would be by men, just the same as if they were employed by the Federal Government?

Dr. MELVIN. Oh, surely, it would all be made by men; there is no one else to make it.

Mr. SLOAN. I notice in the resolution that the adverse report of 1912 was based on 144 creameries and cream-buying stations. Do you know how many of those were cream stations and how many were creameries?

Dr. MELVIN. No.

Mr. SLOAN. Doctor, does it not occur to you that 144, compared with 6,000 creameries and 20,000 cream stations, was rather a narrow pivot upon which to base the sweeping charge—

Dr. MELVIN (interposing). I think it should be further substantiated by additional information.

Mr. SLOAN. I am asking about what we have here, Doctor.

Dr. MELVIN. I think the files of the department will substantiate this further, as to additional creameries and stations that were examined, but were not completed at the time this report was made.

Mr. SLOAN. I was referring to the basis of 144 with relation to the 6,000 creameries and 20,000 cream stations. Was not that rather a narrow basis upon which to base this very adverse statement?

Dr. MELVIN. I do not think we would care to modify it from the additional information which we have, which substantiates the figures which have been given.

Mr. SLOAN. I was asking about this basis that you have published.

Dr. MELVIN. Yes.

Mr. SLOAN. Because the others the public has known nothing about.

Mr. LINTHICUM. May we have Dr. Schroeder testify now, Mr. Chairman? I would like to pass around among the committee an advertisement which I had cut from the Public Dairy Review, which I want to introduce at the proper time in the hearing.

Mr. POT. Without objection, we will receive it. If any objection is made hereafter, it will be cut out.

(The advertisement above referred appears in full below, as follows:)

HOW TO MAKE HIGH-GRADE BUTTER OUT OF "ROTTEN CREAM" AND BETTER BUTTER OUT OF GOOD CREAM.

All cream as brought to you from different dairies is not of the same quality. Then, why expect it to make uniform butter of highest quality? This trouble can easily be remedied by aerating all the cream by means of the perfection aerating outfit.

To produce highest-quality butter the cream must be relieved of all offensive animal and weed flavors. This can only be accomplished by means of aeration with absolutely pure air while the cream is being pasteurized.

The principle used in the perfection aerting method is that of taking a supply of air from outside the creamery plant, purifying it with a solution of lime-water or "Bacil-Kil" and then forcing this purified oxygen through the cream as it is being pasteurized. All odors detrimental to good butter are carried off by means of a suction fan that creates a slight vacuum in the pasteurizer.

This combination is inexpensively easy to install and can be used on any type or size of pasteurizers.

Your trade is demanding better butter. Supply that demand by means of perfection aeration.

Once tried means a sure success.

BAKER & HAMILTON.

San Francisco, Cal.

Mr. GARRETT. Mr. Chairman, just before the doctor begins, I want to say that of course we have to deal here in this matter with technical questions, and I am just wondering why all of this was not placed before the Committee on Agriculture, and I want to inquire of Mr. Linthicum, the author of the resolution, if it would not be possible to put this matter before the Committee on Agriculture?

Mr. LINTHICUM. I would say to my colleague, Mr. Garrett, that I had marked it for the Committee on Agriculture, and the Speaker referred it to the Committee on Rules.

Mr. GARRETT. I do not mean this resolution. Of course, this came properly to the Committee on Rules, because it provides for the creation of a special committee, but what you really desire is legislation. Of course, the Rules Committee does not deal with legislation.

Mr. LINTHICUM. I understand that, but what I really desire is just what Dr. Melvin has told you. I desire a committee to go into the subject and decide what legislation is desirable, and then to introduce bills to carry out that legislation. I am not asking for any legislation at the present time, because, as Dr. Melvin says, we have not gathered sufficient facts upon which to base proper legislation covering the whole subject and protecting the various interests involved.

Mr. GARRETT. You allege a lot of facts in your preamble.

Mr. LINTHICUM. Yes; we allege certain facts, but they are not sufficient, as the Doctor told you—they are from six States and about one hundred and forty-some dairies, I believe he said; and then this is a very large subject, with many interests involved, and we want proper legislation to protect the interests and to protect the general public.

Mr. GARRETT. You say 6 States and 144 dairies is the basis of your statement, and yet in your preamble you say: "Whereas, it is reported by the Bureau of Animal Industry that 94.5 per cent of the creameries of the country are insanitary to a greater or less degree." Of course "greater or less degree" is a very general term. The Doctor has testified that in 6 States and 144 creameries, he thinks these conditions apply, but you say in your preamble that 94.5 per cent of the creameries of the country are insanitary.

Mr. LINTHICUM. I think that is a general average. I took this from the yearbook, in which it says that 94.5 per cent of the creameries are insanitary to greater or less degree. I do not believe the words "of the country" are used there.

Mr. GARRETT. The words "of the country" are used in your resolution.

Mr. LINTHICUM. I say they are used in the resolution, but I do not believe they were used in the yearbook. I think if you will take 144 dairies in six different States, you will get a pretty fair average of what exists throughout the country.

Mr. GARRETT. That might be due to lax inspection in those States. It may be that in the other 40 States they have a better inspection service.

Mr. LINTHICUM. I think if my colleague will look through the various data we have gathered, he will find we are about correct on that statement; and I am sure he will find we are right in wanting this investigation. Will you hear Dr. Schroeder's testimony now, Mr. Chairman?

Mr. POU. Yes.

STATEMENT OF DR. E. C. SCHROEDER.

Mr. CASE. Mr. Chairman, Dr. Schroeder is a specialist on tuberculosis in butter and in milk. He knows about the conditions generally, and we would ask that he make a general statement as to what he knows and what he has found in regard to insanitary conditions and tuberculosis.

Mr. CHIPERFIELD. Is the Doctor's degree that of a medical doctor?

Mr. CASE. Yes.

Dr. SCHROEDER. A degree of veterinary medicine. Gentlemen, the phases of this question on which I can speak are simply that bovine tuberculosis is transmissible to man; that butter is occasionally infected with tubercle bacilli, and that the virulence of tubercle bacilli persists a very long period of time in butter. When we study the various tests that have been made relative to the types of tubercle bacilli that occur in human tuberculous lesions, we find that we have a very large amount of evidence from which we can conclude that bovine tuberculosis is a common disease among children. The best data we have are probably those which were furnished by the New York Health Office. Approximately 1,500 cases of tuberculosis in human beings were examined and it was found that 137 were due to the bovine tubercle bacilli. Among the 1,500 cases, however, there were nearly 1,000 cases of tuberculosis in adults, and that leaves a relatively small number of children that were examined—something over 500—and among these children, as I have the figures in my mind now, 120 were affected with bovine tuberculosis; that is, children 16 years of age and under.

Bovine tuberculosis in human beings is not always a fatal disease, and a distinction must be made when we study the kinds of lesions bovine tubercle bacilli cause in human beings between those cases of tuberculosis which are curable and those which are fatal. The New York health office, which is very conservative in its estimates and to me seems to lean rather a little too much to the opinion that bovine tuberculosis is not a particularly serious menace to human health, estimates that 9 to 10 per cent of the fatal tuberculosis among children 16 years of age and under is due to bovine tubercle bacilli. A few years ago, basing an estimate on the available data of the kind supplied by the New York health office, a tuberculosis

expert in Canada, whose paper was afterwards published in the transactions of the Canadian Tuberculosis Association, estimated that there were annually about 400 deaths from bovine tuberculosis in Canada. If we take the population of Canada and compare it with the population of New York City, the figures compare about as 4 for Canada and 3 for New York. On the basis of similar data it has been estimated that approximately 300 deaths from bovine tuberculosis occur annually in New York City, and this again gives the ratio of 4 and 3, and since New York City has about one-twentieth of the population of the United States, we have simply to multiply the 300 deaths from bovine tuberculosis per annum in New York City by 20 to get an approximate idea of the number of deaths from bovine tuberculosis in the United States, and this gives us rather a large number.

Whether bovine tuberculosis has been transmitted to children in individual instances by butter or by milk or by cheese or by other dairy products is something that is difficult to determine, especially when we bear in mind that bovine tuberculosis is as common among children between the years of 5 and 16 as it is among children under 5 years of age. If it occurred entirely among children under 5 years of age, or children near the milk-drinking period of life, we might charge it altogether to milk, but when it occurs among children between 5 and 16 years of age, and among them it is even commoner than among younger children, I presume that butter, of which they eat a great deal, or ought to, at any rate, can not be excluded as a source of infection.

Now, as to the occurrence of tubercle bacilli in butter. Two or three years ago I examined 100 samples of butter purchased in the city of Washington, and tested them for tubercle bacilli, and I found that only one sample in the hundred contained tubercle bacilli that were capable of causing tuberculosis in experiment animals. I do not know to what extent the samples I purchased had been made from pasteurized cream. But I imagine a good many of them must have been made from pasteurized cream, because I found in addition to the one sample that produced tuberculosis in experiment animals six samples that contained bacilli which, under the microscopic examination, looked precisely like tubercle bacilli.

In an investigation on the occurrence of tubercle bacilli in butter, made by Dr. Rosenau, formerly director of the hygienic laboratory of the United States Public Health Service, and now professor of hygiene at Harvard University, 21 samples of butter purchased from dealers in the city of Boston revealed that two of the samples contained actively virulent tubercle bacilli. This is a very high percentage, and is furthermore positive proof that tubercle bacilli will live and remain virulent in butter long enough to serve as actual disease-producing agent of considerable importance when they reach the consumer. As to the persistence of tubercle bacilli in butter, in order to obtain light on this subject, I obtained milk from a cow affected with udder tuberculosis. I made butter from this milk, and then put the butter aside and periodically tested it relative to the persistence of living tubercle bacilli in it and I found that after 160 days, although the tubercle bacilli had lost some of their virulence, they still were capable of causing fatal tuberculosis in experiment animals.

There was one question asked a while ago, and that was whether cases of tuberculosis in the human family had been traced directly to butter. There are no such cases, but that with little doubt is due largely to the fact that it would be almost impossible to trace a chronic disease like tuberculosis to its source of infection if it happened to be butter.

MR. CHIPERFIELD. In the case of the two samples that you found that were infected with tubercle bacilli, did you have an idea, after your investigation, whether or not that was produced extraneously by contact with tubercular people or whether it came from the cream or milk from which the butter was manufactured?

DR. SCHROEDER. This investigation was not made by myself, and I do not recall that Rosenau defined specifically whether the germs were bovine or human bacilli. There is one investigation which will throw a little light on this question, made in the city of New York, relative to the types of tubercle bacilli which occur in market milk. In this investigation it was found, after carefully testing the character of the tubercle bacilli in the market milk examined, that only one sample out of something like eight—I think it was eight, but it may have been only seven—one sample out of seven or eight was infected with human tubercle bacilli. The balance were bovine tubercle bacilli, indicating that probably in the great majority of cases the tubercle bacilli which occur in dairy products are of the bovine type.

I gave an estimate a number of years ago of the percentage of dairy cattle in this country affected with tuberculosis; and, of course, I carefully guarded and hedged this estimate by saying that it was simply an estimate and nothing more. The estimate was that about 20 per cent of our cows were affected. To-day I realize that the percentage given was too high; it was based too largely on figures obtained from cattle in the East. Since that time very much better data have become available; and these indicate that a trifle more than 9 per cent of the cattle of the United States are affected with tuberculosis, and this means, virtually, one cow out of every ten.

Now, I know from examinations I have made of cattle that were affected with tuberculosis, that it does not take a great deal of tuberculosis in a dairy cow or a bovine animal for that animal to eliminate tubercle bacilli from its body.

MR. THOMPSON. Are you familiar with the report made by the British Government some years ago on tubercular bacilli?

DR. SCHROEDER. Yes.

MR. THOMPSON. What was the result? Will you please state it?

DR. SCHROEDER. The investigation made by the British Government showed that bovine tuberculosis is a fairly common disease among children. I believe in Great Britain they found that tuberculosis of the bovine type among children is a little commoner than it is among children in the United States, but that can be accounted for very easily when we know a much larger per cent of dairy cows is affected with tuberculosis in England than in the United States.

MR. THOMPSON. Did they not wind up their report by saying that after 13 years of making an investigation and a great many thousands of cases having been investigated, they could only find two where they thought it was tuberculosis; they did not even say that it was?

Dr. SCHROEDER. The investigations, not only of the British Royal Commission but of the German Imperial Commission, and likewise those made in America and everywhere else, indicate that bovine tuberculosis, after the sixteenth year of life, is rarer among human being. This does not mean, however, that adults are wholly immune. In addition to other cases on record, the New York health office has recorded 15 cases of bovine tuberculosis in adults, which constitute about $1\frac{1}{2}$ per cent of all cases of tuberculosis in adults studied.

Mr. CHIPERFIELD. With regard to this origin of bovine tuberculosis in the young, can you state any rule or likelihood of that coming from meat or from milk or from dairy products?

Dr. SCHROEDER. Simply in a hypothetical way.

Mr. CHIPERFIELD. Your judgment is all I want.

Dr. SCHROEDER. I believe that bovine tuberculosis from meat is extremely rare, for two reasons: First, we have an efficient system of meat inspection; secondly, most meat is exposed to sufficient high temperature to destroy tubercle bacilli before it is eaten.

Mr. CHIPERFIELD. In the cooking?

Dr. SCHROEDER. Yes.

Mr. SLOAN. I did not hear your answer to the last question submitted by Mr. Thompson, as to their being but two cases. I was interested in the answer that was called for by that question, but I did not hear it.

Dr. SCHROEDER. I believe Mr. Thompson's figure is a little low, but I will not be certain in regard to that. He evidently refers to cases of pulmonary tuberculosis caused by bovine tubercle bacilli in human adults. It is difficult to keep the numerous figures accurately in one's mind. The importance of bovine tuberculosis to the human family does not rest on what happens to adults, but it does rest on the frequency with which children are attacked, and the data, as I showed a few moments ago, justify us in assuming or estimating that the number of children who die in the United States because of bovine tuberculosis is large, and the fatal cases do not include all the suffering that comes from bovine tuberculosis, because the majority of children who contract the disease recover after much suffering and after having caused those interested in them a great deal of anxiety.

Now, to return to your question, as to how much of bovine tuberculosis should be charged, respectively, to milk and to butter, I should believe that the proportion due to milk is larger than the proportion due to butter, and yet there are a number of facts not entirely in harmony with this view. For instance, one of the facts is this: Investigations made both by European and American investigators showed that tubercle bacilli enter the body through the intestinal canal very easily when they are introduced with a fatty substance like butter, and this would mean that butter is an ideal vehicle for bringing about that form of infection which results from the ingestion of infected food. When we have bovine tuberculosis in the human family, the manner in which the bacilli are introduced into the body is through the intestinal mucosa or the mucus membrane of the throat.

In investigations in which animals have been fed melted butter with tubercular bacilli suspended in it, and in which precautions were taken to prevent the infected butter from getting into the body

except through the intestinal mucus membrane, it has been possible after a few hours to demonstrate the presence of tubercle bacilli in the great lymph ducts in the throat near the region in which these ducts empty their contents into the blood vessels.

Mr. THOMPSON. The two cases referred to—

Mr. POU (interposing). Let us conduct this examination regularly, now. If you wish to be heard, Mr. Thompson—

Mr. THOMPSON (interposing). No; I would like to ask now if he will state Prof. Cooke's ideas about this tuberculosis test. You remember the testimony he gave better than I do.

Dr. SCHROEDER. I have not the matter sufficiently in mind to talk about it at the present moment.

Mr. POU. If everyone in the room is to be permitted to interrogate the witness, we will never get through.

Mr. CASE. The bovine tubercular bacilli, when introduced into the human body and remains there some length of time, subsequently changes its form?

Dr. SCHROEDER. That is a question which has not been satisfactorily settled.

I do not believe that the available evidence is sufficient for us to draw real hard and fast conclusions. It is a technical, theoretical, hypothetical matter, regarding which the statements made by different investigators are so contradictory that I believe nothing will be gained by going into the subject at this time.

Mr. SLOAN. Is there any danger of infection where the butter has been pasteurized—the cream has been pasteurized?

Dr. SCHROEDER. Where the cream has been properly pasteurized and is kept from infection afterwards, I do not believe there is one particle of danger. The fact of the matter is, I have made a good deal of butter from pasteurized cream which I knew positively to be infected, and I never in any instance succeeded in producing tubercular disease amongst experiment animals with such butter.

Mr. SLOAN. You mentioned 9 per cent of the animals as being infected with tuberculosis. Was that obtained from the stockyards figures?

Dr. SCHROEDER. No; it was not. It is based on extensive tuberculin tests that have been made all over the country.

Mr. SLOAN. Our percentage is much less in this country than in England and other European countries?

Dr. SCHROEDER. Our percentage is very much less in the United States than in Germany or England or France or any country in Europe.

Mr. LINTHICUM. I would like to have Dr. Mohler testify, but before that I want to ask about three minutes for Mrs. Murphy, who has come down here from New York to tell you what she knows about these things.

STATEMENT OF MRS. MURPHY.

Mrs. MURPHY. Gentlemen, I am very much embarrassed—very much. I am here not as an expert; merely as the home consumer; and I merely come here to bring with me the resolutions of some of the New York women's organizations, expressing their interest in the possibilities of an investigation for better butter, and only that; and

I have nothing to offer whatever along the lines of this hearing, as it has been this morning, but I confess I am very much interested. I believe you would find, since the women of this country are largely the final buyers of butter, and the distributors of it in their families, that they would regard with much favor the interest of the Government in appointing a commission to find out what is better, for we all dislike very much the present conditions that we are told prevail, and an authentic disclosure of the real facts would be regarded with great interest.

Now, I am bringing with me to-day—I have not sufficient egotism to say that I represent—but I am bringing with me resolutions asking for such a commission, of the New York City Federation of Women's Clubs, representing about 125,000 women of New York City, and a number of the minor organizations of that city. Before things are presented to the New York City Federation of Women's Clubs, which perhaps, in a way, serves as the upper house of the women's organizations, they must first be presented by the minor or individual clubs. This resolution which I have the privilege of bringing down here was presented to a number of the small clubs, then taken up by the general federation, or the city federation of New York, and passed by it, and I merely wish to say that we would very much appreciate your cooperation and help, and I confess that I am extremely interested in this discussion that you are having here; merely that. I thank you.

Mr. GARRETT. You are from New York City?

Mrs. MURPHY. Yes.

Mr. GARRETT. What about the inspection laws there?

Mrs. MURPHY. I could not tell. I am not in that kind of work. I hope there are adequate ones, but, of my own knowledge, I could not tell you a thing about it.

Mr. GARRETT. You do not know whether under the laws of the city they inspect all butter that comes in from other States?

Mrs. MURPHY. I do not. I could not say. I am sorry, but I really could not say. I know that the women would like to have it inspected, and I know that the women would like to be able—or I assume they would—and you really could not take 125,000 women in New York City as typical of the city, in a way, and yet, perhaps, you could.

Mr. GARRETT. I can readily understand that.

Mrs. MURPHY. The women would like to be able to buy butter with as much certainty as they do meat.

Mr. GARRETT. Do you know whether the organization has made any effort before the governing authorities of New York City—I do not know what the governing authorities are called—what their name is—but before the governing authorities of New York City to bring about an inspection?

Mrs. MURPHY. They have had one or two members of the city health department, I recall, at the meetings, and there have been general discussions and general interest manifested in the subject, but further than that I do not know, I confess. I am not a professional reformer, either of city or State or governmental bodies. I am not much interested in upsetting present plans of government. I am merely interested in getting better food products, if we can, in

a practical way, without embarrassing everybody in general. I believe the women feel as a class that we would like to have cleaner and more wholesome food products, if it can be done, and I assume our husbands and brothers and fathers will unite with us in that.

Mr. GARRETT. I am sure everybody sympathizes with that spirit. The only thing that is involved here is the question of what governmental activity should be put forth, and I was merely wondering whether or not the city of New York, or the State of New York—

Mrs. MURPHY. I do not know, and from what I have heard discussed I doubt very much if there is adequate supervision, because it seems to me if there were we would not have the conditions that are represented to exist.

Mr. GARRETT. Do you personally have any knowledge of bad butter being sold, or have you had any personal experience with it?

Mrs. MURPHY. The only personal experience that I ever had takes me back a little bit. One day I was coming down the street and I saw a barrel of butter being unloaded from a truck. It was a hot June day and it slipped and fell in the ditch, and the butter rolled out, and I supposed they would throw it away, but I saw them shovel it up out of the ditch, and I asked the man what they were going to do with it, and he said they were going to renovate it and make clean butter out of it, and I confess I viewed it not with delight when he said they did that.

Mr. GARRETT. Have you had any personal experience with butter or milk that you purchased that was shipped from other States?

Mrs. MURPHY. No; I have not.

Mr. GARRETT. That was diseased?

Mrs. MURPHY. No; I have not. I have been one of the fortunate people who have bought the best butter that could be purchased and assumed it was all right, and I am still alive; so, too, most of my family.

Mr. SLOAN. You spoke about the passage of these resolutions by the various organizations.

Mrs. MURPHY. Yes.

Mr. SLOAN. Were they passed after you received from Mr. Linthicum his resolution and statement?

Mrs. MURPHY. No; I think they were passed long before.

Mr. SLOAN. How long ago were they passed?

Mrs. MURPHY. May I look?

Mr. SLOAN. Yes.

Mrs. MURPHY. I am one of the few women who have pockets. I do not know when Mr. Linthicum's resolution was dated. This is February 4, the New York City women's clubs.

Mr. POU. After conferring with the members of the committee here, we have agreed that the questions must be confined to the members of the committee, purely for the reason and in the interest of time. We must have some time in view when the hearing is going to end and after conferring with my colleagues it has been decided that if any gentleman desires to ask a question he will communicate it to some member of the committee. That, of course, does not refer to the author of the resolution.

Mr. LINTHICUM. Now, Mrs. Hitchcock, we will hear you for about two minutes, with the chairman's permission. Mrs. Hitchcock is

from Philadelphia. Mrs. Hitchcock, we would like to have you tell the committee your interest in this resolution.

STATEMENT OF MRS. HITCHCOCK.

Mrs. HITCHCOCK. I represent two factions. I am a mother and a practical housekeeper; that is my first faction. And I am particularly interested in children because I have raised some of my own. I am also interested in every mother who has children, and I want her to have the very best she can get.

I became interested in the butter question some years ago, before I ever heard of any investigation or demand for an investigation, and I wondered why there was no protection for butter and cream; and I know something about it, because I was born and brought up on a farm, and I knew a great deal about it before I studied bacteriology—I am a home economist—and I understood then that there was much more danger than I had dreamed of because of the difficulty of killing the bacteria. Only pasteurization or sterilization will kill bacteria in butter or cream, or in anything else, for that matter; but the point in this is that I have often wondered why there was no investigation of the butter question, when we have had investigations on every other question; and after I saw, as a student, what had been accomplished in regard to pure foods by Federal law and by Federal enactment and Federal inspection, when I saw the good results of the pure-food laws, I wondered why, of all things, butter should be exempted, for it is eaten very widely in this country—eaten without any further preparation. It will be more eaten, because of the decreasing supply of meat we must have more butter fats of real food value. It is eaten uncooked, and I could not see that we had any safeguards from disease, knowing that disease germs go on almost indefinitely.

Now, I will leave that point, and I come back to this question of asking for a Federal investigation. Now, the question was brought out in regard to State inspections. We have in Pennsylvania a splendid State dairy and food commission. We do not inspect creameries; there is no protection for butter or cream locally, and, of course, none for that in interstate commerce. Moreover, we know in Philadelphia how hard it is to get enactments and prosecutions under State laws. I do not want to take too much time, but I want to say this: That very often in one county we can get a prosecution, but it is difficult to get it in another. We have gotten practically pure foods, so far as meats and canned goods and spices and everything of that kind are concerned, and we are supporting clean food, food free from bacteria, so we stand behind any effort in every way we can in watching the laws, watching the prosecutions, and using our influence wherever we can in getting experts to come and talk to us on the subject—not taking our own judgment—and we know exactly how hard it is under State laws to get prosecutions in every part of the State. The same evidence may be there, and you may pile it up in the city, but the same evidence that will prosecute in one place will not prosecute in another.

Of course, it is much easier to get protection in the cities than it is in the country districts, so we are asking that there be a Federal in-

vestigation as to whether it is necessary to have laws. If it is necessary, gentlemen, surely some efficient manner could be worked out in which that inspection could be made, using some of the inspectors we have. We have inspectors for tuberculosis and for foot-and-mouth disease, and why could we not use some of them? What I want to do is to find out whether we need the inspection and the investigation, believing that it should be Federal, in order to get the best results and in order to have standardization all over the country, and if we do need it, surely you gentlemen will agree that your families and your children are worthy of some expense. Why should one food be exempted when the others are protected? Now, if we need this investigation, certainly there is some efficient way to get it. I leave that to somebody who knows more about it than I. I believe there is a need for it.

Mr. POU. We are very much obliged to you.

Mr. LINTHICUM. Now, Dr. Mohler.

STATEMENT OF DR. JOHN R. MOHLER.

Mr. LINTHICUM. Dr. Mohler, we would like you to tell the committee what you know about the dairy situation.

Mr. POU. What is your position, Doctor?

Dr. MOHLER. Assistant Chief of the Bureau of Animal Industry, in Washington. As far as my testimony goes, it will be practically a duplication of what has been said already by Dr. Schroeder. My information is based on personal work in the laboratory, and consists of, first, the investigation of nine children that died of tuberculosis, and as a result of the study of the bacilli found in the bodies of these nine children, definite and positive results were obtained from two of these cases indicating that the bovine tubercle bacillus was the responsible factor in producing death. In addition to this work with these children, I have studied the milk supply of the District of Columbia, and found in this investigation of some five or six years ago, 2.7 per cent of the samples examined contained bovine tubercle bacilli. Furthermore, in the investigation which was conducted in the study of tubercle bacilli in butter, to determine how long the bacilli would remain virulent, my work practically confirmed the work of Dr. Schroeder. The germs in my cases remained virulent for a period of six months. In addition to this, the same character of investigation was conducted on cheese, and in this experiment the bacilli lived for a period of 281 days, so that the organisms of tuberculosis after that length of time were still virulent for experimental animals.

Now, the question of percentage of tuberculosis among the cattle in the country has already been discussed. Men like Prof. Moore, of Cornell University, have already gone on record to the effect that a large percentage of animals—I believe he states 15 per cent of the tuberculous dairy cattle—are capable of transmitting the germ of tuberculosis at irregular intervals in the milk, and he also states that about 2 per cent of tuberculous cattle have diseased udders—tuberculous udders—which indicates the reason why the milk which has been examined, and some of the butter which has been examined, contained virulent germs of tuberculosis.

Mr. CHIPERFIELD. Are you a doctor of medicine?

Dr. MOHLER. Of veterinary medicine. I have some figures here from England which have been referred to by another speaker. The figures taken from clinical work in England indicate that 23 to 25 per cent of fatal cases of tuberculosis in children are of bovine origin, while from Edinburgh comes a report of 67 consecutive tuberculous bone cases in children, of which 41 were found to be of bovine source. Of 4 cases under 12 months of age all of them were of bovine origin. Of 12 cases between 1 and 2 years of age 8 were bovine infections; of 15 cases between 2 and 3 years of age 11 were found to be bovine infections; of 10 cases between 3 and 4 years of age 6 were found to be bovine infections; of 6 cases between 4 and 5 years of age 3 were found to be bovine in origin. They also found 72 cases of tuberculosis of the cervical glands, 65 of which were due to the bovine tubercle bacillus.

Mr. CHIPERFIELD. These tubercular cattle, were they among the slaughtered cattle or the living animals?

Dr. MOHLER. Living animals.

Mr. CHIPERFIELD. The percentage runs higher among slaughtered animals?

Dr. MOHLER. No, sir; the percentage runs higher among the dairy cattle than beef cattle. The figures for tuberculosis in the beef breeds would be around 1 per cent, while about 9 or 10 per cent would be the amount in the dairy breeds, estimated for the entire country.

Mr. LINTHICUM. And as an ultimate resort the milch cow, after she is too old to give milk, goes to the slaughterhouse?

Dr. MOHLER. Yes.

Mr. LINTHICUM. If she has tuberculosis at the slaughterhouse, she is rejected?

Dr. MOHLER. Yes; she is condemned in accordance with the regulations.

Mr. LINTHICUM. So if the loss is to be made, it had better be made in advance, before the milk is produced in her period of usefulness.

Dr. MOHLER. Yes, sir.

Mr. LINTHICUM. I wanted to ask you one further question, that Dr. Schdoeder did not go into, that is the effect of the bacilli on children's bones?

Dr. MOHLER. Prof. Stiles, of Edinburgh, bases his report, which I first mentioned, entirely on bone cases, where there was such a large percentage of bone tuberculosis cases which came to his clinic affected with the bovine germ.

Mr. CHIPERFIELD. In what territorial region were the tests made of the percentage of tuberculous germs in living cattle? Where was that testing done?

Dr. MOHLER. Around the western part of the State of New York by Prof. Moore, of Cornell.

Mr. LINTHICUM. I would like to ask Mr. Rawl a question.

Mr. CHIPERFIELD. Are there any figures available for the dairy products of Wisconsin and Minnesota and northern Illinois on that same subject, that you know of, Doctor?

Dr. MOHLER. We only have haphazard tests, here and there, by farmers who sold their cattle to men in other States.

Mr. CHIPERFIELD. But no general test to determine—

Dr. MÖHLER (interposing). No.

Mr. LINTHICUM. With the permission of the chairman, we will hear you now, Mr. Rawl.

STATEMENT OF MR. B. H. RAUL.

Mr. LINTHICUM. Mr. Rawl, just tell the committee what you know about this matter.

Mr. POU. Is Mr. Rawl connected with the Government service?

Mr. RAWL. Yes. I am chief of the dairy division.

Mr. LINTHICUM. I want to ask Mr. Rawl first whether he knows anything about the filthy condition in which cream is delivered to the creameries?

Mr. RAWL. The facts, reported some three or four years ago, serve as an indication. I want to say, however, that the percentage given as insanitary to a greater or less degree was not intended by the department to mean that the insanitary conditions were dangerous to this extent. In other words, there are several factors involved; say, perhaps, a dozen or more essential features. Some of these creameries were defective in one, some in two, some in four, and some in more; so that that statement, I think, possibly has been misinterpreted by some. It certainly was not intended to be understood that that per cent was regarded as in a dangerous condition.

Mr. LINTHICUM. I wanted to know whether you knew anything about the filthy condition of the cream or the uncleanness of the cream.

Mr. RAWL. There is cream of all sorts and kinds going to the creameries. It is from the best to the worst, and it seems to me that the consideration of dirty cream might resolve itself into two divisions that are rather distinct; at first the danger to public health that may arise from dirty cream, and, second, deterioration, which would reduce the selling price of butter made from it. I believe that pasteurization should be compulsory, not only in the case of cream and milk made into butter but in the case of milk consumed as such, that is not known to be handled in a very superior way. I believe also that compulsory pasteurization should apply the oil used in making renovated butter and milk and cream used in the manufacture of oleomargarine. As to who should do that, whether it should be done by the State, the city, or the Federal Government, must, of necessity, depend on many conditions; but I may add, before leaving that question, that pasteurization does not hurt the commercial value of these products, and it is not an expensive process. It is a safeguard that I think it well worthy of the cost, because the cost will not be great, comparatively, in plants of fair size.

Mr. LINTHICUM. Mr. Rawl, this unclean cream and all that is shipped to these creameries, is that dumped in with the good cream and does it all go together, or is it separated?

Mr. RAWL. That is handled differently in different plants. I can not speak with reference to all of them, but in some it is separated. Some plants separate it into two grades and possibly some into more. Others perhaps combine the whole. Most of the large plants pasteurize their cream; and, while the low-grade cream used in these

plants must of necessity tend to lower the grade and the commercial value of the butter—or if it is separated and manufactured separately it must be a source of an inferior product—yet so long as this cream is in an edible condition and is pasteurized efficiently it need not be and it will not be dangerous to health, so far as I know.

Mr. **POU.** Have you made any estimate of the cost of pasteurization?

Mr. **RAWL.** We have studied the cost of pasteurization in various plants and, so far as our investigations have gone, they indicate that the cost of pasteurizing cream is \$0.00634 per gallon.

Mr. **POU.** Yes.

Mr. **LINTHICUM.** What do you think of the question of coloring butter?

Mr. **RAWL.** I think that is a question that is on a par with coloring fruit or berries and a lot of other things. I do not think there is any difference. It is all involved in the question of coloring foodstuffs.

Mr. **LINTHICUM.** What coloring matter is now used; do you know?

Mr. **RAWL.** Well, that is a question that I am not in a position to answer. The inspection of coloring matter that goes into interstate commerce is made by the Bureau of Chemistry, and I believe they have ruled out mineral coloring matters, but there is a vegetable coloring matter called "Annatto" that is commonly used in coloring butter.

Mr. **LINTHICUM.** What is Annatto?

Mr. **RAWL.** It is a plant from which coloring extracts are taken.

Mr. **LINTHICUM.** Is it healthy?

Mr. **RAWL.** Yes, sir; so far as is known. I believe I am on the ground of the Bureau of Chemistry, but I believe the Bureau of Chemistry has passed it as entirely harmless, and it has been used for many years.

Mr. **LINTHICUM.** From your observation, what do you think of the necessity of the Government taking supervision of the inspection of dairies and dairy products of the country?

Mr. **RAWL.** The consideration of that phase of the question must necessarily be subdivided. The creamery inspection offers one set of conditions; the inspection of market milk offers another set of conditions; the inspection of cheese factories offers still another set of conditions. Now, I do not believe I can think of the whole question at one time, because they are so widely different. The question of inspecting the milk supply of the Nation, in my judgment—a comprehensive inspection of the milk supply of the Nation, further than that which goes into interstate commerce—is impossible.

Mr. **LINTHICUM.** Yes.

Mr. **RAWL.** The amount of milk that goes into interstate commerce I do not know. Market milk usually comes from the territory adjacent to the cities where it is consumed; and it is only when a city is located on the border of a State or when a city requires a very large supply of milk that the supply will come from more than one State. Therefore the inspection of the milk of cities other than these seems to be out of the question. As to the feasibility of maintaining a system of Government inspection in those particular cities receiving milk interstate, I must confess I am not sure. I should prefer, Mr. Chairman, to withhold a definite opinion on that phase of

the question. There are many complications. Now, I believe that the cities speaking generally should be encouraged in every possible way to maintain their own market-milk inspections, because they are in a position to do it.

Mr. GARRETT. Do not practically all the cities of the country have inspection?

Mr. RAWL. Yes, sir; of one sort or another. Some of it is very good and some of it is not so good. Speaking of big cities—of course, I mean large cities—but there are a lot of cities of 25,000 and under that have no inspection.

Mr. GARRETT (interposing). Is there a city of over 50,000 inhabitants in this country that does not have its inspection?

Mr. RAWL. I could not say about that, but certainly not very many. There are a great many small towns of fifteen or twenty thousand that have not inspection, and others that have very inferior inspection.

Mr. GARRETT. Of course, there is no legal reason why they can not have inspection?

Mr. RAWL. Not so far as I know; no, sir. One of the important phases of milk inspection is pasteurization, and I believe Dr. Melvin referred to it. We have made examination of a number of pasteurizing plants where the milk carried as many bacteria after the pasteurization as before. The pasteurization was inefficient. The temperature may have been maintained at the right point, but later contamination took place; so we feel that when pasteurization is required it must be inspected in order to make sure that it is efficient. In the inspection of creameries there are three factors—one is the question of raw material, one the question of the general sanitary conditions, and the other is pasteurization. I believe that any efficient creamery inspection will require compulsory pasteurization and supervision of the raw material, and any wise system of inspection will have an economic advantage.

Mr. GARRETT (interposing). Let me ask your attention to this phase of the matter: You compare this with meat inspection. Of course, ham is inspected in a packing house at Chicago, or a quarter of beef, or a side of beef, or whatever it may be. There is no reasonable chance for any of those products that are there inspected to be changed after they have been inspected, and while they are being shipped in interstate commerce; but take the matter of butter. Suppose you had inspectors in the dairies at Elgin, Ill.; I speak of them, because I have heard more about them than other dairies; suppose you had a Government inspector there, with the same power and authority that the Government inspectors have in the packing houses at Chicago. He might pass every cake of butter, every gallon of milk, everything that he inspected, and still that might be shipped 10 miles away or a hundred miles away, and changed again. That is easy to change. You can not change a ham or a quarter of beef, but you can take that butter a hundred miles away and rework it. How would it be possible to have efficient Federal inspection of a cake of butter? It could be inspected there, and it could be passed there as a perfect piece of butter, free from these awful things that we know get into butter, but it might be shipped a hundred miles away and changed again. Now, what possible protection would there finally be

to the ultimate consumer of that butter by having an inspector at the dairy where it is made?

Mr. RAWL. While that is possible, in ordinary processes of commerce that would not occur. Butter is made in the creamery, and is either packed in prints or in tubs or in cubes—cubes and tubs representing more or less the same proposition.

Mr. CANTRILL. Let me offer this suggestion to my colleague on the committee. Take oleomargarin; as I understand the present law, any Government inspector has the right to go into any store in the country, anywhere now, and inspect oleomargarin.

Mr. GARRETT. That is true, but that is because of the tax; it is under the Treasury Department for the revenue. That is not under the health law.

Mr. CANTRILL. There are certain laws the dealer has to comply with before he can wrap it up and put it over the counter to his customer.

Mr. GARRETT. That is because of the tax.

Mr. CANTRILL. A good many years ago I was a country merchant, and in a shortage, in an emergency, when butter was short, we had to use oleomargarin, and I remember a Government inspector came into my store and laid down certain regulations under which I had to sell that to my customers. He took absolute control of it.

Mr. GARRETT. That was under the revenue law, was it not?

Mr. CANTRILL. No; he instructed me that I had to keep it in the original package in which I got it, and so forth.

Mr. GARRETT. That was because of the revenue law.

Mr. CANTRILL. Of course, I understand there was a tax on it, but he laid down the absolute conditions under which that could be peddled out and sold to my customers.

Mr. GARRETT. That is true, but that all comes back to the tax law. Oleomargarine was taxed out of existence in order to aid the dairy industry of the country.

Mr. CANTRILL. I just offered that suggestion that they could make the same conditions apply to butter, if they could make it apply to oleomargarine.

Mr. GARRETT. They could use the tax laws, perhaps.

Mr. LINTHICUM. Is there anything else, Mr. Rawl?

Mr. RAWL. I was just going to finish that statement that the gentleman was speaking of. In the ordinary course of commerce, butter is made at the plant in bulk or in packages—in pound prints. In the ordinary process pound prints are not unwrapped after they leave the creamery until they reach the consumer. They are usually wrapped in parchment paper, and frequently put up in cartons. The butter that is put up in tubs or cubes is often cut and wrapped when it reaches the distributing point. Under ordinary processes of handling it commercially there would be comparatively small opportunity for contamination between the factory and the consumer, and then only when it is cut and handled in a filthy or dirty place, and handled by dirty people.

Mr. GARRETT. And that would be with the retailer, of course?

Mr. RAWL. Yes; at the distributing point.

Mr. CANTRILL. Where there is sufficient public sentiment in any point or city in the country to demand clean butter and clean milk, is

it not perfectly possible to get it under the present organization and State laws without coming to Congress?

Mr. RAWL. That would depend altogether on local conditions.

Mr. CANTRILL. I say where there is public sentiment in favor of it, and where the people themselves are interested; I just put this in the record because I think it is perfectly practical, and as a suggestion to Mr. Linthicum. I have in my district a city of about 50,000 people, where they brought up this very question. They appointed a commission which investigated each dairy in the county where this city was located, and they printed in the daily papers in the county the result of that investigation, in which they set out the uncleanly conditions found in Mr. So-and-so's dairy, and published that to the community, and that was absolute protection. People then knew where to go to get good, clean milk and clean butter. That was in the county where the great Haggin dairy is located, near Lexington, Ky., and they drew lines, comparing one dairy with another, and they took up the whole page of a newspaper, and that was absolute protection. Now, that can be done in any community where there is sufficient public sentiment and where they have got the interest in the proposition themselves. I do not see how any committee of Congress can force protection on them if they do not want it.

Mr. RAWL. The butter and cheese usually do not come from a dairy in the vicinity.

Mr. CANTRILL. I agree with you that it should be subdivided, but I am speaking of the milk and cream which largely comes from a local source.

Mr. LINTHICUM. That would protect people in that particular city?

Mr. CANTRILL. Yes.

Mr. LINTHICUM. But how about the fellow in the country, who does not live in the corporate limits?

Mr. CANTRILL. This was printed in every paper in the county and it was seen by everybody. It was purely a practical publicity method of getting at it.

Mr. LINTHICUM. That was very well for that city, but there may be tuberculous cattle, and then you would go along and try to clean the milk and pasteurize it, and get rid of the bacilli in it, and our idea is just what you are arguing, to have a committee appointed to determine what is best to be done. If legislation is not necessary, if the conditions are all right, then we do not want any legislation; if you find, however, that conditions are such that legislation should be had, and that the United States Government should take supervision of the inspection of these things, then we want it. The object of this resolution is to determine whether the condition does exist requiring United States supervision. Now, in all these articles that we have here, it was our desire—of course, I realize it takes too much time—to show that throughout the whole country the papers are up in arms about the conditions in the dairy business in this country, and the dairy papers themselves, they all say, and the Secretary of Agriculture says that something ought to be done to determine whether the condition is all right or is not all right, and if it is all right, then to say so to the people, and let us stop this talking about

the condition of the dairies and dairy products of the country; and if not all right, and the people need better protection, then they should have it, and I believe it will be found that they do need it.

It seems to us that it is as necessary for the United States to inspect dairies and dairy products as it is to inspect meat. That is the object of this resolution. This resolution does not ask this committee—of course, I realize the committee would not have jurisdiction, even if the resolution asked it—but it does not ask for legislation, but that a committee be appointed to determine whether or not legislation is necessary. Do you wish to say anything further, Mr. Rawl?

Mr. RAWL. Nothing further.

Mr. GARRETT. Oleomargarine, Mr. Rawl, is quite a pure product, is it not?

Mr. RAWL. I have had no particular contact with oleomargarine, sir. I have had no official duties regarding it.

Mr. GARRETT. You do not care to express any opinion about it?

Mr. RAWL. I would rather have some other people of the department, who have had contact with it, express such an opinion.

Mr. SLOAN. Dr. Rawl, would not general pasteurization meet practically all of these defects and improper conditions throughout the country?

Mr. RAWL. From a health standpoint; yes, sir. But we must bear in mind that we do not know yet how to pasteurize with a very great degree of success milk used for cheese making, and I would not say that pasteurization is all that should be done, but that it will give us an immediate safeguard and protection from a health standpoint where it can be applied.

Mr. LINTHICUM. I want to say in answer to my colleague, Mr. Sloan, that the State health board of Maryland, Dr. Stokes, in writing, dwelt upon that, and he said that pasteurization would eventually become as general as filtration of water is at the present time, and would be found as absolutely necessary. Another letter which I received said that we ought to cure the trouble at the source; we ought to get rid of the cattle with tuberculosis; we ought to get rid of the dirty conditions in the creameries and in the milk, and not be compelled to clear it up by pasteurization.

Now, Mr. Chairman, we have not any other witnesses for to-day, and I want to ask leave to file excerpts from various papers which we have, and to file a list of 420 resolutions which have been passed by various organizations throughout the country, in favor of this resolution, and to file with the committee a short argument by Mr. Case and myself on behalf of this resolution. I do not think we shall have any other witnesses to produce, until the gentlemen who want to be heard from this convention, which I believe is coming here on the 5th of May, can be here. At that time, if the chairman will grant us a little time, we should like to ask one or two people—not experts on this subject, but who represent various clubs in the country and in the various States—to appear before the committee and tell what results have been obtained by State inspection. I do not believe that State inspection covers the situation. We do not believe it covers it any more than it covered meat inspection. It is an interstate commerce matter; it is a matter not only of interstate commerce but it is a matter of the shipment of cheese abroad. I found from data I have been able to gather that we used to ship something

like 1,500,000 pounds of cheese abroad, up until a few years ago and that export business has virtually dwindled away by reason of this very situation. The situation exists in the country to-day, and whether legislation is necessary or not is another question, but certainly every dairy paper in the country is insisting that the Government find out what conditions exist. Now, whether the conditions actually exist or not I am not prepared to say, except from the testimony that has been adduced from these papers, but that the people think it exists, and that it should be determined whether or not it exists I am prepared to say to the extent of 420 resolutions, to the extent of the president of Johns Hopkins University, to the extent of any number of heads of State health departments.

I have gotten any number of letters from men who are at the head of State health departments, in which they ask that this resolution be passed. Every one with whom I have communicated, with the exception of one or two men—and I will say that they have been very averse to it—but I should say that 99 per cent of those with whom I have communicated have said that this resolution ought to be reported, and that Congress ought to determine what condition exists in the matter of dairies and dairy products in this country. We must recognize one thing: That if the dairy products of the country are not wholesome, it is worse than if the meat products of the country were not wholesome, because nobody eats meat unless it is cooked, but everybody eats butter and drinks milk and eats cheese without cooking it, and you get the dirt, if there is any dirt, and you get the infection if there is any infection, direct from the source in the milk and in the cheese and in the butter, whereas with meat you cook it, and get rid of a large part of it.

Mr. GARRETT. Mr. Linticum, if a resolution requiring this investigation should be passed, I want to ask you if you do not think it would be better to have that investigation made by some department of the Government giving it full authority, rather than by Members of Congress? Members of Congress have everything to deal with.

Mr. LINTICUM. Yes, I realize that.

Mr. GARRETT. And to create a committee of Members of Congress at this time, or at almost any other time, as you and I know, during any session of Congress, to take up this technical investigation would necessarily take them away from their duties and their responsibilities about so many other matters that I just want to suggest that for your consideration.

Mr. LINTICUM. I want to say to my colleague, Mr. Garrett, in answer to that suggestion, that that was suggested to us in some letters which were received from very prominent officials of the different States. They thought that Congress ought to select a committee of men who understand the subject, experts on this subject, and it is immaterial to me. I rather agree with what my colleague says about Congressmen having so much to do—he is mostly up in the air all the time, he has so much to do—and it would be perfectly agreeable to us to have any committee of the various departments of the Government, or of the Agricultural Department, providing we can select men who are not, like ourselves, too busy. What

we want is to determine the conditions in this country, and it matters not to us whether it be a congressional committee or some other investigating body.

Mr. GARRETT. That ran through my mind a half an hour ago when I suggested the idea of this being a proper thing to put on the agricultural bill.

Mr. LINTHICUM. I am not prepared to say. If Dr. Melvin and those gentlemen down there think they have sufficient time to make the investigation, that would be agreeable to us, providing they were given sufficient power to get the witnesses and the information they need.

Mr. GARRETT. Oh, if the investigation is to be had, it should be thorough. There should be no limitation—rather, no unreasonable limitation upon it.

Mr. POU. There are some gentlemen here who would like to be heard in reference to this resolution.

Mr. SLOAN. Dr. McKay, of Chicago, has a statement here from his side of the case.

STATEMENT OF DR. G. L. MCKAY.

Dr. MCKAY. I am secretary of the American Association of Creamery Butter Manufacturers. I have prepared a short statement here concerning our members, and I have several documents here, but I do not propose to take up your time in reading them to you, but I will merely submit them. I have letters here from two of the leading dairy scientists of this country on this question, Dr. Russell, of the University of Wisconsin, and Dr. Harding, of the University of Illinois. I have letters, then, from different food commissioners of the country, giving the sanitary conditions of the creameries as they exist in their States. They do not correspond with the reports given out by the Department of Agriculture. I will read this statement; it is very short:

As the secretary of the American Association of Creamery Butter Manufacturers, I deem it wise to make a statement at this time in behalf of the purity and cleanliness of the American butter. I have spent the greater part of my life in dairy educational work. For 17 years I was at the head of the department of dairying at Iowa State College. In 1901 I was sent abroad to study dairy problems by the Department of Agriculture at Washington, D. C. A similar trip was made in 1913 in behalf of the association which I represent. Therefore I am very familiar with dairy conditions in the leading dairy countries of the world.

The American Association of Creamery Butter Manufacturers is an educational organization and was brought about for the purpose of improving the quality of the American butter. Approximately, our members made about one-fourth or one-fifth of the creamery butter manufactured in the United States. Our creamerymen all pasteurize their cream for butter making with the exception of one. Inspection of our creameries is made by my assistant and myself. Prof. Bouska, my assistant, is a trained chemist and bacteriologist. After taking his college degree in this country he spent some time studying abroad, so he is eminently fitted for his work and is thoroughly posted on up-to-date sanitary methods as related to food products.

His reports, in connection with my own, covering the entire creamery situation of our members, indicate that there are not more than 2 per cent of our creameries lacking in real up-to-date sanitary equipments. In the 2 per cent referred to everything is kept scrupulously clean, but the construction of the buildings and the equipment are not as modern as they should be. Many of

our creameries are superior to any found in other countries, and I can say without hesitancy that the butter manufactured by our members is as pure, if not purer, than that produced in any other country. This is due to the sanitary methods used in manufacturing and the efficiency of pasteurization as practiced by our members. Samples taken from the average run of butter produced in some of our leading creameries and examined at Wisconsin, Purdue, and Cornell Universities, showed an efficiency in pasteurization, as 99½ per cent of the germs found usually in milk and cream were destroyed. The butter thus examined showed up absolutely pure. Therefore, the report emanating from the Department of Agriculture in 1912 can in no way apply to the creameries of the members of our association.

I am pleased to be able to make such a favorable report. From my own general observation, I would say that the creamery business of the United States, from a sanitary standpoint, is conducted on a very high plane. Creameries of the United States may not all have walks around the buildings or all be painted, as indicated by the questions sent out by the Department of Agriculture. If creameries have good drainage, and vats, churns, pipes, and all equipments that come in contact with cream and butter are kept clean, the creamery certainly should be classified as sanitary, regardless of absence of paint and walks. The word "sanitary" is a misnomer as it relates to butter made from pasteurized cream. Butter made from properly pasteurized cream excludes the possibility of it carrying disease germs. So it is unquestionably a practically neutral health proposition.

G. L. MCKAY,
Secretary.

I have letters here which it will not be necessary for me to read, from the different dairy commissioners—from Iowa—where they say there is less than 3 per cent of the dairies that are insanitary, and I have letters from Missouri, from Kansas, from Indiana, and from Wisconsin.

Mr. LINTHICUM. What does the Wisconsin letter say?

Dr. MCKAY. It is addressed to me, dated April 6, 1916, and reads as follows:

In answer to your communication of April 4, will say in a brief way that the conditions described in Congressman Linthicum's resolution are not prevalent in the State of Wisconsin. There may be some isolated cases of the conditions he mentions, but under the Wisconsin law the entire cheese and butter industry is under State supervision as to its cleanliness and sanitary conditions. The most difficult problem confronting us at the present time is the delivery of good raw material to the creameries, which, however, is well taken care of by this department.

GEO. J. WEIGLE, *Commissioner.*

Mr. LINTHICUM. May I read what Prof. Farington, of the University of Wisconsin, says?

Dr. MCKAY. What I have read is from a man who has made a practical study of this subject.

Mr. SLOAN. Mr. Linthicum, I would suggest that the place for that is in your evidence.

Mr. POU. You may insert that in the record, Mr. Linthicum.

Mr. LINTHICUM. I should like to have it appear following this Wisconsin letter which Dr. McKay has just read.

Mr. SLOAN. It would be an unheard of arrangement to try to impeach one witness by what another witness says.

Mr. LINTHICUM. I am not trying to impeach anybody.

Mr. GARRETT. His answer was rather sharp. He said his letter was from a man who had practical experience in the matter.

Mr. LINTHICUM. This man is head of the dairy school in the University of Wisconsin. Of course, if you do not want it in here, or if you are afraid of it—

Mr. SLOAN (interposing). Mr. Chairman, there is no fear of it, but we ask that it be introduced in his evidence, and not as a part of the statement of this witness. That is not fair. It is not correct procedure here before the committee, or would not be correct procedure before a court.

Dr. MCKAY. I have a letter here from Dr. H. E. Barnard, of the State Board of Health of Indiana.

(The letter referred to appears in full below, as follows:)

INDIANA STATE BOARD OF HEALTH,
DEPARTMENT OF FOOD AND DRUGS,
Indianapolis, March 21, 1916.

GEORGE L. MCKAY,

*Secretary, American Association Creamery Butter Manufacturers,
2037 Continental and Commercial Bank,
Chicago, Ill.*

MY DEAR PROF. MCKAY: My inspector, Mr. Bruner, has been making a careful study of Indiana dairy and creamery conditions and the reports up to date have just been tabulated. They show that creameries manufactured last year 8,486,881 pounds of butter; 96.7 per cent of this butter was made from pasteurized cream. The only plants that do not pasteurize are the small ones.

Out of 17 large milk plants, selling last year 3,802,416 gallons of milk; 98.8 per cent was pasteurized.

Ninety-four and five-tenths per cent of the ice cream was made from pasteurized cream.

Eighteen cream stations shipped their products in every instance to plants which pasteurized. One plant was condemned and closed and the proprietor was prosecuted and convicted for unsanitary conditions.

The score on 101 dairy products plants is as follows:

Creameries: Excellent, 1; good, 15; fair, 11; poor, 1.

Ice cream factories: Good, 18; fair, 16; poor, 4.

Milk depots: Excellent, 1; good, 7; fair, 8; bad, 1.

Cream stations: Fair, 17; poor, 1.

The milk depot scored "bad" was prosecuted and put out of business.

The plants scored "fair" were generally well kept from a sanitary viewpoint, but were deficient in lighting or ventilation, were overcrowded, or not well equipped with machinery, or did not pasteurize the raw material.

I inclose a copy of a syndicated story recently sent out by me.

Very truly, yours,

E. H. BARNARD,
State Commissioner of Food and Drugs.

BUTTER IS STILL GOOD FOOD.

The papers are full of stories about bad butter. A resolution has been introduced in Congress which details with great minuteness the unsanitary condition of the creameries of the country. If we were so foolish as to believe all we read it would take a mighty courage to eat a slice of bread and butter. The real fact is that much more good butter is being made than bad butter. The Government report which so severely criticises the conditions under which butter is made was issued in 1912, and since that time the butter industry has been wonderfully improved.

The food inspectors in Indiana, which is an important dairy State, have just reported a survey of the dairy industry. They found that 96.7 per cent of the butter was made from pasteurized cream and so was a real food and not a disease carrier. They found that 94.5 per cent of the ice cream was made from pasteurized cream and milk and that the only plants that did not pasteurize were the little local plants which were able to get fresh raw material direct from the dairy. They found that 98.6 per cent of the milk supply was pasteurized, that the city plants which did not sell pasteurized milk were small local plants. But they found one plant in such unsatisfactory condition that it was condemned and closed, and the proprietor arrested and convicted for making unsanitary and unwholesome food.

What is true of Indiana dairy products is true of the dairy products of other States. The milk situation and the butter business is not ideal. It never will be. The business is too large and is carried on by too many untrained men ever to be ideal. But it is improving constantly and it is foolish to fear disease whenever one sits down to the table and reaches for the butter dish or cream pitcher. The fear of food is a hundred times more injurious than the food itself.

Mr. GARRETT. Doctor, I want to ask you a question about the dairy industry generally; I do not know, personally, much about it, but I have heard that in the great dairying centers this was the custom: The creameries go out every day and purchase milk from the farmers—that is, they purchase the cream?

Dr. MCKAY. Yes.

Mr. GARRETT. And the farmer keeps the skimmed milk and feeds it to his pigs or does whatever he wants with it. The creamery, for instance, can take in a hundred farms, and a man goes by those farms every day and collects this cream. Am I right about that?

Dr. MCKAY. Well, not every day. They usually go every second day or every third day, in the winter time especially. Some creameries, of course, gather their cream daily, but since they have had the separator in general use there will be only about four pounds of butter fat to the average farm, and it would not pay a farmer to hitch up his team or to drive in with that much, and consequently he keeps his cream for a couple of days. Sometimes the cream is sour, and it does not make as good butter, but as regards its wholesome value it is as good as any other. It makes as good butter as the other, but it does not have the desirable flavor.

Mr. GARRETT. The farmer has his own separator?

Dr. MCKAY. Yes.

Mr. GARRETT. And separates his own milk?

Dr. MCKAY. Yes.

Mr. GARRETT. And sells it to them as they call for it?

Dr. MCKAY. Yes; or he delivers it to them himself. There are two or three ways of delivery.

Mr. GARRETT. If we go into an investigation of the sanitary conditions and tubercular conditions in the cow we would have to go beyond the dairy, would we not?

Dr. MCKAY. Yes; you would have to go to the farm. In this report a lot of these are cream stations, and a cream station and a creamery are entirely different propositions. For instance, out West sometimes a grocery keeper will buy cream; he will buy it from the farmers and ship it to a creamery. His station may not be as sanitary as the main plant. I agree with what the chief has said this morning here, but we have the individual cream, the cooperative creamery, and we have the centralized creameries. In many of the large centralized creameries they keep chemists and bacteriologists, and every can of butter that is churned is examined chemically and bacteriologically. In fact, I intend to start in Chicago a chemical and bacteriological laboratory for testing the butter of every one of our members.

Mr. GARRETT. Then is it true that on the farms a very large percentage of the farmers buy back their butter from the creameries; is that correct? They do not make it at home?

Dr. MCKAY. Yes. Where they deliver it to the creamery, it is common for them to take a jar there and take some back again.

Mr. GARRETT. They do not churn it at home?

Dr. MCKAY. No, they do not churn. Those are regular patrons of the creamery. I would like to submit reports from Iowa; from Dr. Harding, of Illinois, from Dr. Russell, of Wisconsin, if you have no objection?

Mr. POU. You may put those into the record.

Dr. MCKAY. And there are several others here, also.

Mr. POU. You may put them in.

(The letters above referred to appear in full below, as follows:)

UNIVERSITY OF ILLINOIS.
COLLEGE OF AGRICULTURE AND
AGRICULTURAL EXPERIMENT STATION.

April 6, 1916.

Mr. GEORGE L. MCKAY,

Continental and Commercial Bank Building, Chicago, Ill.

My DEAR MCKAY: While the word "sanitary" is often used in a very strange sense and is sometimes used apparently without any sense at all, I have understood that thoughtful people use it with reference to those features which to some appreciable extent affect the health of the individual or of the community.

We can perhaps better appreciate the possible sanitary significance of butter if we consider in detail the various elements which make up butter and cream.

In addition to the water, which is presented in varying amount but has no sanitary significance, the fat is perhaps the most outstanding element of composition. As you know, the fat undergoes very little if any chemical change either in cream or in butter until it is very old. The rancidity which ultimately develops is an important matter from the commercial point of view but has no sanitary significance, partly because the products of rancidity are not known to exert any unfavorable influence upon health and largely because the products are so obvious and unpleasant that the rancid butter is not readily consumed.

The sugar is of course readily attacked by germ life and broken down, forming mainly acid, which again is quite obvious and has important commercial relations, but so far as I am aware is entirely without health significance in connection with butter, though the buttermilk is generally recognized as a nutritious and to some extent a therapeutic drink.

The remaining elements of the cream and butter may be conveniently grouped under the head of curd. The decomposition which this nitrogenous material suffers in the case of cream and butter gives rise to many compounds, some of which have pronounced flavors or odors.

In extreme cases such cream or butter is referred to in common speech as "rotten." The decomposition which is going on compares very closely in character though is rarely as extensive as that taking place in the ripening of Limburger cheese and other of the soft cheeses. While these changes very sharply affect our sense and to many people are quite disagreeable, thereby having important economic bearings, I am not aware that we have any evidence to indicate that the health of the consumer is any way impaired by the consumption of such material. Personally I am rather fond of Limburger cheese. While I do not like the flavor of bad cream, largely, I believe because of the admixture of fatty decomposition products, which are quite offensive.

If this analysis of the situation is correct—and I believe it is substantially so—we have, then, no occasion for applying the term "sanitary" to the decomposition products occurring in butter as the result of bacterial attack on the fat, sugar, or curd, and these taken together make up what we know as butter.

Butter, therefore, would be of no sanitary significance whatever, except in the very general significance which results from its usefulness as a food, but for the fact that it may become the mechanical carrier of disease germs. These may enter at any time between the production of the milk and the consumption of the butter. Careful studies have shown that raw cream very commonly carries the germs of bovine tuberculosis and occasionally may carry the germs of typhoid fever, scarlet fever, diphtheria, septic sore throat, and less frequently the germs of a number of other minor diseases.

The science and practice of buttermaking has fully developed the fact that by properly pasteurizing the cream, or the milk before the cream is removed, many of these germs which may have found their way into the milk or cream will be completely destroyed without impairing the value of the cream for

butter making. As you know, this process is being carried out in practice upon a large scale, so that practically all of the butter made in the State of Illinois is now so handled. Butter, therefore, made from poorly pasteurized cream can be looked upon as not open to any objection from the standpoint of sanitation except for the possibility of contamination from human beings carrying these germs between the time at which the cream is pasteurized and the time at which the butter is consumed by the individual. While such butter is not absolutely and entirely safe, because of the possibility of its being contaminated by the one or two men who have been in contact with it to a slight extent during the churning and packing process and the grocery clerk who has retailed it, it is in this respect practically on a par with any food product which is later to be consumed without being prepared for consumption by the process of cooking. Until the public shall have reached the point where it desires butter which has been boiled just before being served it will not be possible to furnish it with a more sanitary product than our properly pasteurized butter is now.

Yours, truly,

H. A. HARDING.

THE UNIVERSITY OF WISCONSIN,
COLLEGE OF AGRICULTURE AND AGRICULTURAL EXPERIMENT STATION.

Madison, April 6, 1916.

Prof. G. L. MCKAY, *Secretary,*

American Association Creamery Butter Manufacturers, Chicago, Ill.

MY DEAR PROF. MCKAY: In reply to your letter asking in regard to the transmission of disease by butter made from cream that has been thoroughly pasteurized, I would say that most of the work that has been done in the study of pasteurization has been along the lines of market milk.

It has been shown beyond all doubt that the method of pasteurization, which is most widely used at the present time in the treatment of market milk, destroys all of the pathogenic organisms which may be present in the milk. The process used consist in the heating of the milk to a temperature of 145° F. for a period of 20 to 30 minutes. Experiments conducted both under laboratory conditions and under practical conditions have shown the efficiency of this process.

It is generally admitted that a higher temperature for a much shorter period of time is practically as efficient as the use of the lower temperature for a longer period of time. If the milk or cream is brought to a temperature of 170°, even for a very short period, it is believed that the vitality of any disease-producing organisms it may contain will be destroyed. Thus if butter is made from cream that has been treated by either of these processes, it should be perfectly free from living pathogenic organisms.

There are no data, so far as I am aware, to show that butter has ever been concerned in the distribution of typhoid fever or of diphtheria even when the butter is made from unpasteurized cream. If the milk contained tubercle bacilli, it is quite certain that they would be found in the butter and that they would not be destroyed by the ordinary process of butter making, namely, the souring of the cream and the salting of the butter. It is possible that butter made from raw cream might be instrumental in producing tuberculosis in man, but it is certain that its importance in this regard is very small indeed, especially when compared with that of milk itself.

The general condition of creameries with reference to cleanliness would probably have very little, if any, influence upon the healthfulness of the butter. This, however, is no reason why our creameries should not be kept in as cleanly a condition as possible because the aesthetic side of foods is of very considerable commercial importance.

Yours very truly,

H. L. RUSSELL.

THE BOARD OF AGRICULTURE,
DAIRY AND FOOD DIVISION,
Columbus, March 22, 1916.

Mr. GEORGE L. MCKAY,

2037 Continental and Commercial Bank Building, Chicago, Ill.

DEAR SIR: I have before me your favor of the 17th inclosing copy of the request of J. Chas. Linthicum relative to sanitary conditions of creameries.

I note that they claim 94½ per cent of the creameries of the country are unsanitary to a greater or less degree. By getting this 94½ per cent they have taken in, it seems to me, a very large scope, while I believe from reports we have received from our inspectors making investigations of the creameries in Ohio that 75 per cent will pass the requirements of the State law.

If an inspector goes into a creamery when they are running full force there are undoubtedly some minor things that may not look as sanitary as they ought to be, but they can not be avoided considering the amount of work they are doing.

I do not believe that the conditions in Ohio will show that 61½ per cent of the cream used is unclean or decomposed. It seems to me that this report certainly has been exaggerated very much unless conditions are a great deal worse in other localities and other States than they are here in Ohio.

A statement of this nature going out to the public is certainly very detrimental to the honest creamery man who is endeavoring to put a clean, wholesome product on the market. I can not understand the motive of this unless there is some move back of it to discredit the creamery work in order to give the oleomargarin people a better hold and make larger sales of their goods.

It seems to me that the creamery men of the country should pass resolutions giving the true conditions as found, and present them to this committee.

Any service I can render will be gladly given.

Very respectfully,

T. L. CALVERT,
Chief of Division.

KANSAS STATE AGRICULTURAL COLLEGE,
Manhattan, Kans., April 5, 1916.

Mr. GEORGE L. MCKAY,
Suite 2037 Continental and Commercial Bank Building, Chicago.

MY DEAR MCKAY: Yours of the 4th just received.

I am pleased to say at this time that 95 per cent of the creameries in this State score first. I am inclosing herewith a copy of the score card used in grading the creameries. We consider that a plant scoring 85 per cent or better is a first-grade creamery.

I might add that 90 per cent of the butter manufactured in Kansas is handled in creameries scoring above 93 per cent.

I have just completed gathering data on the creameries and am pleased to state, of the creamery butter manufactured within the State of Kansas, 98 per cent is made from pasteurized cream.

We have 85 creameries operating within the State. Seventeen of the smallest ones do not pasteurize, while the remaining 68 pasteurize all cream and milk used in the manufacture of butter.

If you desire any further data relative to this work, I shall be greatly pleased to forward same. The above data can be substantiated by names and figures if necessary.

With kind personal regards, I am,
Very truly, yours,

GEO. S. HINE,
State Dairy Commissioner.

MICHIGAN AGRICULTURAL COLLEGE,
East Lansing, Mich., March 24, 1916.

G. L. MCKAY,
*Secretary American Association Creamery Butter Manufacturers,
2037 Continental and Commercial Bank Building, Chicago, Ill.*

MY DEAR SECRETARY MCKAY: Recently there has been brought to my attention a statement written in 1912 to the effect that approximately 95 per cent of the creameries of this country are unsanitary; that approximately two-thirds of the cream used in the manufacture of butter is either unclean or decomposed or both; and that three-fourths of the cream used in the manufacture of butter is not pasteurized.

I am unable to speak with authority on this subject for conditions existing outside of the State of Michigan. I have, however, been engaged in the dairy business in the State of Michigan for the past 12 years and have come in contact with all creamery conditions as they have existed and are existing at the

present time. The statement as published could never have been considered as applying to the State of Michigan. It is so far removed from the actual conditions in vogue even in 1912 that any one at all acquainted with Michigan creameries could not have considered it in a serious manner.

The first two statements as to the condition of creameries and the cream itself are certainly gross misrepresentations. As to the matter of pasteurization, may say that the amount of cream pasteurized is increasing every year. A large portion of that used in the State of Michigan is being pasteurized at the present time, and I look to see the practice universal in the comparatively near future.

Yours, very truly,

A. C. ANDERSON,
Professor of Dairy Husbandry.

STATE OF IOWA DAIRY AND FOOD COMMISSION,
Des Moines, April 7, 1916.

HON. G. L. MCKAY,
Chicago, Ill.

MY DEAR MR. MCKAY: We have yours of the 4th and are pleased to be able to advise you that we are certain that not 3 per cent of the creameries in Iowa are not in a sanitary condition.

Practically every creamery in the State is inspected by assistant commissioners as often as every six months, and in many instances more frequently than that.

Where the buildings are old and dilapidated and can not be kept in good shape, they have been condemned and new ones have replaced them. This is why there are possibly three per cent of them that are not in good shape now. Many of this small per cent will be rebuilt within the next year.

Wherever we have found that they are not in a sanitary condition notice has been given, and on the second call inspections have been made, and in some instances penalty assessed. This is where we have found people that through carelessness or negligence have not cleaned up.

We know that practically all of the centralizers are in good condition, as we give them the same attention that we do the small creameries.

Yours truly,

W. B. BARNEY,
Commissioner.

MR. LINTHICUM. Who is president of your association?

DR. MCKAY. Samuel Schlosser.

MR. LINTHICUM. In accordance with the suggestion of my colleague, Mr. Sloan, I would ask that we be permitted to file in the record the letters we have received from the heads of departments of a number of States.

MR. POU. Without objection, that will be allowed.

MR. SLOAN. The next speaker will be Mr. William T. Creasy, secretary of the National Dairy Union.

STATEMENT OF MR. WILLIAM T. CREASY, SECRETARY OF THE NATIONAL DAIRY UNION.

MR. CREASY. As the secretary of the National Dairy Union I do not come here to object to or resist the passage of a resolution which will have the purpose of ascertaining important facts relative to the production and handling of American dairy and creamery products in a wholesome and sanitary manner. Nor do I, in behalf of those whom I represent, object to the appointment of a committee from the membership of the House not antagonistic to the producers of this country. We would be gratified if members of this committee were men who knew something of the problems of dairy production, handling, and marketing. Especially will we not object if this investi-

gation is made so broad, searching, and comprehensive that this, in many respects the most important industry of the country, be disclosed not only in its actual conditions but its standing among the similar industries in other nations of the earth. Further, we would be pleased if this investigation would show the relative care, sanitation, and wholesomeness of this industry's products in comparison with those of other industries whose representatives are assailing ours.

We are convinced from the enterprise and energy being exercised by a large portion of the dairy industries that there has been accomplished during the last five or six years a great advancement and improvement in sanitation and wholesomeness of the dairy products from the point of first production through the handling, distribution, and marketing of the final product, so that to those not antagonistic or prejudiced an investigation would be entirely unnecessary were it not for the following two important facts:

First, there appears in the Annual Report of the Department of Agriculture for the year 1912, contributed by the Bureau of Animal Industry, at page 334, the following remarkable statement:

[From report of the Bureau of Animal Industry, 1912.]

CREAM INVESTIGATIONS AND THE NEED OF CREAMERY INSPECTION.

Investigations have been made of the sanitary conditions of creameries and cream-buying stations, also of the quality of the cream received and the methods used in its manufacture into butter, and the conditions under which cream is produced and prepared for market.

A special examination of 144 creameries and cream-buying stations located in six different States showed that only eight, or about 5.5 per cent, were absolutely satisfactory from a sanitary standpoint.

An examination of 1,554 lots of cream after being delivered to the creameries and cream-buying stations showed 113, or 7.3 per cent, to be of first grade; 484, or 31.1 per cent, of second grade; and 957, or 61.5 per cent, of third grade. The third grade consists of cream that is dirty, decomposed, or very sour. High acidity in ordinary cream indicates either age or bad conditions surrounding its production, handling, or storage.

An inquiry covering 715 creameries located in 6 States showed that only 196, or 27.4 per cent, pasteurize their cream, while 519, or 72.6 per cent, do not pasteurize.

The results of these investigations may not represent with absolute accuracy the creamery industry as a whole, but they are certainly not far out of the way. While some creameries are in good sanitary condition, receive good cream, practice pasteurization and other approved methods, and turn out a high-grade product, the number of such creameries is very small. Our investigations reveal the fact that 94.5 per cent of the creameries are insanitary to a greater or less degree; that 61.5 per cent of the cream used is dirty or decomposed, or both; and that 72.6 per cent of the cream is not pasteurized, but is made into butter to be consumed in a raw state. In other words, millions of gallons of cream that has been allowed to stand in the barn, in the cellar, or in the woodshed until it is sour or decomposed is sent to the creamery, and without even being pasteurized is made into butter. Butter is usually consumed in the raw state and may carry pathogenic organisms for a long period of time; but, aside from the danger of pathogenic infection, consumers should not be expected to eat a product from an insanitary place and made from material that is unclean and decomposed.

We have been studying this subject for some years and are fully convinced that the welfare of the public, as well as of the dairy industry, demands that something be done to correct these unwholesome conditions. The best remedy is believed to be a system of inspection such as is recommended in an earlier part of this report under the heading "Needed legislation."

Remarkable for two reasons—first, the very narrow and limited basis of fact; second, the broad sweep and unwarranted conclusion. Your attention is called to the fact that the investigation was confined to 6 States out of 48—to 144 creameries and cream-buying stations, there being now 6,000 creameries and probably 40,000 cream-buying stations in the United States. The man who saw a swallow and declared that it was summer had nothing on the remarkable author of this extraordinary report. There was an examination of 1,554 lots of cream, said by the department to have covered a period of three months, which compared with the many millions of commercial lots of dairy products handled in that period gives the investigation all the stability of an inverted cone.

The second extraordinary fact referred to is the comprehensive and elastic conclusion drawn where it says: "Our investigations reveal the fact that 94.5 per cent of the creameries are insanitary to a greater or less degree." That conclusion might be drawn as against any line of industries, because it says to a greater or less degree. If we assume the maximum, let us inquire greater than what? Greater than 99 per cent or greater than 1 per cent? Less? Less than what? Less than 1 per cent or less than 50 per cent? To scientific minds this statement means nothing definite. To the average mind, given in all the solemnity of a Government report, it is liable to be considered appalling.

The second extraordinary fact is the resolution, almost sensational in its terms, which has not only been filed in the ordinary way in Congress, but has been scattered broadcast throughout the country and wherever sent has served to reflect upon the purity and wholesomeness of the dairy products produced and handled in this country.

It is to meet these two extraordinary and prejudicial documents alone that the investigation should be entered upon.

I am convinced that if this committee will grant an adjournment of this hearing for a period of about 30 days, witnesses will be produced from different States and communities of the country who will establish the following facts:

First. That in dairy States of the Union there are, many of recent origin, but all working at this time, effective laws governing the supervision and inspection of dairies and creameries, and in practically every case the laws are being effectively enforced.

Second. We will show that of the commercial dairy products more than 60 per cent are pasteurized and that pasteurization is steadily increasing in every part of the country.

Third. That the large majority of dairy and creamery products which enter into interstate commerce, we believe amounting to 75 per cent is pasteurized.

Fourth. We are convinced that no industry in this country having to do with the production and handling of human food has made an advancement in purity and sanitation equal to that of dairy and creamery products during the last five years.

Fifth. That the state of purity and wholesomeness of commercial creamery and dairy products in this country is farther advanced than almost any country of the world.

Sixth. We expect to show to some extent, at least, the antagonism and unwarranted attacks made by other industries upon this in-

dustry, which involves to the producers of this country a billion dollars per year, and an industry upon which the continued fertility of our now fertile soils and the renewal of our depleted soils in this country largely depends.

Seventh. We will at this time, as I merely suggest now, show that this is an industry to which there should be directed the most far-seeing statesmanship for the purpose of conserving and upbuilding rather than injuring and destroying.

To this end, and calling your attention to the fact that here in the National Capital, on the 5th and 6th of May next, there will be gathered representatives from the industries of dairy products from throughout the States of the Union, men informed and skilled in their professions, who will be ready to appear before this committee and give testimony, I ask that further hearing hereon be suspended until a convenient date from the 5th to the 10th of May.

In conclusion will say that yesterday, April 9, we asked the chief of the dairy division for a list of the 144 creameries mentioned in the report. This was refused for the reason that the information is considered of a confidential nature. On further inquiry at this department it was stated that the investigation which found 94.5 per cent of the 144 creameries insanitary was ordered in April, 1912, and completed July 1, 1912, the work being done by two inspectors in three months. Hence it follows that five inspectors could examine these same creameries in less than a month and this would show the conditions of these creameries at the present time. This would give the committee and the public much needed information which would be of great value in carrying on the investigation. We believe the dairy division will do this and can have the information for this committee at its next hearing of from May 5 to 10.

Mr. LINTHICUM. May I ask Mr. Creasy a couple of questions?

Mr. CREASY. Yes.

Mr. LINTHICUM. You mentioned two facts; that is, that the Bureau of Animal Industry issued this statement, and then you also mentioned the fact that I had introduced this resolution based upon that statement, and sent it broadcast over the land.

Mr. CREASY. Yes.

Mr. LINTHICUM. You did not mention the fact that any number of dairy papers published in this country had been keeping this matter before the public continually from that time until now, and even up until the 6th of February last have articles appeared, telling of the conditions in the dairies; is not that a fact?

Mr. CREASY. I would like to say this, in reply to your question, that that is one of the damages that has been done to the dairy industry, not by these people trying to clean it up. It does not make any difference how big or how well you grow an apple; somebody else will want nicer apples, and that is the same way with the creamery business, and the injury done to the business is then it is taken up by those who are opposed to this industry, and using statements to injure the industry. That is the great danger.

Mr. CANTRILL. What do you mean by those opposed to the industry? Whom do you mean?

Mr. CREASY. I do not want to go into that to-day.

Mr. CANTRILL. I think the committee is entitled to that information.

Mr. CREASY. Well, it is the oleomargarine interests. Those are the interests.

Mr. LINTHICUM. Do you mean to say that I, or anybody I have in association with me in this matter, is in any way identified with the oleomargarine interests?

Mr. CREASY. No; I do not say that at all. I say that as a member of the Pennsylvania legislature for 16 years, and passing a bill in that State that prohibits oleomargarine coloring, I have learned that there is a great deal of politics in this oleomargarine business, and it has really been fostered for years through political influences.

Mr. CANTRILL. Would a complete investigation of this question by this committee resolve itself really into a fight between the butter interests and the oleomargarine interests? Is not that where it would land?

Mr. CREASY. Well, of course, I thought the committee had seen, at the start, what was really behind this. It is the old fight over again.

Mr. CANTRILL. We had just as well lay all the cards on the table.

Mr. CREASY. But I do believe that the right thing to do is to put each one on its own standing, as we do in Pennsylvania. Oleomargarine is sold there, and we collect a hundred thousand dollars license tax from the industry. We do not permit them to color it, and we are backed up with that proposition by the labor people of the State, and they say it is better oleomargarine, and they buy it cheaper when it is not colored; and we believe that a great industry like the dairy industry of this country should be put on a basis where the people will know where it is, so that attacks which are made as have been made all along—not that I accuse my friend, Mr. Linthicum, of being guilty of these things, but we believe from some of the information that we have—it was told to one of our men in Chicago that if we proposed to change the oleomargarine laws, that he was in a position to touch a button that would upset the dairy industry of this country.

Mr. CANTRILL. These magazines that Mr. Case quoted from—are they organs of the dairy industry or the farmers' interests?

Mr. CREASY. They represent the creamery industry of the country.

Mr. LINTHICUM. Hoard's Dairyman is edited by ex Governor Hoard?

Mr. CREASY. Yes; he is a man of production.

Mr. LINTHICUM. This situation, being as it is, as you say—these people attacking and this statement in the Department of Agriculture and you attacking my resolution—is it not better, therefore, that we have a committee to look into this thing and to determine whether the dairies and dairy interests of the country are on a good footing or not and to decide that question once and for all?

Mr. CREASY. I have suggested here practically that, and we are in favor of an investigation; but we do not approve of the resolution.

Mr. GARRETT. The fight between the oleomargarine interests and the butter interests has been fought out before the Agricultural Committee since 1912, has it not?

Mr. CREASY. No. That is the last fight we had.

Mr. GARRETT. Am I wrong about that?

Mr. CREASY. In 1912 the committee stood a tie, and a motion was made to refer the matter to the next session of Congress in December,

1912, and since that there has not been anything done in Congress that I know of.

Mr. GARRETT. It seemed more recent than that to me, but possibly I have forgotten the exact date.

Mr. POW. The committee will now adjourn.

(Whereupon, at 1.40 o'clock p. m., the committee adjourned subject to call.)

EXHIBIT No. 1.

[National Pure Food News, November, 1915.]

* * * In a pasteurizing creamery in Chicago we found men working over full tubs scraping the surplus off with a stick, squeezing it with bare hands into lumps, and flopping it into empty tubs.

Flaps of butter hanging from the tubs fell to the cement floor and were picked up dripping with dirty water and put back into the tubs. We had just come in from the Chicago streets and our shoes were in the water in which the butter fell. It was pasteurized butter.

The girls in the print room squeezed off the little extra weight from the print on the scale and deftly added the finger excisions to the prints that were a little short weight, smoothing the handled butter cleverly with a knife.

In this pasteurizing plant processed, renovated, and ladle butter was manufactured.

In the ripening vat dirt and dead flies were scattered over the surface of the pasteurized cream, thus reinfesting it.

* * * * *

In another Chicago creamery, connected with another concern also pasteurizing, I found an open sewer trap ejecting sewer gas in a corner of the plant under the steps leading up to the platform. Girls worked with their bare hands in the print room and one of them was coughing into the manipulated butter. There was no medical supervision in the institution.

The same conditions are characteristic of hundreds of Illinois creameries and centralizing plants.

* * * * *

EXHIBIT No. 2.

[The Globe, New York, Sept. 30, 1915.]

* * * At the Fifteenth International Congress on Hygiene and Demography, held at Washington, D. C., September 23, 24, 25, 26, 27, and 28, 1912, Dr. William H. Park, director of the research laboratory of the department of health, said:

"The large amount of bovine infections in tubercular glands of the neck in both younger and older children is very impressing. This form of disease, if neglected, is apt to cause impairment of health and disfigurement."

He then presented figures to show that of 77 fatal cases of tuberculosis of children under 5 years of age, which had come under his notice, 11 of the deaths were due to bovine tuberculosis.

Referring to the statements of Dr. Park, Dr. M. P. Ravenel, of the University of Wisconsin, which university, by the way, has done more to corrupt butter makers than any other temple of light in the United States, said, "There is now worldwide agreement that bovine tubercle bacilli can produce serious and fatal disease in human beings, and that these cases are seen chiefly in children under the age of 16 years, and especially under the age of 5 years.

"In addition to the fatal cases many children are infected with bovine tuberculosis, which do not prove serious at once. These must be taken into consideration in estimating the amount of human tuberculosis which originates in bovine tuberculosis. I lay special emphasis on this, since in America more raw cow's milk is consumed than in any other country in the world."

At the interstate conference on milk control, held at the New York Academy of Medicine, February 5 and 6, 1913, Dr. William H. Park said:

"We attack this problem in New York City by examining many hundreds of children and adults that have tuberculosis, our experience being the same as that recorded in Germany and England—that 10 per cent of the fatal cases of tuberculosis among children were due to bovine bacilli; that of all the children which were fed with raw dairy products one-half died of bovine bacilli; and that about one-half of all the people, younger children and older children, that had gland tuberculosis had bovine infection."

INFECTED BUTTER FATAL.

At the congress held in Washington from which Dr. Park's statements are quoted here, Dr. G. Sims Woodhead, University of Cambridge, said:

"It can undoubtedly be demonstrated that a considerable proportion of cases of tuberculosis of the intestines and of the lymphatic glands are caused by bovine infection (milk, pot cheese, ice cream, and butter). Such infection occurs especially in the early years of life and affects not only the intestines, with its associated glands, but also the bones, and even the lungs."

It has been generally accepted that the milk from cows in which the udder is manifestly tuberculous contains tubercle bacilli and that the milk of one such cow mixed with the milk of 99 perfectly healthy cows infects the entire batch.

There is still considerable difference in the opinion of the amount of danger, if any, that attaches to the milk of tuberculous cows in which the udder shows no signs of disease, especially in such cases where there is no emaciation or coughing.

PROOFS ARE STAGGERING.

Of six cows submitted to the most minute investigation none of them showed any disease of the udder during life that could have been possibly detected by a physical examination of the living animal, yet in one case one-quarter of the udder showed four tuberculous nodules.

In the milk of three other animals tubercle bacilli were readily found.

From 28 cases of pulmonary tuberculosis being treated in a hospital sputum was collected. Two of these cases yielded the bovine tubercle bacilli which produced fatal generalized tuberculosis of the bovine type when injected into calves and rabbits.

Of 29 cases of primary abdominal tuberculosis 14 yielded tubercle bovine bacilli.

ONE-THIRD OF DEATHS DUE TO TUBERCULOSIS.

Of 614 cases, 10 were children between the ages of 1 and 3, 3 between the ages of 4 and 5, and 1 was 8 years old. Of these 14 cases, 6 died from generalized tuberculosis, 2 died from tuberculosis peritonitis and tuberculous meningitis.

A careful analysis of the cases in which the bovine tubercle bacillus was found showed evidence of infection through the stomach and intestines.

At this congress the work of Dr. Delepine, of Manchester, was reviewed. Dr. Delepine demonstrated that tuberculosis other than tuberculosis of the lungs is responsible for a little less than one-third of the total number of deaths attributed to tuberculosis. All these cases, he holds, are due to food infection and aero-infection. These are his words:

"Taking all evidence into consideration, it is possible to say, without fear of exaggeration, that not less than 25 per cent of the children suffering from tuberculosis, under 5 years of age, suffer from tuberculosis of bovine origin, and that this rate is much lower than one based on probabilities would be."

* * * * *

EXHIBIT No. 3.

[The Globe, New York, Monday, Oct. 4, 1915.]

* * * Now let us see what Dr. E. C. Schroeder, of the Bureau of Animal Industry, United States Department of Agriculture, says about dung.

"From all our investigations we know that the commonest way for tubercle bacilli to pass from the bodies of tuberculosis cow is with their feces (dung)."

Dr. Schroeder continues:

"This fact, together with the common presence of tuberculosis among dairy cows and the frequency with which dung is found in the milk that reaches the consumer, is clear evidence that a considerable proportion of our dairy products are infected with tubercle bacilli."

As long as the use of tuberculous cows is permitted by the State, the manner in which dairy products are distributed will insure that practically every member of the human family is exposed to tuberculosis.

These are his words:

"Of 2,053 human bodies examined after death by European investigators, 91 per cent showed lesions of tuberculosis."

* * * * *

The United States Public Health and Marine Hospital Service found that among 172 samples of city milk examined, 121 samples, or 70 per cent, contained a sediment after standing a few hours in the original containers, and that this sediment consisted in part of dung. The University of Wisconsin simply takes this dung out and refuses to pasteurize the strained cream. Later I will tell you why it is a shuddering story. The University of Wisconsin dairy school is a shuddering hole. Perhaps it will yet be stopped up with a bung supplied by public indignation.

Referring to these dung facts, which can not be put down by a cry of "sensational journalism," Dr. Schroeder says:

"We know that it can be definitely shown that about 40 per cent of all cows that react to the tuberculin test, though they still retain the appearance of health, are actively passing tubercle bacilli."

THE TRAIL OF THE TUBERCLE.

For this reason alone tuberculosis among dairy cows is one of the greatest dangers to which public health is exposed, and every effort should be made by those who have the welfare of humanity at heart to correct this great evil.

Among 444 samples of butter and centrifuge slime, Drs. Herr and Beninde found 60 samples, or over 13 per cent, which contained tubercle bacilli.

Dr. Broers from his investigation stated that 10 per cent of all the milk examined by him contained tubercle bacilli.

* * * * *

EXHIBIT No. 4.

[The Globe, New York, Tuesday, Oct. 5, 1915.]

Concerning these established facts the words of Dr. Theobald Smith, whose ability to distinguish without error between different types of tubercle bacilli no one can question, are eloquent.

At the international congress on tuberculosis in Washington Dr. Smith said:

"A liberal estimate would make from one-fourth to one-half the cases of human tuberculosis, starting in the cervical and mesenteric lymph nodes, bovine in their origin. This estimate, to which many have contributed, has placed our knowledge concerning the infection from animal to man on a firm basis."

TUBERCULOSIS MORE PREVALENT.

An estimate of the annual deaths in this country numbered among children due to bovine tubercle bacilli it must be remembered deals only with fatal cases of tuberculosis, and this is of the utmost importance because a medical milk commission, as a matter of plain duty, must fight against milk-borne disease, irrespective of its probable end in recovery or death.

It is well to bear in mind when we think of this that tuberculosis, though it causes 10 per cent of nearly all deaths, irrespective of age, is a disease which has been proved by post-mortem examination to be greatly more prevalent than we formerly believed it to be.

The evidence we have to prove that tubercle bacilli derived from cattle cause tuberculosis and fatal tuberculosis among human beings is direct and irrefutable.

The evidence we have to prove that the milk from tuberculous dairy herds frequently contains living virulent tubercle bacilli is equally direct and irrefutable.

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EXHIBIT No. 5.

[The Globe, New York, Tuesday, Oct. 12, 1915.]

(Reports the proceedings of the Wisconsin Butter Makers' Association at its 14th annual meeting, Feb. 2, 3, and 4, 1915.)

B. D. White, a butter maker at Milwaukee, then told the butter makers that they should pasteurize their butter, and he also told them how to do it.

* * * * *

Said White:

"I want to tell you this: Making butter in the old, haphazard, indifferent, unscientific way must cease if our creameries expect to remain in existence. The practice now in vogue of doping old, sour, stale, putrid, and sometimes rotten cream will not long prevail if pasteurizing becomes a law.

"I am opposed to the acid neutralization of rotten cream. Many butter makers have thrown up their hands in horror when the term 'rotten cream' has been used, and they say: 'Hush! We must not permit such terms to be used in connection with the creameries of this country.'"

* * * * *

EXHIBIT No 6.

[The Globe, New York, Tuesday, Oct. 19, 1915.]

(Reports proceedings before a committee of the Wisconsin State Senate. Prof. E. C. Lee made this statement in support of a bill requiring all butter and cheese makers to be licensed.)

* * * * *

"Gentlemen of the Senate, we have a large number of sanitary creameries which are not in any manner affected as regards cleanliness by what I or anybody else may say about them, but we have a still larger number of creameries that don't know what sanitation is. A license is needed for the control of the bad creameries.

"Our butter disgraces the State.

"We are now making one-sixth of all the creamery butter produced in the United States, but we are making butter and cheese which if labelled as coming from the State of Wisconsin would disgrace the State.

"Many of these creameries are as dirty as they dare to be, and others are just clean enough to dodge the law. If we do not look to our trade Denmark and New Zealand will take it away from us.

"We are sick of fining these creameries \$25, only to see them turn back on the very next day to their dirt. We have hundreds of factories here which should be condemned, but we have no power to condemn them. The dairy commissioner is absolutely at their mercy as regards his ability to interfere with the rotten conditions, against which we are here to complain.

CAN NOT CONTROL ROTTEN CREAMERY.

"Under the present uncontrolled situation which now confronts us we can not shut up a factory or a creamery no matter how rotten it may be. We have no law which empowers us to resort to such measures. We have been talking about enforcing dairy laws for ten years, but all our talk has been futile.

"Furthermore, we find ourselves up against a stone wall at every turn. Here is a creamery owner who has just told you that he will not submit to any interference in his 20 factories by any State official. This man has been arrested on numerous occasions for maintaining unsanitary conditions. On every occasion a jury of farmers pronounced him not guilty and acquitted him, only to make a laughing stock of the authorities.

"It is because of dirty competition that we are now making a lower quality of dairy products than we ever made before. The proposed bill is absolutely essential in order to protect the creamery interests of this State."

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EXHIBIT No. 6A.

[The Globe, New York, Tuesday, Nov. 9, 1915.]

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The following description of just what was discovered reveals the reasons for pasteurization of all butter, regardless of where it may be produced or by whom.

At all of the skimming stations the milk, uniced, was hauled in by the farmers to these stations, weighed and dumped into uncovered vats from which it was pumped into a separator. After the cream had been removed the skimmed milk was poured into other vats.

SUGGESTS A FLY STOCK FARM.

There were no screens and no vat covers in any of the skimming stations. The flies were so thick, as they naturally would be, that I could not understand how the men could work among them. Dead flies and living flies were in the cream, on the floor, on the walls, and on the ceilings in such numbers as to suggest a fly stock farm.

The man in charge of one of the stations confessed that he had repeatedly begged for improvements that would prevent the disgusting exhibition witnessed by us but that no attention was paid to his recommendations by the owners of the station.

At one of the stations we arrived at the bowl of the separator was being removed from its cup. It contained large deposits of crushed flies, slime, and dung. Filth was everywhere on exhibition.

The surrounding barns that supplied the skimming station with milk were loaded with last year's manure, which lay rotting on the floors and in the gutters behind the stanchions.

In one dairy a cesspool of filth had collected under the rotten floor. This filth splashed up between the boards as we stepped on them. Cobwebs were hanging on the rafters a foot in length, and there was only one window for ventilation purposes.

In many places plough horses were stabled with the cows. In one place the cows were stabled on the second floor of the barn as well as on the basement floor. Filth in solution dripped down through the ceiling from the floor above. In one barn in the room next to the milk house was discovered the decomposed carcass of a premature calf that had been thrown to the pigs. The conditions were revolting beyond belief.

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EXHIBIT No. 6B.

[The Globe, New York, Tuesday, Nov. 16, 1915.]

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The Minnesota butter and cheese makers at their meeting in Minneapolis last week showed their aggressiveness by the action they took in passing some important resolutions.

Perhaps one of the most important resolutions passed was their recommendation of a compulsory pasteurization law.

This, indeed, indicated that the Minnesota boys are alert, especially since pasteurization was not even mentioned at their meeting a year ago. It shows the trend of the times.

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EXHIBIT No. 6C.

[The Commercial Appeal, Mar. 14, 1916.]

Mrs. L. O. writes:

"I would like to see you take up the subject of 'tubercular milk' and its dangers. I am trying to arouse a desire for State milk inspection—especially in the small towns. In the small towns we have no inspection of cows or dairies. Several months ago our baby, aged 11 months, developed tubercular glands—due to milk from a cow afflicted with a tubercular udder. The owner of the cow was treating the afflicted part, but he says he did not realize it was serious or tubercular. I feel that something ought to be done to educate people along this line, and that States that have no laws in regard to cattle inspection ought to wake up. I am writing to you in the hope that you will do what you can to help us mothers save our babies."

REPLY.

You feel outraged, and rightly so. Your child has been infected with tuberculosis. It is probable that the disease will be cured and never return. We hope so, and not without reason based on experience. But we can not forget that Von Behring and others of the world's authorities hold that consumption in grown people start as glandular tuberculosis of childhood.

What are you going to do about it? Of course you will give your child the best of care that he may throw off the disease and grow sturdy and strong. But what besides will you do? You might sue the milk dealer. If you did you probably would win, not enough to compensate for the harm done—that is beyond hope—but enough to place as a trust fund for the boy against the hazards that his infection may entail.

The milkman tells you that he did not know that a cow with tubercular udder could infect babies who drank her milk. I think he did know. But if he did not, whose fault is it? The fact has been stated millions of times. Every newspaper has said it. Every farm paper has said it. It is a matter of common information. And a milkman is supposed to know something about his business. Courts have decided that where a man grossly violates the known laws of health and by doing so brings disease or death to his customer or neighbor he is responsible for the harm he does.

You say you are going to agitate for laws to protect the babies of other mothers against the crime committed against your baby. More strength to you. You will find that the people who make money out of dealing in sick cows will spend a good deal of money to defeat your law. Yours is not the first baby thus infected. You are not the first mother who, from sad experience, has cried out for protection for babies. Your cry will not be without effect. You may not get the law you want, but your cry will contribute to public sentiment, which in time will protect the babies of your State. Therefore, be not faint-hearted.

EXHIBIT No. 7.

[Chicago Daily Produce, Nov. 23, 1915.]

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I am not going to offer up any excuse for a lot of bad conditions that do exist in the Wisconsin creameries, and the same will apply to the creameries of all other States. There is poor cream produced on many of the farms in Wisconsin; poor cream is taken in at a great many of the creameries and made into poor butter. I believe I am safe in saying that 90 per cent of the creameries of the State do not pasteurize.

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EXHIBIT No. 8.

[Chicago Daily Produce, Aug. 17, 1915.]

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The introduction of the hand separator opened avenues for poor cream way beyond the possibilities of the old gravity system. For example, 90 per cent of the hand separators in daily use throughout the country receive improper care, and on many farms the cream is allowed to accumulate from 3 to 10 days, exposed to all sorts of contamination, without proper methods of cooling before it is hauled to the creamery. The result is inevitable—a poor grade of butter, for which is received a correspondingly poor price.

Last year 63 per cent of the butter made in Minnesota was classed as seconds and thirds, and butter of these grades is not considered of high enough quality to satisfy the taste of the average consumer.

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EXHIBIT No. 9.

[Rural Weekly, St. Paul, Minn., Nov. 4, 1915.]

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“The butter produced in St. Paul and Minneapolis is not fit to eat.”

The statement is based on an interview with Prof. T. L. Haecker, head of the dairy department of the University of Minnesota.

The New York Globe article quotes Prof. Haecker as saying:

"The butter produced in St. Paul and Minneapolis is not fit to eat. It comes from the centralizers of those cities, and these centralizers are a menace to the dairy industry. I have fought them for 25 years. I have never been able to tolerate a condition where a few men outstretch their hands and say, 'We will give you such and such a price for your milk and cream. You can either take our offer or let the stuff rot on your hands.'

"Men and women who will pasteurize skimmed milk for their hogs and neglect to pasteurize milk, butter, and ice cream for their children, deserve to be classified with the hogs.

"If they understood what we who are said to occupy the higher places understand concerning the dangers of raw dairy products, Congress would pass a law overnight forbidding the manufacture of butter except pasteurized butter for interstate commerce and all the milk of the country would have to be pasteurized before its consumption."

"The only solution of the butter problem is cooperative creameries," said Prof. Haecker, Saturday. "We have 600 now in Minnesota. They represent 60,000 farmers. At these places, equipped with modern machinery and run by the farmers themselves, the only good, pure butter is made.

"At the cooperative creameries the cream for the butter comes fresh from the cow. It is not several days old as at the centralizers.

"Take one centralizer, for instance, in St. Paul. I happen to know that at this place cream of all ages is used. Sometimes it is one day old, sometimes five days, and sometimes older. It often takes a long trip, generally in cans not free from germs. Then it is all dumped into one big lot and the butter made from that.

"Isn't that awful? Pasteurization wouldn't even help that condition. You can't pasteurize cream after it is too old. It coagulates then, and pasteurization is impossible.

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"Some day we hope to organize all of the cooperative creameries in Minnesota into one big body. Then we can have a central bureau in St. Paul and handle our products.

"Here at the university we are educating all our young men into the cooperative creamery idea. We are teaching them the doctrine of pasteurization. We hope to get a law passed that will make pasteurization compulsory. We did get a law passed that made the centralizers quit discriminating. They had a trick of paying farmers more for their cream when the man lived near a cooperative creamery than when they lived at a distance."

EXHIBIT No. 10.

[Butter, Cheese and Egg Journal, Milwaukee, Wis., Dec. 8, 1915.]

Public sentiment when once thoroughly aroused can not be dodged or subdued, and just now the public wants pasteurized butter; later on it will demand butter made from cream in which no dope has been used. Mark our word, the time is coming.

EXHIBIT No. 11.

[Hoard's Dairyman, Fort Atkinson, Wis., Feb. 11, 1916.]

J. A. Gamble, milk specialist, United States Department of Agriculture, states:

"Milk is so constituted that the eye can not detect careless handling to which it may have been subjected, and so its quality can not be determined. When purchasing many other commodities the eye assists the purchaser in selecting the desired grade. Hence we see the actual need of some one to ascertain quality in milk for the information of the consumer, so that he can be sure of getting quality in milk when quality is sought."

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EXHIBIT No. 12.

[Chicago Dairy Produce, Nov. 2, 1915.]

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Tuberculous cattle are kept on one farm. The milk or cream is brought to the creamery, skim milk or buttermilk is taken home by other patrons as feed for the various animals, thus spreading tuberculosis over the entire community. In one community, where a study was made of such a problem, only three herds were found to be free from tuberculosis. * * *

The by-products are not the only substances that offer means of spreading disease. * * * We know that some investigators found that out of 1,233 samples of butter examined 163, or 13.2 per cent, were found to contain these organisms. * * *

EXHIBIT No. 13.

[The Forecast, December, 1915.]

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There are at present no laws requiring the pasteurization of cream for butter, and consequently no official inspection of the process, without which it can not be depended upon to accomplish its purpose. Iowa tried to get such a law last year but failed. Most of the butter makers in the States are said to be in favor of pasteurization, however, and it is expected that the bill will pass at the next session of the legislature. It is further proposed to establish a trade mark for Iowa butter, and no creamery will be allowed to use it unless its product is pasteurized.

While insisting that its milk should be pasteurized, the American public has been strangely indifferent to the dangers of butter made from unpasteurized cream, although there is not the slightest doubt that any disease carried by milk can also be carried by butter.

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EXHIBIT No. 14.

[The Michigan Dairy Farmer, Detroit, Mar. 1, 1915.]

C. V. Jones, State dairy inspector, says:

"The dairy herd should be inspected periodically by a veterinarian to determine their soundness, and no animal suffering from contagious disease, especially disease of the udder, should be allowed to contribute to the milk supply. It would be almost impossible to overrate the importance of excluding tuberculous cattle from herds contributing to the public milk supply, particularly where milk reaches the public in its raw or unpasteurized state. The dairy man who would gain the confidence of the milk consumer, will have his dairy herd inspected at intervals, and apply the tuberculin test to all of his cattle, and any animal that reacts must be taken away from the rest of the herd. Authorities on diseases of animals are pretty much agreed that 'bovine tuberculosis' may be, and has been, transmitted to humans through the public milk supply. Dr. H. W. Conn, Professor of Biology, and Bacteriologist of the State of Connecticut, says, 'That so long as the cows that furnish milk to the public are not tuberculin tested, the public is in a constant source of danger from tuberculosis.'

"The udders of the cows should be watched carefully, and when there are any signs of inflammation or disease, or where there is an appearance of gargetty or bloody milk, the animal should be excluded from the dairy herd, and her milk discarded until she has completely recovered. * * *"

EXHIBIT No. 15.

[Chicago Dairy Produce, Feb. 22, 1916.]

The poor-cream question has received the usual amount of attention at the various conventions during the past winter, but we have failed to hear any plan suggested or adopted or any kind of action taken that gives promise of any

change for the better for this year. All alike seem to recognize the seriousness of the situation and the necessity for doing something, but that is as far as it ever gets. We go on and on in the same old way. As it is impossible for anything to stand still, and as we must progress or go backward, it seems we are following the latter course, for our butter product is gradually growing poorer and poorer each year.

To those who are in a position to note this gradual change for the worse, and who see nothing of a decisive nature being done to remedy the condition, the situation is indeed alarming. They are asking themselves where will this all end. That there must be an end all will agree. Conditions can not go on and on as they are now. There must be a change of some kind toward progress, and whatever it is that will cause this change must be something of a serious nature because no small thing will bring it about.

The butter makers and creamery managers have become so accustomed to this continual cry of poor cream and poor butter that they evidently do not regard the situation seriously any longer. Their butter continues to sell and upon an active market brings fairly good prices; but they rarely if ever reach the top prices, and in a dull, draggy market their butter is liable to sell (if it sells at all) at several cents below what good butter is bringing.

It is evident that the butter makers and creamery managers do not regard the situation seriously or they would shake off the lethargy that seems to have overcome them and do something. During most all the conventions held this winter but little has been said about this important subject and no action taken. The matter has been mentioned in the resolutions, but resolutions of themselves have never got anything yet. Action is necessary, and that action should be quick and decisive.

We predict now that the butter makers and creamery managers are some time soon going to awake to the fact that this poor-cream question is not a dead question by any means, and that they will have to take some kind of action to protect the quality of their product, whether they want to or not.

EXHIBIT No. 16.

[Chicago Dairy Produce, Feb. 15, 1916.]

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There is no question but what there are butter makers in the Wisconsin creameries (and in creameries of all the States, for that matter) who should not be allowed to operate creameries, but under the laws there is no way to keep them out or to turn them out after they are once in, and the new law in Wisconsin makes it possible for the commissioner to control this matter by refusing to grant a license.

Again, there are many creameries that are unsanitary. They need changes and repairing that will make it possible to make a better product than they have been making, and the new laws lay down explicit directions of how these creameries must be improved and arranged to meet the requirements.

Surely no butter maker or creamery manager can object to having his creamery improved in this way.

Viewed from our standpoint, after hearing the provisions of this new law and its rules and regulations discussed, we believe the law to be a good one.

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EXHIBIT No. 17.

[Chicago Dairy Produce, Jan. 11, 1916.]

Address by H. C. Davis:

"* * * I have seen, and no doubt you all have, butter being sold out of a soap box, apple box, or some such receptacle. It was being handled with such carelessness that it would be all out of shape. Wrappers would become dirty from much handling. * * *"

EXHIBIT No. 18.

[Hoard's Dairyman, Fort Atkinson, Wis., Mar. 17, 1916.]

TUBERCULIN ACCREDITED HERDS.

For years Hoard's Dairyman has urged the necessity of breeders and dairy farmers freeing their herds from tuberculosis. When tuberculin was discovered as a diagnostic agent for bovine tuberculosis, we readily saw its value to the live-stock raiser. There are two good reasons why a breeder or dairy farmer should free his herd from tuberculosis. First, it is expensive to feed and care for diseased animals. He can not afford to do it. Second, it is wrong for him to sell milk from tuberculous cows. He should be interested in the human side of the subject, as well as the economic.

The insidiousness of tuberculosis has not permitted him to see quickly his own interests or the interests of others. In other words, tuberculosis is a slow working disease and its results are not quickly observed.

The time has come when the buyers of cattle and consumers of dairy products are paying more attention to the question of tuberculosis, and this is leading those engaged in the live-stock industry to view the subject in a different manner. All breeders are beginning to realize that it is to their interests to have their herds purged from this scourge.

The State of Wisconsin is going to cooperate with the breeders and dairy farmers through the office of the commissioner of agriculture, and establish tuberculin accredited herds. Commissioner C. P. Norgord has sent us the tentative plan which he expects the live stock sanitary board will adopt for the prosecution of this work. On page 361 will be found the outline of the plan. If anyone has any suggestions which will make this work more effective, his comments are invited. It is the beginning of a splendid work and we heartily commend it.

EXHIBIT No. 19.

[Chicago Dairy Produce, Sept. 7, 1915.]

BUTTER FRAUDS CHARGED.

Nine arrests were made in Brooklyn, N. Y., Thursday of last week by Federal authorities, alleged butter frauds being charged. Those arrested entered pleas of not guilty.

A news report from Brooklyn states that those arrested are charged with unlawfully manufacturing and offering for sale butter that has been adulterated. In the office of the United States District Attorney Melville J. France it is said that there is a trust back of the alleged violators of the Federal law, and that it has been doing business since August 15, 1913, especially in Brooklyn.

The complaints were made by William D. Allen, jr., special agent of the Internal Revenue Department at Washington. Assistant United States District Attorney Henry Ward Beer, who has charge of the prosecution, said he is determined to break up the trust.

According to Beer, the agents of the alleged trust have driven legitimate dealers of farm products out of business by underselling them with inferior products. It is alleged that originally good butter is bought and melted, then mixed with water, after which it is frozen and cut into prints and sold as real butter, in pound and half-pound packages.

The United States statutes required under 16 per cent of moisture. Some of the adulterated butter of the trust is alleged to run as high as 48 per cent moisture, and is sold at from 35 to 40 cents a pound.

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EXHIBIT No. 20.

[Chicago Dairy Produce, Oct. 19, 1915.]

(By staff correspondent, New York, Oct. 16,)

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Again this week there was discovered here butter containing excessive moisture by the Government agents, and the stock was returned to the respective creameries and the creamery owners fined. This overwatered butter found was

not the make of just one creamery, nor did it all come from the same State, but it did come from the best dairy States in the Union.

Inasmuch as the Government agents have found so much excess moisture stock the past few months, they are inclined to be more active, and go out of their way to look for trouble, and they certainly have stirred up trouble of a mighty expensive nature for quite a number of creameries of late. Indeed, the situation is most serious.

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EXHIBIT No. 21.

[Chicago Dairy Produce, Feb. 1, 1916.]

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The excess-moisture trouble is not a new one by any means. Last summer and early fall, when 10,000 or more tubs of good table butter were being exported weekly to England, the amount of excess-moisture butter discovered was not only surprising but appalling, and quite a number of concrete instances were given in these columns—one being a lot of storage butter which had been tested by a couple of the exporters and refused because it was excessively watered, and the holder was fully aware of the fact, but held on to it, and has no doubt since disposed of it to innocent and unsuspecting buyers, who in turn were fortunate enough to find outlets without interference, simply because the inspectors didn't happen to show up and run across that particular lot of butter. Exporters were greatly discouraged, as so many of their purchases had to be turned back after moisture test has been made, thereby necessitating rebuying, which took up additional time, etc. Threats were made at the time to expose certain lots, and it is not at all unlikely that the Government came into possession of facts concerning the make of certain creameries through some such source. For weeks and weeks at a stretch all the dairy organs discussed the excess-moisture question, during which time a number of creamery men who had been heavily fined were exposed; but it is the same old story—some butter makers think they have to sail right along the dividing line to hold their jobs, and others deliberately take chances, it seems.

EXHIBIT No. 22.

[The Creamery Journal, Mar. 1, 1916.]

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The following method of controlling moisture in butter has been successfully used, and is a safe and reliable way. To operate this method, the pounds of butter fat in each churning must be known, and the amount of butter expected figured. After the butter is churned, washed, and well drained, it is worked from two to four revolutions and drained well again. The salt is added and the butter worked until all free water in the churn is taken up and incorporated in the butter. The moisture test is then made and the correct pounds of water added to bring the moisture to the desired per cent. For instance, a churn containing 500 pounds of butter fat and 3 per cent salt added: If the moisture test is 14 per cent, and 15.8 per cent is desired, the difference, or 1.8 per cent, of the total amount of butter would have to be added. Figuring 16 per cent moisture as a standard, and 3 per cent salt, 597.4 pounds of butter would be expected, and 1.8 per cent of 597.4 is 10.75 pounds of water to be added and worked into the butter. The butter is worked until all water is incorporated, and the official moisture test is then made from the finished product.

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EXHIBIT No. 23.

[Hoard's Dairyman, Mar. 3, 1916.]

MOISTURE IN BUTTER.

Please state how the creameries control the moisture content of their butter, or how they get the desired amount.

G. S. S.

COSHOCTON, OHIO.

Moisture in butter is controlled by temperature. By churning cream at a high temperature and using wash water that is not too cold it is an easy matter to incorporate in the butter all the moisture the law will allow, which must be less than 16 per cent.

The time has come when the butter maker must know the amount of moisture in the butter manufactured by him. It is necessary now in all well-organized creameries to have a moisture test. The days of guesswork are gone, and butter making requires exactness.

EXHIBIT No. 24.

[Chicago Dairy Produce, Nov. 15, 1915.]

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All over the country there is a movement and a demand for purity in all food products and a demand for State or Government action or laws to insure purity in all foods. The action taken in Chicago will be followed by similar action in other large cities; and very soon we will hear of the same demand from the other cities and towns and villages, and if there is any reason for suspecting impurities, laws will be made that will require the action which all handlers and manufacturers of food products should take without the force of law.

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By grading and pasteurizing the butter industry can remove all the ground that may now exist as a basis for a campaign that otherwise will do this product immense harm.

We need to get the idea of and the necessity for pure dairy products more prominently before our minds. In a communication sent out last week, the Agricultural Department is calling attention to criticisms from Great Britain of cheese recently exported from the United States to that country. Our cheese makers are accused of making cheese with an abnormally high water mark and a consequently poor quality and have created a situation which, the department claims, is probably as bad as that created some years ago by the manufacture of filled cheese.

EXHIBIT No. 25.

[Hoard's Dairyman, Dec. 24, 1915.]

MOISTURE CONTENT OF CHEESE.

HOARD'S DAIRYMAN: In your issue of October 22 we read an article by C. F. Doane relative to the moisture in cheese. We thoroughly coincide with Mr. Doane that there should be some limit as to the amount of moisture put into full-cream cheese.

We view with a good deal of alarm the deterioration in the keeping qualities of Wisconsin cheese. The competition among factories is so severe that makers are working for yield to make good enough cheese to get rid of it, and without a general moisture test lot there can be no relief. We believe 38 per cent moisture is ample, that more moisture than that will not be a good curd, suitable for curing or keeping qualities.

We have noticed in the last year or two that the excessive moisture has turned good curd acid to sour, made it bitter, mushy, anything but good goods, and the action of the factories and makers in paraffining cheese the same day they take the curd from the hoop, or the next day, to hold the moisture in the curd has affected the quality. We regret to say that clear evidence is in almost every dealer's hands to show that some manufacturers, not satisfied with dipping in hot paraffin the cheese once, do it two or three times for the purpose of adding weight. No cheese should be paraffined within four or five days, or until the first process of the evaporation and curing has taken place, so that the color is set. We believe there should be a State law prohibiting excessive moisture in cheese and the paraffining of the raw product too early.

DAVIS BROS. CHEESE Co.

EXHIBIT No. 26.

[Chicago Dairy Produce, Jan. 25, 1916.]

The butter makers are not the only ones who are having moisture troubles. At the Wisconsin cheese makers' convention last week excessive moisture in cheese was one of the main questions discussed. Excessive moisture in cheese was condemned as severely as it ever was in butter. The cheese makers have the advantage in that no penalty attaches for too much moisture. They can put in 44 per cent of moisture, and even if the Government officers knew of it, they would say nothing. It is not worse to put too much water in butter than it is to put it in cheese, but the law seems to look at it differently.

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EXHIBIT No. 27.

[Chicago Dairy Produce, Mar. 7, 1916.]

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Many of our creameries have undertaken cream grading, and have had to abandon it for various reasons, but no doubt they appeared to be good and sufficient to the creameries interested. It is possible to secure satisfactory results along this line, but so far the number of creameries which have been successful in grading cream have not been enough to materially influence the quantity of under-grade butter made. Some creamery operators seem convinced that they can not be successful in undertaking to grade cream individually. If so, there is one way left to them along this line, and that is by undertaking cream grading collectively. This has been attempted in some sections and has proven successful, but whether or not it will accomplish the end sought, I am unable to say. If, however, we can not improve the quality of our cream and butter through cooperation of this sort, we must either secure such results through legislation or else lower our butter standards. I, for one, should be sorry to see our standards for butter lowered, and I believe that most of our butter makers and creamery operators feel the same way. But unless this is done we must find some way to improve the quality, and, as I have pointed out, there seems to be but one or two ways open to accomplish this—one by paying for quality, and the other by legislation.

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EXHIBIT No. 28.

[Chicago Dairy Produce, Mar. 28, 1916.]

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We are all in favor of the most thorough investigation that can be made; it will be the best thing for the dairy and creamery industries that has occurred in 20 years. It won't cost them a cent, and they can demonstrate to the American people the true conditions, as well as the wonderful progress that has taken place in recent years.

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J. J. FARRELL,
President National Creamery Buttermakers' Association.

EXHIBIT No. 29.

[Hoard's Dairyman, Mar. 10, 1916.]

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Butter, like Caesar's wife, should be beyond suspicion. Therefore I would favor a Federal law making the pasteurization of cream for butter making compulsory where the butter was intended for interstate traffic, unless the herds were certified to be free from tuberculosis. Such a law should apply to dairy butter as well as creamery butter.

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EXHIBIT No. 30.

[Hoard's Dairyman, Mar. 31, 1916.]

DAIRYMEN FOR INVESTIGATION.

Congressman Linthicum, of Maryland, has introduced a resolution in the House of Representatives requesting that the Speaker appoint a committee of five Members, whose duty it shall be to investigate the sanitary and other conditions of the dairy industry. It is the purpose of the resolution to determine whether it is feasible to establish Federal inspection, in cooperation with the States, of dairies, cheese factories, creameries, and milk bottling plants. If it is found that the Federal Government should establish an inspection system this committee shall determine the most economic method of inaugurating and enforcing it.

Hoard's Dairyman can see much good in a movement of this kind, provided capable and sincere men are appointed on this committee. There is no question but that there is opportunity for the Federal Government to assist the State governments in securing a higher quality of dairy products. The time has come when the slovenly and do-not-care milk producer must go out of business and permit the dairymen who produce wholesome dairy products to enjoy a larger market and receive a better price for them. One of the great drawbacks to the dairy industry has been those who have taken no pride in their work and have been willing to sell unwholesome milk. They have not only been the means of curtailing the consumption of dairy products, but have depressed the prices of butter, cheese, and milk and produced a prejudice in the minds of city consumers against dairy products to the great hurt of the industry. In the make-up of such a committee there ought to be included two or more men who are thoroughly posted as practical dairymen. If they can not be found among Members of Congress, then provision should be made to select dairymen of understanding and integrity outside of Congress.

Dairy products are the most nutritious and economical foods on the markets, and if the consumer knew their value and could always be assured that they were wholesome the consumption would be greatly increased. The consumer must be taught the food value of dairy products and that a reasonable price must be paid for them when they are produced in the right way. An intelligent, comprehensive Federal inspection of dairy products and conditions under which they are produced would be of material assistance to the good dairymen, as it would provide a larger and a better market for dairy products.

EXHIBIT No. 30A.

[Chicago Dairy Produce, Apr. 11, 1916.]

ASK AN INVESTIGATION.

We are heartily in favor of the appointment of a committee by Congress whose duty it shall be to investigate the conditions of the creameries throughout the country. In fact, we believe it has become a matter of necessity for the protection of the dairy and creamery industry that this committee be appointed.

The dairy and creamery industry owes it to the consumers of butter that their product be given a clean bill of health or else condemned and ordered off the market.

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EXHIBIT No. 31.

[Twenty-fifth report, Bureau of Animal Industry.]

THE FREQUENCY WITH WHICH DAIRY PRODUCTS CONTAIN TUBERCLE BACILLI.

The truest test of the measure in which the public is exposed to tubercle bacilli from bovine sources is the frequency with which tubercle bacilli occur in dairy products. Without reviewing earlier investigations or those made

in foreign countries, four comparatively recent investigations made in America show how common is the occurrence of virulent tubercle bacilli in milk. The largest of the four investigations showed that 15, or 6.7 per cent, of the 223 samples of milk contained tubercle bacilli. The milk was obtained from 102 dairies, among which, 11, or 10.7 per cent were distributing infected milk. The second investigation showed that 2, or 2.7 per cent, of 73 samples of milk contained tubercle bacilli. The third investigation showed that 2, or 5.5 per cent, of 36 samples of milk contained tubercle bacilli. The milk was obtained from 26 dairies, among which 2, or 7.7 per cent, were distributing infected milk. The fourth investigation showed that 17, or 16 per cent, of 107 samples of milk contained tubercle bacilli, and that among 8 samples of commercially pasteurized milk 1 was found that contained live tubercle bacilli.

The four investigations taken together show that among 439 samples of milk, 36, or 8.2 per cent, were infected with live, virulent tubercle bacilli.

The fact that 1 out of 8 commercially pasteurized samples of milk contained living tubercle bacilli is conclusive proof that some of the so-called "pasteurization," commercially practiced, is worse than useless and has the evil tendency to quiet the mind regarding grave dangers that it does not correct.

It is a serious charge against the milk commonly sold by dairies to say that fully 1 sample among every 12 contains living, virulent tubercle bacilli, and yet this is the most favorable conclusion we can draw from four of the most recent and thoroughly reliable investigations with which the writer is acquainted.

A further analysis of the two among the four milk investigations that give the number of dairies from which milk was tested proves that the conditions are worse than their superficial appearance indicates. These two investigations show that 17, or 6.5 per cent, of 259 samples of milk obtained from 128 dairies were infected, and that the infected milk was sold by 13, or 10 per cent, of the dairies. The two investigations also show that the total number of samples of milk obtained from the 13 infected dairies is 31, of which 17 were infected and 14 were free from infection. Hence, the difference between the percentage of infected milk samples and the percentage of infected dairies can not be explained on the assumption that it is due to the more frequent duplication of tests with milk from the noninfected than from the infected dairies. It is shown on the face of the evidence that the difference between the two percentages is due to the fact that infected dairies distribute infected milk intermittently and not continuously.

The intermittent distribution of infected milk by infected dairies is interesting not only because it may be related to the intermittent expulsion of tubercle bacilli by cattle with their feces, but also because it justifies the conclusion from the milk tests under consideration that a larger proportion of dairies than even 10 per cent must be classed as infected.

To obtain further information regarding the intermittent distribution of tuberculous milk by infected dairies, milk was bought on 30 different days from a dairy from which several months previously a sample of milk had been obtained that was found to be infected with virulent tubercle bacilli, and samples were injected into guinea pigs. Among the 30 samples the second, third, and eighth were found to contain tubercle bacilli and the remaining 27 were not infected. If we add to the 30 later samples the sample of milk which first showed the infected character of the dairy, we have 31 from one source, among which 4, or about 13 per cent, were found to contain tubercle bacilli. It does not require much reasoning to conclude from this evidence that the chances for discovering an infected dairy by testing one sample of milk from it may be equal to only 13 per cent, and that the chances that the one test will not reveal the infected character of a dairy may be nearly eight times as great as the chances that it will.

The intermittent distribution of infected milk by dairies is well illustrated through the investigation of the milk supply of the city of Leipzig, Germany, made by Prof. Eber, of the University of Leipzig. The milk for this investigation was obtained from 70 dealers, from each of whom one sample of milk was bought for each of three series of tests. The first series of tests revealed that the milk of 6, the second that the milk of 9, and the third that the milk of 7 dealers contained live, virulent tubercle bacilli. The first series of tests was made during February and March, the second during April, May, and June, and the third during November, December, and January. The total number of samples of milk tested was 210 and among them 22, or 10.47 per cent, were found to be infected with tubercle bacilli. The samples of infected

milk were obtained from 19 dealers, 1 of whom sold three, 1 two, and 17 one each of the infected samples; hence, among the total of 70 dealers, 19, or 27.1 per cent, were more or less intermittently selling infected milk. It is quite clear from this that, though only a little more than one-tenth of the milk contained tubercle bacilli in sufficient numbers for detection, something more than one-quarter of the dealers were actually proven to be selling unsafe milk.

Had Prof. Eber continued to make series of tests from time to time with the milk sold by the 70 Leipzig dealers, it is quite probable that he would have found no great variation in the percentage of infected milk, but that the percentage of dealers selling infected milk would gradually have climbed higher until a very ominous maximum had been reached.

I do not wish to create an exaggerated idea of the proportion of dairies that intermittently distribute tubercle bacilli in milk, because the facts are so grave that, without exaggeration, they are almost beyond belief. It is well, however, to know the truth, and, through knowing it, to be convinced that the milk of no dairy can be accepted as permanently free from tubercle bacilli unless it is obtained in a clean, wholesome environment from cows shown by the application of the tuberculin test to be free from tuberculosis.

We must bear in mind here that infection with tuberculosis does not always occur even after the germs of the disease have been introduced into the body with food or otherwise. Various incidents, it seems, must fall together with the presence of tubercle bacilli in the body before the disease develops. If this were not the case, the frequency with which dairy products contain live tubercle bacilli and the wide distribution that the bacilli have in such products would alone be sufficient to destroy the human race. As no one can say when the requisite incidents to give the tubercle bacillus the best chance to cause disease are present, the introduction of tubercle bacilli into the body with milk, cream, or butter every second, third, or fourth day, or only once weekly or monthly, should be regarded as a danger against which we should strive to protect the public health.

The available data regarding the frequency with which tubercle bacilli occur in butter and other dairy products than milk are very meager for the United States, but when we know that tubercle bacilli in milk are transferred to the cream, butter, cheese, etc., made from it, we can readily infer how commonly these products are infected. Relative to the infection of cream and butter the following paragraph from a report of the Secretary of Agriculture is very significant:

"The examination of sediment taken from cream separators of public creameries throughout the country has demonstrated the presence of tubercle bacilli in about one-fourth of the samples."

In a recent publication of the Bureau of Animal Industry it was pointed out that both the tendency of tubercle bacilli to rise with cream and a comparison of European statistics relative to the frequency with which tubercle bacilli have been detected, respectively, in milk and butter, indicate that when the bacilli are present in milk they will no doubt be present in greater concentration in cream and butter.

We can protect ourselves against the tubercle bacilli that are distributed in milk by practicing home pasteurization, but with butter this is not possible, and it is therefor desirable that the milk or cream used in the manufacture of butter should either be obtained from cows certainly free from tuberculosis or be pasteurized before it is used.

SUMMARY.

We have seen that tuberculosis is the commonest disease of both persons and dairy cows, and that persons and dairy cows are its commonest victims; we know that dairy products are indispensable and that they are more commonly eaten in a raw state than any other products from animals; we have seen that tuberculosis is an insidious, chronic disease, and that tuberculous cows often expel tubercle bacilli long before they show signs of their diseased condition; we have seen that milk is almost invariably contaminated with the material in which tuberculous cows most commonly expel tubercle bacilli from their bodies; we have seen that milk is so often infected with virulent tubercle bacilli that, unless we know it to be derived from cows that are certainly free from tuberculosis, it is not safe to use it in a raw state; we have seen that tubercle bacilli in milk are transferred to the cream, butter, and cheese made from it, and may occur in the products in greater concentration than in the

milk from which they are derived; we have seen that an excellent medium for the preservation of the life and virulence of tubercle bacilli is found in butter by reason of its moist, bland, opaque character; we have been told that the medical profession is well-nigh unanimous in the view that tubercle bacilli from the bovine source in dairy products are a serious menace to public health; and we have seen that, in our fight for the suppression and eventual eradication of tuberculosis, we must seek to make harmless all the sources from which tubercle bacilli are expelled. Add to this that the available evidence regarding different types of tubercle bacilli shows that bovine types have been found in human lesions and human types in bovine lesions; that transition forms connect bovine types directly with human types; that the most variable feature about a tubercle bacillus is the character that is used to classify it as a special type; that tubercle bacilli of human types have been converted into bovine types and those of bovine types into human types; and that tubercle bacilli of the so-called bovine type are, as a general rule, more virulent than those of the human type for all animals, including man-like apes; and the conclusion is almost forced upon us that the tuberculous dairy cow is, to say the very least, one of the most important sources of tubercle bacilli with which we have to deal.

The commoner occurrence of tuberculosis in the lung than in other parts of the body should not encourage us to undervalue tubercle bacilli concealed in articles of food, as it has been shown that infection may penetrate to the lung as easily by way of the intestine as directly through the trachea and bronchi; in fact, a critical consideration of the two modes of infection—inhalation and ingestion—shows that the latter is in better harmony with known facts than the former.

The normal channel through which solid material from without enters the body is the digestive channel. It has been shown by Nicolas and Descos, by Ravenel, by Scholozmann and Engle, by Calmette and his associates, and by other bacteriologists and pathologists too numerous to mention, that tubercle bacilli may penetrate rapidly through the healthy walls of the intestines and reach the great thoracic lymph duct. The thoracic duct empties its contents into one of the large veins that communicate with the heart; mixed with the blood in this vein the material from the duct enters into the heart and is pumped directly to the lung, where it is filtered through the lung capillaries, which are the finest and most complex capillaries of the body. If we recall that the careful anatomical examinations made by Aufrecht and by Calmette and his associates proved that the tuberculous processes in the lungs have their beginning in the finer lung capillaries and not in the finer air tubes, we are in a position to conclude that infected food, much more than infected air, is to be dreaded as a cause of tuberculosis.

Tuberculosis among dairy cows is so common and widespread that we can not hope to clean all dairy herds of the disease for some time to come; hence it is necessary for the protection of health, to avail ourselves of the one expedient which is immediately at hand, and that is pasteurization. And pasteurization should not be restricted to milk, but all milk, cream, etc., used in the manufacture of butter, cheese, and other dairy products should be pasteurized unless it is obtained from healthy, nontuberculous cows that are stabled under hygienic conditions in an environment wholly free from tuberculous infection.

The elimination of tuberculosis from the dairy herd is urgently recommended, not only because the protection of public health requires it, but also because tuberculosis among cattle is a serious case of pecuniary loss, so serious indeed that from the strictly economic point of view it must be regarded as the most important problem that those interested in animal husbandry can undertake to solve.

EXHIBIT No. 32.

[U. S. Department of Agriculture, Bureau of Animal Industry, A. D. Melvin, Chief of Bureau. Medical Milk Commissions and Bovine Tuberculosis: By E. C. Schroeder, M. D. V., superintendent of the Bureau Experiment Station. Twenty-sixth report, Bureau of Animal Industry.]

THE OCCURRENCE OF TUBERCLE BACILLI IN MILK.

Many tests have been made during the last three or four years concerning the occurrence of active, virulent tubercle bacilli in milk. These tests have shown (1) that a large quantity of milk infected with tubercle bacilli is dis-

tributed by dealers to their customers; (2) that the occurrence of tubercle bacilli in the milk distributed by different dealers, who sell infected milk, is more commonly intermittent than continuous; and (3) that it is not only ordinary market milk that contains live tubercle bacilli, but that they also occur in some of the so-called commercially pasteurized milk.

That much of the ordinary milk of commerce contains live, virulent tubercle bacilli (more than 5 per cent of all the samples recently examined of which the writer has been able to get the records) must be looked upon as a regrettable and serious condition, not alone because we know that it is the real, responsible cause for much disease and the destruction of several thousand or more children every year in our country, but also because many investigators and observers are strongly of the opinion that infection with tuberculosis depends in the great majority of instances on frequently repeated introductions of tubercle bacilli into the body, and rarely on a single or an occasional exposure to tubercle bacilli; and because some investigators of the highest order have supplied us with reasons to believe that the introduction of tubercle bacilli into the body, even though they are of a kind or type that is incapable of causing a progressive or fatal tuberculosis, is responsible for a negative state of resistance, of longer or shorter duration, to infection with subsequently introduced tubercle bacilli. In other words, each successive exposure to tubercle bacilli seems to be more dangerous than previous exposures, and this as a direct result of the previous exposures. While this view is admittedly hypothetical, it is worth while to keep it in mind when we study the possible influence the numerous tubercle bacilli from the bovine source that are swallowed with raw dairy products may have in preparing our bodies for the growth within it of tubercle bacilli of any type or kind.

The intermittent occurrence of tubercle bacilli in the milk distributed by individual dealers signifies that the extent to which the public is exposed to infection through the use of raw dairy products can not be measured by knowing only the percentage of milk that contains tubercle bacilli, because the proportion of dealers who distribute infected milk more or less intermittently has an important bearing on the number of persons who are exposed to infected milk. For example, Prof. Eber, of the University of Leipzig, in Germany, examined the milk sold by 70 dealers at three different times. Among the 210 samples of milk examined, 3 from each dealer, 22 were found to contain tubercle bacilli. When the infected milk was charged to the dealers who sold it, Prof. Eber found that one dealer sold 3 samples, another 2, and that the remaining 17 samples were sold by 17 different dealers; hence, though only 10.47 per cent of the total number of milk samples examined were found to be infected, the persons who were buying milk from 19, or 27.1 per cent, of the milk dealers were exposed to tuberculous milk.

The conditions in our country relative to the intermittently infected character of the milk sold by different dealers are similar to what Prof. Eber found in Germany. This can be determined by analyzing the milk tests recorded by Anderson, of the United States Public Health and Marine-Hospital Service, in Bulletin 56 of the Hygienic Laboratory. In one of the writer's own series of tests 31 samples of milk were examined, each taken on a different day, from one and the same dealer, and it was found that 4, or 13 per cent, and not all the samples, contained tubercle bacilli. Had Eber continued to make series of tests with the milk sold by the 70 dealers included in his investigation of the milk supply of Leipzig, it is probable that he would have found no great variation in the percentage of infected samples, but that the percentage of dealers selling infected milk would have climbed rapidly upward to a very high maximum.

The manner in which tubercle bacilli are expelled from the bodies of tuberculous cows, frequently long before symptoms of disease can be detected, the frequent occurrence of tuberculosis among dairy cattle, the percentage of milk that contains tubercle bacilli, and the intermittent character of the infected condition of the milk sold by dealers are facts that should convince us that we can not expect to be constantly free from tubercle bacilli unless it is obtained from healthy cows in an environment that is free from tuberculous infection.

The question may present itself here, Why does not the common occurrence of tubercle bacilli in milk cause the infection of the entire human race? In this connection it is well to remember that the human race is actually rather badly infected with tuberculosis, if the information derived from the tuberculin tests and autopsy records is not grossly misleading, and that infection with tuberculosis does not always manifest itself in the form of physically

determinable and observably progressive disease. Fortunately in most cases various incidents must fall together with the presence of tubercle bacilli in the body to cause an actively progressive tuberculosis, and a great danger from infected milk is that children are so persistently and helplessly exposed to it that many of them can hardly escape swallowing tubercle bacilli at times when the germs will meet those conditions in their bodies with which they can form more or less injurious and at times fatally destructive combinations.

The occurrence of living tubercle bacilli in so-called commercially pasteurized milk must not be charged against the efficiency of pasteurization as a method for destroying disease germs in milk. It is merely evidence to prove that pasteurization as sometimes practiced for commercial purposes is not safe, and that, to be thoroughly reliable, the pasteurization of milk, if it is done before the milk is delivered to the consumer, should be conducted under strict official supervision.

The following may be interesting to show how reliable pasteurization is when it is properly done in a simple, economical way that can be practiced in any kitchen. In a special investigation at the experiment station of the Bureau of Animal Industry the writer gave an employee—not a trained scientist, but an intelligent laborer—instructions to divide the milk of a cow affected with tuberculosis of the udder into two lots each day, and to pasteurize one lot and to leave the other lot in its raw, untreated condition. This work was repeated with the milk of the cow daily for more than a month, and on each day guinea pigs were injected some with the pasteurized and some with the raw milk. The method of pasteurization used was simply to place the milk in cotton-stoppered bottles, in which it was rapidly brought to a temperature of 60° C. (140° F.) by immersing the bottles in hot water. The elevated temperature was maintained 20 minutes, and the milk was then rapidly cooled by immersing the bottles in cold water. The special investigation in hand required that I should know that I was dealing with the nearest possible article to raw, fresh milk naturally contaminated with tubercle bacilli that had been killed; hence the guinea pigs were injected; those with raw milk to show that the milk certainly contained tubercle bacilli, and those with pasteurized milk to show that the tubercle bacilli had certainly been killed. The total number of guinea pigs injected with each kind of milk was over 100. The injections were made into the peritoneal cavities, this method being one of the most delicate tests that we have for tubercle bacilli. Among the guinea pigs injected with the raw milk 98 per cent contracted generalized tuberculosis; among those injected with the pasteurized milk not one showed a single lesion of disease.

A more conclusive demonstration of the efficiency of low temperature pasteurization (60° C. or 140° F.) maintained for 20 minutes seems almost impossible. The temperature is 72° F. below the boiling point of water and only 41.5° F. above the normal temperature of the human body, which latter has a temperature several degrees lower than the body of a healthy milch cow.

CONCLUSIONS.

The evidence we have to prove that tubercle bacilli derived from cattle cause tuberculosis—and fatal tuberculosis—among beings is direct and irrefutable. The evidence we have to prove that the milk from tuberculous dairy herds frequently contains living virulent tubercle bacilli is equally direct and irrefutable. Hence, no medical milk commission should consent to the certification of milk unless it is obtained from cows that are free from tuberculosis and that are kept in an environment free from tuberculous infection.

As medical milk commissions can not reasonably restrict their good work to a rare article, such as certified milk is and must remain for a long time to come, they should recommend some measures for the immediate protection of the milk-using public generally. The simplest, the least expensive, and the most efficient available expedient through which the public can be protected against bovine tubercle bacilli and other viruses that may be disseminated with milk is pasteurization. Hence, pasteurization should be recommended for all milk that is not certainly free from the germs of tuberculosis or those of other diseases.

As ordinary commercially pasteurized milk has been proven to be unreliable by the discovery of live tubercle bacilli in it, medical milk commissions should insist on strict official supervision for all pasteurization of milk that is practiced elsewhere than in the home of the consumer. Until official supervision is

established we should teach that home pasteurization rather than commercial pasteurization is a true protection against milk-borne agents of disease.

It is not meant by this that all commercial pasteurization is unsatisfactory, because the contrary is known to be true. But for the general consumer of milk to distinguish between properly pasteurized milk and milk pasteurized only for commercial purposes is not far from impossible, and therefore, until commercial pasteurization has been placed under official supervision, home pasteurization seems to be the best solution.

The availability, efficiency, and low cost of pasteurization should not be regarded as reasons for relaxing the efforts that have been made and that are being made through inspection, education, and otherwise to improve the general milk supply.

Finally, it may be added that the low estimate of the harm done by bovine tubercle bacilli given in this paper is far below what the writer and many others believe to be true. I hold the opinion now, and have always held it, that the human source of tubercle bacilli is responsible for a much larger proportion of human tuberculosis than the bovine source, but I am thoroughly convinced that there is no equal number of cases of tuberculosis among all those that are caused by the infection of persons with tubercle bacilli expelled by persons that can be prevented as easily, as cheaply, and as certainly as the numerous cases that are due to the infection of persons with tubercle bacilli derived from the bodies of tuberculous cattle.

EXHIBIT 32A.

MILK AND TUBERCULOSIS.

The report of the United States Census Office on mortality for the year 1905 shows that deaths from all causes in the registration area were in the proportion of 1,616 per 100,000. Tuberculosis in all its forms caused 193.6 deaths per 100,000. Applying the same rate throughout the United States, it may be justly estimated that tuberculosis causes over 160,000 deaths a year in the United States.

At the International Congress on Tuberculosis held in London in 1901, Koch made the announcement that bovine tuberculosis is transmissible to the human subject to only a slight extent if at all. The doubt thus cast on the relation between cow's milk and tuberculosis has to a great extent disappeared on further investigation made by a host of observers, most prominent among whom is von Behring, who claims that milk fed to infants is the chief cause of tuberculosis in man.

Schroeder and Cotton, in a recent bulletin of the Bureau of Animal Industry, conclude that the assertion that tuberculosis is a negligible quantity in the measures that must be taken for the preservation of human health is without basis and that there is no more active agent than the tuberculous cow for the increase of tuberculosis among animals and its persistence among men.

The rarity of primary intestinal tuberculosis, on which subject there is a discrepancy of statistics, is not in favor of the theory of infection by ingestion. It has been, however, repeatedly proved that tubercle bacilli may pass through a mucous membrane without leaving traces at the point of entrance. Again it has been demonstrated by competent observers that tubercular infection may take place through the tonsils. Latham estimates that not less than 25 to 30 per cent of the cases of tuberculosis which occur in early childhood are due to intestinal, and therefore presumably to food, infection. Of deaths in 1905 from all forms of tuberculosis in the registration area of the United States, about 1 in 39 was among infants under 1 year and 1 in about 14 among children under 5 years of age. * * *.—Milk and its Relation to the Public Health (p. 245).

EXHIBIT No. 32B.

ELIMINATE TUBERCULOUS CATTLE OR PASTEURIZE MILK.

To eliminate all tuberculous cattle from the herd or to pasteurize all milk coming from untested cattle should therefore be the object of all producers of milk, and sanitarians will be remiss in their whole duty should they neglect to

guard the products of tuberculous animals in their attempts to eradicate tuberculosis from man. This view was crystallized in a resolution adopted by the International Congress of Tuberculosis recently held in Washington, D. C., as follows:

Resolved, That preventive measures be continued against bovine tuberculosis, and that the possibility of the propagation of this infection to man be recognized."

Since milk is so often infected with tubercle bacilli, it is very evident that food products made from milk without submitting it to lethal temperatures during the process of their manufacture must frequently harbor virulent tubercle bacilli in undesirable numbers.

The investigations of Rabinowitsch, Klein, Laser, Bang, Petri, Dawson, Markl, Moller, and many others have conclusively shown that tubercle bacilli may be present in butter, buttermilk, margarin, and cheese when these products are offered for sale. Butter made in the customary manner and stored under the ordinary market conditions until time of sale, if dangerous through the presence of tubercle bacilli at the time of its manufacture, may retain its virulence through several months. This statement has been adequately proved by two series of experiments recently performed by the Bureau of Animal Industry * * *.—Milk and its Relation to the Public Health (p. 506).

EXHIBIT No. 33.

STATEMENT BY DR. SCHROEDER.

I said a few moments ago that Dr. Koch, who originated the controversy relative to the difference between human and bovine tuberculosis, asserted that if we can show that tubercle bacilli, of the type which occur commonly in cattle, can be found in the lesions of man that we have conclusive and absolutely irrefutable proof that the source of infection for the human being was bovine. In New York there have recently been made a number of investigations based on what Dr. Koch demanded. These investigations were made by one of the most eminent bacteriologists in America, Dr. William H. Parke, assisted by his associates, Drs. Krumweide, Anthony, and Grund.

These men, after doing what I consider an enormous amount of work, actually isolated tubercle bacilli from something over 400 cases of human tuberculosis. I have the percentages in connection with this work very well in my mind although I have not the exact numbers. The remarkable thing found by Parke and his associates was that among a certain number of fatal cases of tuberculosis among infants 10 per cent, according to the standard specified by Dr. Robert Koch, were due to bovine sources of infection; among a certain number of cases tuberculosis among children under 5 years old, not all of which were fatal, however, something in the neighborhood of 26 per cent were due to the bovine source. Their tests were made according to what Dr. Koch demanded and under the conditions which, if carefully observed, he said would make the proof unimpeachable. Among children between 16 years and 5 years old Parke and his associates found that about 16 per cent of all tuberculosis was due to the bovine source; over 16 years of age Parke found only a single case of tuberculosis due to the bovine source.

It is somewhat surprising that tuberculosis due to the bovine source should be so extremely common among children under 16 years of age and more common in children under 5 years of age. I presume a reason for this is that children to a great extent stop drinking milk at about 5 years of age, although some drink it until they reach the age of 16 years. Bovine type of tubercle bacilli are extremely uncommon after the sixteenth year has been passed. But when we take this in connection with the work of Mohler and Washburne, in Washington here, and a man by the name of Eber, of Leipzig, in Europe, and some of the observations made by the British Royal Commission in Great Britain, the work as to the transformability of one type of bacillus into another type of bacillus begins to look very ominous; and when we think of that in connection with the other thing the enormous frequency with which the human race is found, on autopsy and on tubercular tests, to be infected with tuberculosis it is even more ominous.

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Cream constitutes only a small portion, a relatively small portion of milk, and for some reason or other tubercle bacilli adhere with such tenacity to the cream globules that when cream is separated from milk the number of tubercle bacilli relative to the mass of cream, if the cream is taken from infected milk, will be very much greater than the number of tubercle bacilli relative to the mass of the milk from which the cream was obtained. When we put milk into a centrifugal machine to separate the cream from it we get three layers; we get an intermediate layer of skimmed milk, a layer of cream on top, and a layer of sediment in the bottom, and all the bacilli are concentrated in the sediment and in the cream, and the estimates which have been made—not by myself, however—seem to indicate that about 60 per cent of all the bacilli in a given sample of milk are concentrated in the cream.

In making investigations myself I have repeatedly made butter from infected cream, and I found that when the cream was infected the bacilli were transferred to the butter.

EXHIBIT No 34A.

[Annual reports of the Department of Agriculture for the year ending June 30, 1912.]

INSPECTION OF DAIRY PRODUCTS.

In previous reports attention has been called to the need of inspecting dairy products, especially cream and butter, and supervising their shipment. Even without inspection many creameries maintain a good standard of sanitation and produce high-grade, wholesome butter, but this can not be said of creameries in general. Cream is frequently shipped great distances to creameries to be made into butter, and is often received in such a filthy and putrid state as to be thoroughly unfit to enter into the composition of a good product. Investigations have shown that 61 per cent out of 1,554 lots of cream received at creameries and buying stations was of third grade—that is, dirty, decomposed, or very sour—that 94.5 per cent of 715 creameries investigated were insanitary to a greater or less degree; and that 72.6 per cent of these creameries did not pasteurize the milk so as to destroy any disease germs that might be present. As disease-producing germs are known to survive for long periods in butter made from unpasteurized cream, and as butter is eaten in the raw state, this product when made under such conditions as prevail in the majority of creameries can not be said to be wholesome and free from danger to human health.

It is believed that a proper law, well enforced, would remove nearly all of the bad conditions now existing. A Federal law would, of course, apply only to products made for interstate or export shipment or to establishments engaged in interstate or foreign commerce. Such a law should embody the following requirements:

- (1) That a proper standard of sanitation in the plants be maintained.
- (2) Compulsory pasteurization of all cream.
- (3) The power should be given to inspect the cream received at such establishments and to supervise the processes of manufacture, as well as to inspect the finished product and to condemn and destroy for food purposes any milk, cream, or butter found to be unwholesome or unfit for human food.
- (4) Low-grade cream which is neutralized, blown, or otherwise renovated should be required to be handled in a separate plant and the butter made from such cream labeled so as to indicate that it is made from renovated cream; in other words, it should be handled in the same manner as renovated butter.
- (5) The stamp of approval of the United States Government should be required upon all cases before any transportation company is allowed to accept them for interstate or export shipment.
- (6) The interstate shipment for food purposes of cream or other dairy products that are unwholesome or unfit for human food should be prohibited.

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- (8) Suitable penalties should be provided for all violations.

It seems an anomaly that oleomargarin should be prepared under Government inspection, thus protecting the consumer against unwholesomeness and allowing the producer whatever commercial advantage there may be in inspection, while no such benefits are afforded in the case of butter. From the standpoint of the consumer there is just as much need for inspection of one as of

the other, quite apart from any question as to the merits of the two products. Each is a wholesome and legitimate article of food when properly prepared and when sold for exactly what it is. It is unfair, however, that butter producers should have to meet the dishonest competition of oleomargarin and renovated butter masquerading as creamery or dairy butter. And even though the consumer may not be injured in health by the deception when other products are sold to him as butter, he is nevertheless the victim of an economic fraud and a fraud against ethics. Aside from any features of inspection, in framing legislation for regulating oleomargarin or other butter substitutes or renovated butter every effort should be made to guard effectively against the fraudulent sales of these products as butter.

EXHIBIT No. 34B.

[Annual Reports of the Department of Agriculture for the year ending June 30, 1912.]

IMPROVEMENT OF CITY MILK SUPPLIES.

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Some of the conditions which act as a handicap to the maintenance of a high-class milk supply are: (1) Municipalities fail to provide sufficient funds; (2) political domination often renders the inspection work inefficient; (3) consumers and often newspapers fail to appreciate the fundamental fact that the production of clean milk entails additional expense, as compared with dirty milk.

EXHIBIT No. 34C.

[Annual Reports of the Department of Agriculture for the year ending June 30, 1912.]

CREAM INVESTIGATIONS AND THE NEED OF CREAMERY INSPECTION.

Investigations have been made of the sanitary condition of creameries and cream-buying stations; also of the quality of the cream received and the methods used in its manufacture into butter and the conditions under which cream is produced and prepared for market.

A special examination of 144 creameries and cream-buying stations located in six different States showed that only eight, or about 5.5 per cent, were absolutely satisfactory from a sanitary standpoint.

An examination of 1,554 lots of cream after being delivered to the creameries and cream-buying stations showed 113, or 7.3 per cent, to be of first grade; 484, or 31.1 per cent, of second grade; and 957, or 61.5 per cent, of third grade. The third grade consists of cream that is dirty, decomposed, or very sour. High acidity in ordinary cream indicates either age or bad conditions surrounding its production, handling, or storage.

An inquiry covering 715 creameries located in 6 States showed that only 196, or 27.4 per cent, pasteurize their cream, while 519, or 72.6 per cent, do not pasteurize.

The results of these investigations may not represent with absolute accuracy the creamery industry as a whole, but they are certainly not far out of the way. While some creameries are in good sanitary condition, receive good cream, practice pasteurization and other approved methods, and turn out a high-grade product, the number of such creameries is very small. Our investigations reveal the fact that 94.5 per cent of the creameries are insanitary to a greater or less degree; that 61.5 per cent of the cream used is dirty or decomposed, or both; and that 72.6 per cent of the cream is not pasteurized, but is made into butter to be consumed in a raw state. In other words, millions of gallons of cream that has been allowed to stand in the barn, in the cellar, or in the woodshed until it is sour or decomposed is sent to the creamery, and without even being pasteurized is made into butter. Butter is usually consumed in the raw state, and may carry pathogenic organisms for a long period of time; but, aside from the danger of pathogenic infection, consumers should not be expected to eat a product from an insanitary place and made from material that is unclean and decomposed.

We have been studying this subject for some years, and are fully convinced that the welfare of the public, as well as of the dairy industry, demands that

something be done to correct these unwholesome conditions. The best remedy is believed to be a system of inspection such as is recommended in an earlier part of this report under the heading "Needed legislation."

EXHIBIT No. 35.

THE CAUSATION AND PREVENTION OF TYPHOID FEVER—THE MILK SUPPLY.

Practically all the milk consumed in North Yakima originated in or within 10 miles of the city. About one-half of the supply is obtained from cows kept in the city and owned by private families, and the rest of it is obtained from dairy farms in the vicinity of the city and is distributed by public dairymen. Many of the families keeping one or two cows in the city sell milk to as many as 10 or 15 households. At some of the private homes from which milk was being distributed the general sanitary conditions were found to be very poor and the methods of handling the milk very faulty.

The milk from the dairy farms is distributed by six dealers. Some of the dealers bottle the milk at the dairy farm and others bring the milk to the city in bulk and bottle it there. The writer made an inspection of all the dairy farms and of all the milk depots in the city. At each and all of them the conditions were found, from a sanitary standpoint, to be far from satisfactory. On the farms generally polluted water supplies were used for washing the milk cans and bottles. Privies of grossly insanitary type, with contents freely exposed to flies, were in use. Throughout the processes of handling the milk and the milk vessels were being exposed to dangerous contamination by flies.

At one of the city dairies the bottles of milk were placed for cooling in a shallow box through which flowed water from an irrigation ditch which at that time was grossly polluted with the contents of a number of privies in the immediate neighborhood. The irrigation ditch water was very liable to get into the milk in any of the bottles not having absolutely tight-fitting stoppers, and small amounts of it certainly reached the mouths and pasteboard caps of practically all of the bottles. The owner of this dairy stated that the water used for washing cans and bottles was boiled city water brought from his residence, which was about 60 feet distant from the dairy house. The water of the irrigation ditch which flowed through the dairy house, where the bottling and canning was done, seemed, however, to be suspiciously convenient for washing purposes.

At another one of the city dairies the room in which the bottling of the milk was done was found at the time of inspection to be literally swarming with flies. In each of several cans of milk, which milk a short while before had been run through the pasteurizer and the cooling machine, from 10 to 15 drowned or drowning flies were found. On the cloth through which the milk was being strained as it ran from the cooling machine into the cans there was a layer of dead flies about two deep and covering an area of about 4 inches square. The owner and manager of this dairy claimed that he operated his pasteurizing machine most carefully, but he seemed to be working on the theory that milk once cleansed would always be clean, no matter how much filth was added to it subsequently.

At most of the dairy farms and city dairies no pretense was made at sterilization of milk bottles, the bottles after having been distributed to various homes in the city being returned to the dairy, washed usually with soap powder and lukewarm water, refilled with milk, and redistributed.

In view of all the conditions, it seems very probable that milk has been one of the important factors in the distribution of typhoid infection in North Yakima.

EXHIBIT No. 36.

STANDARDS FOR MILK—THEIR NECESSITY TO THE WELFARE OF THE DAIRY INDUSTRY.

[By John F. Anderson, president American Public Health Association.]

* * * * *

(1) In every community the market milk contains milk of several degrees of excellence. Some of it is very clean and of good sanitary quality; some (and often most of it) is very dirty and therefore of poor sanitary quality. In other words, some of it is safe and some of it dangerous to the health of the consumer, but all of it may be selling under one label and at one price.

You do not need to be told that this is so, for each of you can recall, from personal experience, communities in which there are dairy farms producing milk under the intelligent supervision of decent, careful, and honest farmers, and you know that such milk is clean and safe. You can also recall dairy farms on which milk is produced from ill-kept and perhaps diseased cows, handled in a slipshod manner, not refrigerated, and dirty. Such milk is dangerous to the consumer. But the milk from the good farm is sold to the same dealer as the milk from the bad farm, the two are mixed, and the good milk is made bad. The result of this "one-quality, one-price" method of selling milk is that the good milk is sold for less than it is worth, the bad milk is permitted to be sold (when it should not be sold, at least not for food purposes), and the sanitary quality of the entire milk supply is lowered to the level of the worst entering into its make-up.

In every community some dairy farms and dairy farmers are better than others—cleaner, more decent, and produce cleaner milk; but usually the milk of the clean dairymen is dumped into the same tank with the milk of their dirty neighbors, and the clean farmer gets no higher price for his clean and safe milk than the dirty farmer gets for his dirty unsafe milk.

EXHIBIT No. 37.

UNITED STATES DEPARTMENT OF AGRICULTURE STANDARDS OF PURITY FOR FOOD PRODUCTS.

1. (*d*) *Butter*.—Butter is the clean nonrancid product made by gathering in any manner the fat or fresh or ripened milk or cream into a mass, which also contains a small portion of the other milk constituents, with or without salt, and contains not less than 82.5 per cent of milk fat. By acts of Congress approved August 2, 1886, and May 9, 1902, butter may also contain added coloring matter.

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EXHIBIT No. 38A.

PRACTICAL DAIRY BACTERIOLOGY—TUBERCULOSIS.

[By H. W. Conn.]

Extent of tuberculosis.—The very great publicity that has been given in recent years to problems associated with tuberculosis in cattle renders it unnecessary here to do more than summarize the chief conclusions. It is to-day thoroughly recognized that this disease is one of the most serious menaces to the dairy industry. It is known to be present and increasing in our dairy herds. It is known that in the more thickly settled parts of this country, as well as in Europe, the percentage of the disease among cattle is quite large, although it is difficult to give exact percentages. In Denmark and Germany 40 to 50 per cent of the cattle are affected. In cold climates where the cattle are kept housed much of the time it is more common than in warm countries where they remain out of doors.

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EXHIBIT No. 38B.

PRACTICAL DAIRY BACTERIOLOGY—TUBERCULOSIS.

[By H. W. Conn.]

The use of milk in tuberculous cattle.— * * * There is little doubt, however, that by means of the milk of such animals this disease has become common in our herds and is becoming more and more widespread. Creameries, skimming stations, and cheese factories constitute potent agents in such distribution. These central stations receive milk from a wide territory and, having passed the milk through the separator, return to the farmers the skim milk from the creameries, or the whey from cheese factories. The routine methods in running such stations never allow a farmer to receive back his own skim milk, but he receives the equivalent amount that chances to be ready for distribution at the

time he is ready to take it. The result is that the milk of any tuberculous cattle in the district will in the course of time be distributed through the whole territory. This will be followed by the presence of tuberculosis among new herds, especially of calves, and also by the development of this disease among swine that are fed upon such products. These central stations are without doubt one of the chief agents in distributing tuberculosis over the country.

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EXHIBIT No. 38C.

PRACTICAL DAIRY BACTERIOLOGY—TUBERCULOSIS.

[By H. W. Conn.]

Relation to mankind.— * * * It is also important to note that although tuberculosis among cattle has been on the increase in the last 25 years, tuberculosis among men has been upon an equally constant decline. This decline in the disease among men has probably been rightly attributed to improved hygienic conditions. It is certainly not due to decreased chance of contagion from tuberculous milk. It is interesting to note that the decrease in the disease has not affected the intestinal tuberculosis among children, a form which more than any other would naturally be attributed to milk.

In the light of all these facts it must be admitted that the milk of tuberculous cows is a source of danger, although we may not yet agree to the extent of the danger. However great or however small the danger may be the desirability of guarding against it is evident enough. The milk of our markets certainly contains tubercle bacilli. In Berlin 30 per cent of the market milk contains them, and it is not likely that our markets are in much better condition.

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EXHIBIT No. 39A.

MILK HYGIENE—WHAT DANGER THREATENS MAN THROUGH INGESTION OF MILK WHICH CONTAINS BOVINE TUBERCLE BACILLI?

[By Ernest, Mohler, and Eichhorn.]

* * * The possibility of tuberculosis infection through animal products is presented with remarkable frequency, as may be seen from the above statements; still, the rarity of infection with the bovine type is quite striking.

Hogs which become readily infected with the bovine type are very frequently affected by the ingestion of skimmed milk containing tubercle bacilli.

In northern Germany some of the herds show an infection of 50 to 60, occasionally even up to 90 per cent. The experience at the tuberculosis eradication stations indicated that by the elimination of cattle affected with open tuberculosis a marked reduction was obtained in tuberculosis of hogs, and that this measure in association with pasteurization of skimmed milk offers a certain remedy against the spread of tuberculosis of hogs.

The same opportunity which is afforded hogs to contract tubercle bacilli from the feeding of skimmed milk would apply to man. The relative infrequency of the infection of man with the bovine type of tubercle bacilli is not the result of a milder virulence of the bacilli but is due to the previous boiling of the milk.

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EXHIBIT No. 39B.

MILK HYGIENE—BOVINE TUBERCULOSIS IN MAN GENERAL.

[By Ernest, Mohler, and Eichhorn.]

* * * According to figures compiled by Park, of the New York City Board of Health, the frequency of bovine tuberculosis in man as collected by various investigators is as follows:

In adults, 955 cases have been examined, of which 940 showed human infection and 15 bovine infection. In children from 5 to 16 years of age, out of 177 cases

investigated, 131 were human infections and 46 bovine infections. Among children under 5 years old there were 368 cases, of which 292 were found infected with the human type and 76 with the bovine type of tuberculosis. Furthermore, Park mentions the very suggestive results obtained from nine children under 6 years of age who were fed exclusively on cow's milk at the Foundlings' Hospital. Five of these children died of bovine infection and four of human infection. On the other hand, in the Babies' Hospital, where the infants are nursed or fed on prescription milk, out of 63 children dying of tuberculosis 59 proved to be human infection and 4 bovine infection.

The figures taken from clinical work in England indicate that from 23 to 25 per cent of the fatal cases of tuberculosis in children are due to bovine infections. Stiles, of Edinburgh, has presented interesting statistics to illustrate how bovine tuberculosis particularly affects young children.

Of 67 consecutive tuberculosis bone and joint cases, the bovine bacillus was present in 41, the human bacillus in 23, while in 3 cases both types were present. In those affected children under 12 months old, only the bovine bacillus was found. Of the 12 children between 1 and 2 years of age, 8 owed their disease to bovine infection, 2 to human infection, and 2 to both bovine and human infection. There were 15 cases in 2 to 3 year old children, 11 of which were bovine, 3 human, and 1 both infections. The 10 cases from the 3 to 4 year period were 6 bovine and 4 human infections, while the 4 to 5 year period included 3 cases of each type of infection. Stiles further reports on 72 cases of tuberculous cervical glands operated on at the children's hospital in Edinburgh, in which the disease was due to the bovine bacillus in 65 cases, while in only 7 patients was the disease caused by the human bacillus.

If we compile the results of this chapter the following conclusions may be established:

Although tuberculosis of cattle is less dangerous for man than tuberculosis of man, the danger from the enormous spread of the disease in our herds, and especially among the dairy cows, should in no way be underestimated. Theoretically the possibility of infection is afforded in all cases in which the ingestion of living tubercle bacilli with the milk takes place; from a practical standpoint, however, this possibility of infection comes into consideration only when the bacilli enter the individual in great quantities, and the resistance (of a local or general nature) of the body is not equal to this quantitative attack. This disposition, or these relative conditions between the injurious agents and resistance, appear to be especially unfavorable in children; therefore the requirement of the elimination from dairy herds of all tuberculous animals which pass tubercle bacilli with their milk appears to follow as a matter of course.

* * * * *

EXHIBIT No. 40.

(These show recognition is being given to the absolute necessity of pasturization.)

NOTICE TO CREAMERY OPERATORS AND BUTTER MAKERS.

A resolution has been introduced in Congress which comments upon the insanitary condition of creameries and instances of the spread of disease through butter are constantly being cited by sensational newspaper writers. Such agitation is detrimental to the dairy industry and the only way to stop destructive publicity is to adopt constructive policies.

I am glad that the reports I am receiving from Inspector Bruner show that Indiana creameries are, for the most part, sanitary, and that they are producing good butter. In 21 plants already inspected which manufactured last year 8,486,881 pounds of butter, 96.7 per cent of the output was made from pasteurized cream.

Indiana is proud of her dairy industry and her creameries, and the manufacturers of dairy products are cooperating to put these industries on even a higher standard.

To accomplish this it is up to the butter makers of Indiana to make 100 per cent of their output from pasteurized cream, and in order that we may do this and so make it possible to publish wisely the statement that all Indiana butter is surely safe, I am issuing the following order:

"On and after July 1, 1916, the manufacture of butter from unpasteurized cream is prohibited. This order applies to all creameries and commercial dairies producing butter for general public sale."

H. E. BARNARD,
State Food and Drug Commissioner.

APRIL 1, 1916.

EXHIBIT No. 41.

NOTICE TO ICE-CREAM MANUFACTURERS.

No food is more subject to contamination and spoilage than ice cream. The raw product is gathered under conditions which conceal the identity and which, in many instances, subject it to contamination.

Ice cream made from any material which is not of high quality is of itself of low grade and unfit for food. The pasteurization of cream and of ice-cream stock makes the product safe.

In the interest of public health and of better business, you are hereby ordered to pasteurize all cream stock used in the manufacture of ice cream and other frozen products.

Pasteurization shall be deemed to be heating to a temperature of at least 145° F. for 30 minutes or 165° F. for 30 seconds. The holding process is recommended.

This order shall take effect on and after July 1, 1916.

H. E. BARNARD,
State Food and Drug Commissioner.

APRIL 1, 1916.

EXHIBIT No. 42.

CALIFORNIA STATE BOARD OF HEALTH,
BUREAU OF FOODS AND DRUGS, UNIVERSITY OF CALIFORNIA,
Berkeley, Cal., March 21, 1916.

Mr. J. CHAS. LINTHICUM,
House of Representatives, Washington, D. C.

MY DEAR SIR: Your interesting circular letter of the 24th and also H. Res. 137 duly received. Answering your questions, I beg leave to submit the following:

Questions 1 and 2 are practically answered, as far as this State is concerned, by chapter 742 of the State law, approved June 11, 1915. This is a new law, which, as you will notice by the copy inclosed, does not go into effect until October 1, 1916. Just how it will work out, of course, we can not tell. It may be difficult to insure the proper inspection, but certainly it is a step in the right direction. My personal belief is that there should be a State law regarding tuberculin testing. When a cow in apparently good health, of fine appearance, and a good milker, reacts, naturally that cow should be removed from the herd, but, at the initial testing, the dairyman should be paid for that cow by the State. At all subsequent inspections it would be the dairyman's loss if any reactions were found, but it does not seem right to me that a dairyman who pays out, in accordance with the existing laws of the State, his good money for an apparently healthy cow should have to suffer the loss if, owing to new legislation, the cow had to be tested for tuberculosis and reacts.

I am of the opinion that if there were a law compelling the tuberculin test for all dairy herds in the end a better condition would result than if the law enforcing pasteurization were passed. It would naturally be an expensive matter for the State, but in the end I think would prove a splendid investment.

We have in our State a special law covering the production and sale of certified milk.

I am strongly of the belief that there should be a law regulating the shipment of butter fat to creameries, both as regards intrastate and interstate business.

Personally I should prefer to see the neutralizer eliminated, but if it is to be used it should be used under proper restrictions.

I do not think that a mixture of No. 1 cream and No. 2 cream can ever result in the manufacture of as high grade an article as that produced solely

from No. 1 cream. There is too much carelessness at present in the handling of these products.

With reference to the words "artificially colored," there is much to be said. It does not seem logical for the laws of a country to allow one citizen certain privileges and to deny those privileges to another citizen. If a manufacturer can not artificially color lemon extract without properly indicating such on the label, why should a manufacturer of butter be allowed to add the same coloring matter to his butter and not be required to indicate on his label that such a coloring material has been used. Similarly with reference to oleomargarine. The tax that is required for colored oleomargarine is, of course, paid by the consumer, not the manufacturer. This merely means that the poor have to pay that much more for the same nutriment. If it is right to allow the creamery man to use artificial color, why should not the manufacturer of oleomargarine be allowed equal privileges? The arguments against the granting of such privileges seem to me weak. If it were not possible to readily distinguish between butter and oleomargarine or a compound with only a small percentage of oleomargarine as against butter, then there might be some reason for the discrimination now practiced, but as we all know there are certain laboratory tests which are accurate and reliable, sufficiently convincing to any judge or jury absolutely unacquainted with laboratory technique. Such being the case, all that is necessary is thorough inspection, and then the dairyman will be protected, with further heavy fines and imprisonment for those caught violating the law. I am heartily in sympathy with the position of the dairyman, that he wants his products protected as much as possible, but I am also heartily in sympathy with the poor man who needs the nourishment afforded by either butter or oleomargarine, and should be able to obtain that nutriment at as low a figure as is possible without having to pay the extra tax in re coloring, etc.

I am certainly not in favor of allowing the creamery man to incorporate additional water in his churning. I am of the opinion that the standard now allowed by the Government for water in butter is too high. First-class butter should not contain over 12 per cent of water, and if we look at old analyses made by the best authorities we will find that this is true. I am well aware that an excellent article is made with 16 per cent of water, and can be made with 20 per cent of water, but why should the public be called upon to pay 25, 30, or 40 cents per pound, depending upon the price of butter, for so much water? I believe in granting to the creamery man and dairyman all possible privileges, but not those which border, and very closely, on what should be termed adulteration.

There is another point which I feel very strongly on, and which I do not note mentioned in your valued letter. I have reference to the sulphuric acid used for making the Babcock test in creameries on farms. I do not know what is the condition existing in your State, but here we have a very unfortunate state of affairs in respect to the acid that is sold for Babcock testing in that it is as a rule too strong—sometimes too weak.

We all agree that there is no one test which the dairyman has to-day that is of as much value to him as the Babcock test, but if this is not carried out as it should be it is almost worthless. When Dr. Babcock gave out his test to the public, he indicated the strength of acid which should be used, and he arrived at such data by a long period of experimentation. It therefore seems to me that the strength of acid he prescribes should be the one which is sold, when acid is called for, for the Babcock test. It further appears to me that until a law is passed with reference to the standardization of this acid we will not better conditions to any extent. I would be in favor of the passage of a law enforcing all dealers when selling Babcock acid to only sell that of the right specific gravity for such testing. It is a simple matter according to some, if the acid is too strong to add less acid, if it is too weak to add more acid. Such advice may be well and good for the laboratory man, but it is not well received nor can it be put into practice by the average creamery man or dairy man. Before he arrives at the correct amount necessary to give him an accurate test he will be sick and tired of the job and determine the Babcock test is not reliable or accurate.

I trust that the foregoing may meet with your approval.

Yours, very truly,

Consulting Nutrition Expert.

EXHIBIT No. 43.

YALE UNIVERSITY,
DEPARTMENT OF POLITICAL ECONOMY,
March 11, 1916.

Senator GEORGE P. McLEAN,
1520 New Hampshire Avenue, Washington, D. C.

MY DEAR SENATOR McLEAN: I am much interested in a resolution recently submitted in the House of Representatives by Mr. J. Charles Linthicum, Member of Congress from the fourth Maryland district, in which the Speaker of the House is urged to appoint a committee of five Members of the House to investigate and report concerning the sanitary conditions of dairies and dairy products in the United States. The duties of this committee would comprise a thorough investigation of the conditions in our dairies, etc., through the hearing of witnesses, inspection of premises, and necessary chemical tests of products.

In the whole movement for care of the health of our people, there is surely no one part of it more important than the condition of the milk and milk products. These products enter into the consumption of every member of the community and are the sole means of nourishment of our infants.

We have in New Haven a dairy which until recently was, or claimed to be, the only one in the United States which pasteurizes its whole intake. It has demonstrated the practicability of such action.

I was myself at one time a sufferer from tuberculosis and I consequently feel a very great interest in this effort to free ourselves from one of the most prolific sources of that terrible disease.

Thanking you for your attention to past requests of a similar nature and hoping that you feel inclined to give this bill of investigation your hearty support, I am,

Very sincerely, yours,

IRVING FISHER.

EXHIBIT No. 44.

CHAMBER OF COMMERCE,
East Chicago, Ind., March 14, 1916.

Hon. J. CHAS. LINTHICUM,
Member of Congress, Washington, D. C.

DEAR SIR: I have your circular letter, also copy of H. Res. 137, and presented same at the last meeting of our board of directors, at which time a resolution was adopted petitioning our Congressman to support the resolution.

We believe this is a very important question and one that should be thoroughly investigated at the earliest possible moment, and if you will advise when the matter reaches the Senate I shall be glad to petition our Senators to support any bill bearing on this particular question.

Yours, very truly,

E. C. McCARTY,
Secretary-Manager.

EXHIBIT No. 45.

DEPARTMENT OF HEALTH,
Chicago, April 6, 1916.

Hon. J. CHAS. LINTHICUM,
House of Representatives, Washington, D. C.

DEAR SIR: I am in receipt of your communication of the 31st, with copy of resolution No. 137 inclosed.

In my opinion, this is a very broad resolution and one which should meet the approval of all interested in public safety, in the safe production and handling of milk and dairy products.

I am of the firm belief that the inauguration of a Government system of control or cooperation would be of untold value to the municipal consumers of dairy products.

Fully appreciating the value of your efforts in the passage of the above, I remain,

Respectfully,

JOHN DILL ROBERTSON,
Commissioner of Health.

EXHIBIT No. 46.

DEPARTMENT OF AGRICULTURE, COMMERCE, AND INDUSTRIES,
Columbia, S. C., February 21, 1916.

Hon. J. CHAS. LINTHICUM,
United States House of Representatives, Washington, D. C.

My DEAR SIR: I am in receipt of your circular letter accompanying the copy of your House resolution No. 137, referring to dairies and dairy products. I do not believe that you exaggerate the conditions and the situation one particle and am delighted to know that you have taken up this matter. I sincerely hope that the resolution will pass and that the investigation will be one of the most searching and complete ever made in the country. Heaven knows it is time that something was being done. In this territory the conditions in this regard are pitiful, and we are powerless to protect ourselves in interstate trade.

I would gladly write to our Senators and Congressmen in regard to this matter, except for the fact that I make it a rule never to write them letters urging them to vote for anything. You are at perfect liberty, however, to make any use of this letter that you may desire.

Very truly, yours,,

E. J. WATSON, *Commissioner.*

EXHIBIT No. 47.

GEORGIA DEPARTMENT OF AGRICULTURE,
BUREAU OF LIVE STOCK INDUSTRY,
Atlanta, March 29, 1916.

Hon. J. CHARLES LINTHICUM,
Member of Congress, Washington, D. C.

DEAR SIR: Your letter of the 24th instant to Hon. J. D. Price, commissioner of agriculture, has been referred to this department.

There can be no question that an investigation having for its object the correction of evil practices indulged in the creamery and dairy business would be of great benefit to the people as a whole. If there ever was any justification for the inspection of meats and meat food products to safeguard the public interests, then, to be sure, rigid supervision of dairy products, dairy plants, creameries, and milk distributing stations is much more essential, since it is an admitted fact that milk is the most easily contaminated of all our food products. There can be no question but that we have many dairies, creameries, and milk distributing stations in which milk and its products are procured and handled in such a manner as to assure the patrons of these institutions pure and wholesome food; on the other hand, not a few dairies, milk depots, creameries, and milk distributing stations are downright filthy, and the products of these dairies and that pass through these creameries and milk distributing stations are unfit food for human consumption.

Should such an investigation prove the dairy industry in its entirety above reproach and suspicion, then a clean bill of health given it by a congressional investigation would stimulate the public confidence in these products and prove a great boon to the industry. On the other hand, should a congressional investigation find it needful, in order to protect the public welfare, to place dairies, creameries, and other milk or milk-product enterprises under the surveillance of Federal inspection, no injustice would be perpetrated; plants or organizations whose products are produced and handled under conditions approved by Federal authority would find a ready market at present, or possibly better prices, while those whose business conduct in the past make Federal intervention necessary would only have to clean up and keep clean in order to obtain the O. K. of the Federal authority for their products. In other words, the Government would simply force them to do what their sense of honesty and fairness ought to have prompted them to do.

Your letter specifically asks, "Should there be a law to enforce pasteurization of all milk intended for consumption as such or for manufacture into milk products?" My answer would be "No." Pasteurization is more particularly an effort on the part of the producer or manufacturer to render safe a product which is admittedly unfit for human food without pasteurization. Under

present conditions pasteurization in many cases may be, and no doubt is, absolutely essential. Where the milk supply approaches more nearly the ideal of a pure and wholesome food, pasteurization is not needed, nor is it even desirable.

Your next question is: "Should there be a law to compel the tuberculin test for all dairy herds?" Yes; by all means. No tubercular animal should be permitted in a dairy herd. It would no doubt be impractical to peremptorily destroy all reactors to the test in such States as Illinois, New York, and a few others where tuberculosis is admittedly rampant in the large majority of dairy herds. But the products from such herds, even if admitted to the market following pasteurization, should be labeled and sold so the public would know just exactly what they were buying.

In answer to your next question: There should be a law to regulate all shipment of butter fat to creameries; creameries should be inspected and their business regulated in such a way as to insure first of all safety to the public.

I do not believe, in answer to your next question, that it is safe to permit the shipping of soured cream for churning. Tainted milk or cream that must be neutralized or blown with air before it can be manufactured into salable milk products would not be permitted to the market in competition with products from clean and wholesome raw material without being graded and labeled as to its source and its purity.

I see little or no objection to the use of artificial coloring in making butter; I think, as a matter of fact, that very little butter is sold nowadays that has not more or less coloring matter in it. To secure uniform color of butter, regardless of season, coloring seems to be almost indispensable.

In conclusion will say the dairy industry has nothing to fear from a congressional investigation. Each and every Member of Congress realizes keenly the far-reaching effect of any ruling they might make that would be unfair to any branch of our agricultural industries. Clean dairies producing wholesome and pure milk, as well as creameries handling that kind of raw material, will welcome such an investigation. Public welfare demands that all others be investigated, even if they protest.

Trusting this fully answers your inquiry, -I am,
Yours, very truly,

PETER F. BAHNSEN,
State Veterinarian.

EXHIBIT No. 48.

SALT LAKE CITY, *March 30, 1916.*

Mr. J. CHAS. LINTHICUM,
House of Representatives, Washington, D. C.

DEAR SIR: I am in receipt of your communication of March 23, and in reply will say that I have carefully read the resolution which you have proposed, known as House resolution 137. While your estimates and figures are much higher than I anticipated in regard to insanitary creameries; unclean and decomposed cream, and condition of butter manufactured; also with reference to dairy cattle affected with tuberculosis, still I am in sympathy with any law which will better conditions generally.

I feel that a national law which would protect the consuming public through proper inspection of dairy products, seems to be a necessity. I am in sympathy with a law to enforce pasteurization of all milk intended for consumption as such, or for manufacture into milk products. Also, the same would apply to the compulsion of tuberculin tests for all dairy herds. I think that a law that would regulate the shipment of butter fat to creameries, inspection and regulation of creameries, particularly those doing interstate business, is also a necessity.

I see no necessity for the words "artificially colored" in connection with butter, if the milk products and the manufacture of butter are controlled by laws suggested above. I am not in sympathy with the practice which seems to be current of incorporating additional water in the churning of cream for the purpose of increasing an excessive overrun.

Respectfully,

HEBER C. SMITH, *Commissioner.*

EXHIBIT No. 49.

HEALTH DEPARTMENT,
Richmond, Va., February 23, 1916.

Hon. J. CHAS. LINTHICUM,
House of Representatives, Washington, D. C.

DEAR SIR: I am in receipt of your circular addressed "To organizations interested in our food supply," and of the resolution (H. Res. 137) which accompanied it.

There is no question whatsoever but what more rigid supervision of all dairy farms is highly important. So far as Richmond itself is concerned, we have very complete and satisfactory control over our milk and cream supply.

Nothing short of a national supervision can give any community a proper butter supply. I personally refrained from attempting any supervision of butter, since to do so would only bring about a hardship on our local producers without remedying the situation, as a large part of our butter supply comes from distant points in the State and from other States, and this we can not possibly control by supervision of our own.

I believe that supervision over the sanitary production of butter and cheese should be under Federal authority, always with cooperation of the State and municipal authorities.

As to milk and cream supply, this should, in my opinion, be under municipal supervision in all instances where the supply is drawn from near-by sources. This, of course, means cities of small or medium population. Our great cities have of necessity to get their milk and cream supply from great distances, going usually into several States. Here is a very important field which should be covered by Federal supervision of preferably Federal cooperation. There should, in my opinion, be an act controlling in some way the interstate shipment of milk and cream.

Very truly, yours,

E. C. LEVY,
Chief Health Officer.

EXHIBIT No. 50.

DEPARTMENT OF FOOD AND DRUGS,
Nashville, Tenn., March 29, 1916.

Hon. J. CHARLES LINTHICUM,
House of Representatives, Foreign Affairs Committee,
Washington, D. C.

DEAR SIR: Beg to acknowledge receipt of yours of March 24 relative to House resolution 137, together with copy of same.

Have read this resolution very carefully and unhesitatingly say that I believe the statements which are made in same in regard to the conditions as they now exist are conservative. Wish to impress upon you the fact that I am heartily in favor of this resolution and will do all in my power to assist you to see that same becomes a law. There is indeed great need of legislation of this kind, and I wish to congratulate you upon fostering and promoting a cause of this nature that is of vital importance to every citizen of the United States. As to furnishing you with data in regard to this specific matter from this department, am ashamed to admit that we have no statistics covering the matter, for the very good reason that our department has been handicapped since it was organized by a lack of appropriation.

Am pleased to answer your specific questions, as follows:

1. It is my opinion that there should be a law to enforce pasteurization of all milk intended for consumption as such or for manufacture into milk products.
2. There should be a law to compel tuberculin tests for all dairy herds.
3. There should be a drastic law regulating the shipment of butter fat to creameries, inspection or regulation of creameries, particularly those doing interstate business, and regulations for the character of butter fat and other ingredients going into the manufacture of butter.
4. I certainly would not permit the purchase and handling of what is now generally known as No. 2 cream—that is, cream on which it is necessary to use neutralizer or blow with air before being manufactured.

5. It is my opinion that a law should be enacted compelling the use of the words "Artificially colored" on the labels of butter so made, and I certainly do not think it is fair competition or just to the purchaser to permit the dairyman to get an increased price for his product when he is concealing the fact that his product is artificially colored.

6. There should certainly be a drastic regulation which would not permit the creameryman to incorporate additional water in his churning and thereby increase his overrun and decrease the volume of butter fat in the manufactured product.

In conclusion, wish to say that I am enthusiastic over this matter, and when you have drawn your bill along the lines as suggested in the resolution I would so much appreciate a copy of same. I wish this for the purpose of promulgating and establishing legislation along this line in the State of Tennessee.

If it is your wish I will, immediately upon your advice, take this matter up with the Representatives in Congress and Senate from this State and solicit their support.

If I can be of any further assistance to you, I am yours to command.

Sincerely, yours,

HARRY L. ESKEW, *Commissioner.*

EXHIBIT No. 51.

DEPARTMENT OF BIOLOGY, LAFAYETTE COLLEGE,
Easton, Pa., April 8, 1916.

Mr. J. CHAS. LINTHICUM,
House of Representatives,
Fourth Maryland District.

MY DEAR MR. LINTHICUM: I wish to thank you for your very kind letter of April 5 relative to my address on Easton's milk supply before the New Century Club. The object of this address was to impress upon the city authorities the importance of milk legislation providing for the establishment of a reasonable limit for the bacterial content of all milk sold within the city limits. I have been very much interested in the subject for a number of years, and realizing the fact that a large proportion of the deaths of infants under 2 years of age was due to causes that could have been prevented, I decided to inform the community of the conditions as I found them to exist.

That which applies to the milk supply is equally applicable to milk products, such as butter, cheese, ice cream, etc. We are at the present time making bacteriological analyses of ice cream, and we find that it is upholding the reputation of the milk. The city of Easton is only one of the thousands of cities throughout the country in which the same or perhaps worse conditions exist. I was very much pleased to receive the copy of the Congressional Record of April 1, 1916, containing your very admirable address relating to dairies and dairy products. Your proposed resolution embodied in your address is one that should have the approval of every member concerned.

It is a deplorable fact that it is necessary to practically force upon the people those things which are of vital importance to them as individuals.

I have perused your address very carefully and I heartily agree with every statement contained therein. They are all facts and they have not in the least been exaggerated.

At the present time a comparatively few cities have provided legislation for the control of these products, and I believe that the only way in which all the cities and towns can acquire such supervision is through the State or National Government, or both, as suggested in your resolution.

I sincerely hope that your efforts will meet with success, for the adoption of your resolution means that you have performed a national service.

I am inclosing a clipping of my address which, if you care to, you may use in any way you may see fit. I would draw your attention to the last paragraph, which I think is quite pertinent.

Very respectfully, yours,

WM. F. FOSTER.

EXHIBIT No. 52.

KANSAS STATE AGRICULTURAL COLLEGE,
DIVISION OF GENERAL SCIENCE, DEPARTMENT OF CHEMISTRY,
Manhattan, Kans., April 6, 1916.

Mr. J. CHARLES LINTHICUM,
House of Representatives, Washington, D. C.

MY DEAR SIR: Your communication of the 24th ultimo was duly received, and I have read the resolution to which it refers.

I am in complete sympathy with the aims of the resolution. My duties do not include inspection, and on some of the points included in your letter I can form no opinion from personal experience. I believe pressure should be placed and increased all along the line in the direction of improvement in the sanitary conditions under which dairy cattle are kept, especially those which are housed in closed barns or stables. I doubt if we have much well authenticated information concerning the deterioration of health and the spread of disease by reason of infected milk and milk products. A well-planned investigation looking toward the ascertaining of the actual facts in respect to this problem would be highly serviceable. I think that much of our opinion and statement is based upon supposition rather than actual knowledge. At present I do not feel that we are in position to decide whether pasteurization of milk should be enforced. I believe that dairy herds should be tuberculin tested.

Very truly, yours,

J. T. WILLARD.

EXHIBIT No. 53.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION,
Agricultural College, N. Dak., March 29, 1916.

Hon. J. C. LINTHICUM,
House of Representatives, Washington, D. C.

DEAR SIR: I beg to acknowledge your favor of March 25, asking with regard to the needs of laws for regulating the handling of milk and milk products in this country.

I believe, as is indicated by the resolution, that a careful study is needed, first, with regard to the conditions of production and handling of milk products for interstate-commerce purposes. I am not favorable to saying that all milk should be pasteurized. If I lived in New York City I would purchase nothing but pasteurized milk, but in the smaller communities where milk can be had from a well-conducted, sanitary dairy, I should prefer by all means certified milk, and I believe that the production and sale of certified milk should be encouraged; but all milk, the history of which is not known, may well be pasteurized.

All animals and herds that are to furnish milk for interstate commerce, or, for that matter, for use in the State, should come from tuberculin-tested animals.

There is needed a law regulating the shipment of butter fat or of cream to creameries, and the method of handling the same and labeling the same before it is sold. Process butter should be labeled so that the public know what they are getting. Butter, ice cream, and other products made from cream that is not fresh, should be so labeled that the public are informed as to the character of the product which they purchase. If neutralizers are used then the public are entitled to the information and the information should be carried to the consumer also.

I would not prohibit or restrict the sale of No. 2 cream, but I would insist that such cream and the products made therefrom be so labeled that the public shall be informed of the character of the product.

I see nothing to be gained by the use of the term "artificially colored" for butter so made, but I would prohibit the use of all color in butter as in any other food product where an inferior product is made to appear like the superior product; in other words, whereby the most inferior, poorly fed and cared for dairy can produce a product that is highly colored, often with injurious coal-tar dye, and make it appear of superior quality so far as color is concerned. I would encourage the dairyman who is willing to produce butter of quality,

to feed the color into the butter, rather than to depend upon the addition of artificial color.

I think the present standard of allowing 16 per cent of water in butter is indefensible. Formerly butter contained from 10 per cent to 12 per cent, and 13 per cent is as high, in my judgment, as butter should go in moisture, and yet there are those who to-day employ chemists in order that they may keep just within the limit of 16 per cent, selling water at butter prices. There are those who have worked as much as 23 per cent to 25 per cent of water into their butter, and such butter has gone into interstate commerce—the purpose being of course to sell water at butter prices.

Any butter that contains above 13 per cent of water should be labeled to show the per cent of moisture present.

Yours, very truly,

B. F. LADD, *Commissioner.*

EXHIBIT No. 54.

FOOD AND DRUG DEPARTMENT, STATE OF TEXAS,
Austin, March 28, 1916.

Hon. J. CHAS. LINTHICUM,
Washington, D. C.

DEAR SIR: Replying to your letter of March 23 I wish to advise that it is my opinion that, as a safeguard, all milk should be pasteurized; also that we should have a Federal law prohibiting the shipment of dairy cows interstate that are affected with tuberculosis, as we have had quite a large number of dairy cattle dumped on us in Texas from other States.

I am also opposed to so-called neutralizers in cream, for if cream is properly handled it would not be necessary to use a neutralizer.

There is a Federal law limiting the amount of moisture in butter. I am also of the opinion that if the present food and drug law was strictly enforced it would compel all butter manufacturers that were using artificial coloring to so state the same on the package.

We certainly need more stringent sanitary laws regulating creameries and other places where food products are manufactured.

If I can be of further assistance to you in any way do not hesitate to call upon me.

Yours, very truly,

R. H. HOFFMAN,
Food and Drug Commissioner.

EXHIBIT No. 55.

STATE BOARD OF HEALTH,
Concord, N. H., March 29, 1916.

Hon. J. CHAS. LINTHICUM,
House of Representatives, Washington, D. C.

MY DEAR SIR: I am in receipt of your communication of March 24, together with copy of House resolution 137.

In reply, I have to say that I am fully in accord with the objects to be attained under the resolution.

Thanking you for your courtesy in transmitting the copy to me, I am,
Very truly, yours,

IRVING A. WATSON, *Secretary.*

EXHIBIT No. 56.

DEPARTMENT OF HEALTH OF THE STATE OF NEW JERSEY,
Trenton, March 30, 1916.

Hon. J. CHAS. LINTHICUM,
House of Representatives, Washington, D. C.

DEAR SIR: Your letter of March 24 relating to House resolution introduced by you on February 11, 1916, has been received. I am in entire sympathy with the purport of the resolution and believe that a thorough and careful investigation

of the production of milk and milk products in this country will result in nothing but good. On the one hand it will point out the defects which now exist in the methods of producing and handling of milk and milk products, and on the other hand it will do much to allay the public distrust in these products, which is being assiduously fostered by certain representatives of "yellow journals."

I believe that, from a public health standpoint, legislation requiring the pasteurization of all milk intended for human consumption, except milk from such cows as are regularly tuberculin tested and kept under frequent veterinary inspection, would be wise.

I am not prepared to answer your question with respect to the manufacture of butter, as I have no real familiarity with this process. Butter is made in such small quantities in this State that none of the objectionable conditions alleged to exist in the Middle West are to be found here. I believe that when butter is colored artificially it should be labeled, just as any other food which is artificially colored should be labeled. I do not believe it is proper to permit a creamery man to incorporate additional water in his butter, which is then sold at the price of butter. The reason for this incorporation of water is, so far as I am aware, purely a commercial one, having for its object the increase in the weight of the final product.

Very truly, yours,

R. B. FITZ-RANDOLPH,
Assistant Director.

EXHIBIT No. 57.

STATE OF MARYLAND, DEPARTMENT OF HEALTH,
Baltimore, April 7, 1916.

Mr. J. CHARLES LINTHICUM,
House of Representatives, Washington, D. C.

DEAR SIR: In answer to your letter of March 25, inclosing House resolution No. 137, Sixty-fourth Congress, first session, dated February 11, 1916, I would respectfully submit the following statement:

My experience in regard to milk has been practically limited to the bacteriological examination of this material and its products; but I have become somewhat familiar with the conditions in other States by reading reports and scientific articles. Owing to these observations, I am firmly convinced that the milk supply of this country could be greatly improved. An investigation of this subject by a committee from the House of Representatives would certainly be of service in collecting and systematizing the scattered data concerning the hygienic quality of the milk supply of the country, and, upon conferring with experts such as State and city health commissioners, pure-food commissioners, bacteriologists, chemists, and general practitioners of medicine, they could recommend laws which would greatly reduce the mortality and the morbidity from milk-born diseases if effectually carried out. I, therefore, believe that there is need of such an investigation as that proposed by you.

I take it that any such law would only control milk and milk products which are used in interstate commerce; but a wise and forcible Federal law would probably be adopted, with some modifications, by many of the States if this law improved upon their local enactments. There are many laws now on the statute books of the various cities concerning this subject and these have been collected into two volumes published by the United States Public-Health Service, of which you are, of course, well aware. If these scattered enactments could be boiled down into a standard set of laws it would be of the greatest benefit to the entire country.

In answer to your question concerning the enforced pasteurization of milk, I believe that such a law is most desirable if it can be secured, as I think that pasteurization is the only complete method of destroying disease-producing germs which may get into milk. Just as we have gone through many stages ending in the complete filtration of water supplies so, I believe, we will go through many stages in milk control until we at last come to the complete destruction of disease-producing germs by proper pasteurization and bottling methods. It has been very clearly proven now that properly pasteurized milk is a healthful food and produces no ill effects.

The question of the control of bovine tuberculosis is a gigantic one. The investigations of the Department of Agriculture, many State boards of agricul-

ture, and live-stock commissions show that a large percentage of the cattle in this country is infected with tuberculosis. I believe that wherever possible bovine tuberculosis should be eradicated from herds; but, although I still have an open mind on the subject, it would seem that properly pasteurized milk prevents the danger from bovine tuberculosis being transmitted to human beings.

I do not feel qualified to answer your questions concerning the regulation of the shipment of butter fat, the use of neutralizers, and artificially colored butter, since I have had little experience in such matters.

In conclusion, I believe that the problem which you have attacked is of vast importance to the citizens of this country and that it must be viewed from many angles.

Cordially wishing you success in your undertaking,

Yours, respectfully,

WM. ROYAL STOKES,
Chief Bureau of Bacteriology.

EXHIBIT No. 58.

OFFICE OF BOARD OF HEALTH,
Cincinnati, March 9, 1916.

HON. J. CHARLES LINTHICUM,
Member of Congress, Washington, D. C.

DEAR SIR: You have probably received a letter notifying you of the favorable action of the board of health of Cincinnati toward your bill for a Federal investigation of the conditions under which the milk and dairy industry of this country is conducted.

Your bill, if passed, will be one of the greatest steps ever taken to conserve the public health of the Nation.

Here in Cincinnati (while we realize that much remains to be done before an ideal condition is secured) we have accomplished a considerable portion of your program and feel that our results would have decided influence in assisting your committee to formulate its conclusions.

All of our market milk is pasteurized. All of our cream used in the manufacture of butter and ice cream is pasteurized. We have practically eliminated milk as a carrier of typhoid fever, dyptheria, scarlet fever, septic sore throat, infantile diarrhea, and tuberculosis. All of our milk is delivered to the retail trade in single sealed packages. About 95 per cent of our dairy cattle are tuberculin tested.

The influence on mortality from diarrhea and enteritis in children under 2 years of age brought about by efficient milk inspection may be seen in the following table:

Year.	Deaths in children under 2 years, diarrhea and enteritis.	Year.	Deaths in children under 2 years, diarrhea and enteritis.
1910.....	378	1913.....	245
1911 (beginning of efficient milk inspection).....	272	1914.....	230
1912.....	272	1915.....	175

In the meantime, our population has increased from 364,463 to 406,706.

It is my belief, based on our vital statistics, that efficient milk inspection also has a decided influence in lowering the general death rate.

Very sincerely, yours,

J. H. LANDIS, Health Officer.

EXHIBIT No. 59.

STATE OF RHODE ISLAND,
Board of Food and Dairy Commissioners.

Hon. J. CHARLES LINTHICUM.

DEAR SIR: In answer to yours of March 23, we believe that clean, whole milk is the desired end; then, if needed, pasteurization.

Should there be a law to compel tuberculin test? Yes.

Should there be a sanitary law to regulate the shipment of butter fat to creameries? Yes.

Inspection and regulation of creameries? Yes; and if this is done you would do away with two following questions—"neutralizers" and "No. 2 cream."

Would you compel the use of "artificially colored" on the labels of butter? Most emphatically yes; if other food products have to be so labeled, why not butter, which is colored for no purpose but to make it appear better than it really is.

Would you permit the creamery man to incorporate additional water in his churnings? Most decidedly no. We have demonstrated that butter can be made with water content as low as 7 per cent. We think that 16 per cent is too high and is one of the reasons of bad butter.

I trust that these answers will be of benefit to you.

We have but recently taken up milk, as in Rhode Island until this year milk and cream have not been an article of food under food and drug laws.

Respectfully, yours,

FRANK A. JACKSON.

EXHIBIT No. 60.

OFFICE OF BOARD OF HEALTH,
Cincinnati, March 8, 1916.

Hon. J. CHAS. LINTHICUM,

Member of Congress, Washington, D. C.

DEAR SIR: At the meeting of the Cincinnati Board of Health, held this day, a resolution was unanimously adopted indorsing H. Res. 137, introduced by you, calling for a Federal investigation of the sanitary conditions surrounding the milk industry and its products, as carried on in the United States.

Respectfully, yours,

J. T. O'NEIL,
Clerk Board of Health.

EXHIBIT No. 61.

OFFICE OF BOARD OF HEALTH,
Cincinnati, March 16, 1916.

Hon. J. CHAS. LINTHICUM,

Member of Congress, Washington, D. C.

DEAR SIR: At the meeting of the board of health held March 8, 1916, a resolution was adopted by unanimous vote indorsing your House resolution 137 for the Federal investigation of the sanitary conditions surrounding the milk industry and its products as carried on in the United States.

Also, that the records of this department be offered and are open for the furtherance of said investigation, and any service that will assist in the inspection or investigation be extended.

Also, that our Congressman and Senators be respectfully requested to take an active interest in determining the true status of the creamery and dairy business.

J. T. O'NEIL, *Clerk, Board of Health.*

EXHIBIT No. 62.

BOARD OF COMMISSIONERS,
Asbury Park, N. J., March 16, 1916.

Hon. J. CHARLES LINTHICUM,

House of Representatives, Washington, D. C.

DEAR SIR: I am inclosing herewith a copy of resolution adopted by the board of commissioners of the city of Asbury Park, urging the adoption of

the resolution introduced by you, calling for an investigation of the dairies and dairy products of this country.

The commissioners were very glad to adopt this resolution as they believe the existing conditions of the dairies are a menace to the public health.

We sincerely hope that your resolution will be acted upon favorably.

Yours, very truly,

H. B. WHITE, *City Clerk.*

Be it resolved, That the board of commissioners of the city of Asbury Park, N. J., indorse House resolution 137, as introduced by Hon. J. Charles Linthicum, urging the appointment of a congressional committee to investigate the conditions prevailing in dairies and dairy products of the country and looking toward the improvement of the sanitary conditions of said dairies; and

Be it further resolved, That copies of this resolution be forwarded to our Representatives and that they be urged to give the matter their serious consideration.

EXHIBIT No. 63.

WOMEN'S CIVIC LEAGUE,
Baltimore, Md., April 18, 1916.

HON. J. CHARLES LINTHICUM,
House of Representatives, Washington, D. C.

DEAR MR. LINTHICUM: In reply to your letter of April 13 I may explain that the milk committee of the Women's Civic League began active work four years ago. By reason of additional men and equipment in the city health department, which was secured through the efforts of the milk committee, the milk supply in Baltimore has improved. In Maryland, however, there is no adequate State work. The committee has advocated the establishment of a State dairy bureau, and a bill was presented to the last legislature to constitute the milk committee of the Women's Civic League a State bureau of dairy information, to report to the next legislature. It was hoped that this would lead to the establishment of a permanent milk bureau.

In his survey on public-health administration in Maryland Dr. Carroll Fox, of the United States Public Health Service, says:

"Because of the great part it plays in infant mortality, because it is the most important food, because of the ease with which it is contaminated and its importance in the transmission of certain common and dangerous communicable diseases, milk, of all single items, is probably the most important to the health officer."

In some communities the number and virulence of milk-borne diseases is appalling. The number of preventable deaths among infants due to dirty or infected milk is said by physicians to be very large.

Dr. Herman M. Biggs, commissioner of the newly organized State Department of Health, New York, states that 99 out of 100 cases of measles, whooping cough, diphtheria, typhoid fever, and scarlet fever "are due to one of two causes—the use of an infected milk supply or personal contact with a previous case."

Municipalities commonly attempt to control the milk supply by inspection of dairy farms and bacteriological and chemical examination of the milk. The milk committee of the Women's Civic League has made surveys in seven Maryland towns besides Baltimore City, and limited business surveys in two counties. It was our expert who cooperated with the State board of health in the Dorchester County survey in 1914. But municipalities can not force producers to comply with their requirements, nor have they the facilities to help put the milk business on a paying basis. They can exclude milk, but milk rejected in one city can then be sent to some other city or village where the requirements are less strict.

There has been some confusion between health and agricultural functions in many of the States. So far as we know, there is no State where the people are assured an uniformly safe milk supply in the different communities. Just as dirty milk is forced out of one city into another, so it is forced out of one State into another.

The milk committee of the Woman's Civic League has visited the various bureaus in Washington repeatedly to secure business information which would help Maryland farmers. It has not been successful in its efforts, not because of

the failure of the Government officials to cooperate with it, but because none of the departments covers the necessary ground. It is true that much of the information now in the hands of the Department of Agriculture would be helpful if it were available to the proposed commission, but more information is needed.

If you wish to know of what authority speaks the milk committee of the Woman's Civic League, we should be glad if you would speak or talk to Dr. William H. Welch, Dr. W. J. Spillman, head of the Bureau of Farm Management of the Department of Agriculture; President Goodnow, of the Johns Hopkins University; ex-Gov. Goldsborough; Dr. Carl Alsberg, Chief of the Bureau of Chemistry; and Dr. Charles E. North, of New York.

The Illinois Bankers' Association has made a study of business conditions on dairy farms which covers the grounds which should be covered in Maryland.

There is certainly a great need for uniformity in milk and dairy-product requirements all over the United States. Federal regulation should in no way curtail State and city control, but should supplement the work of the smaller units in securing to the people all over the country a uniformly safe milk supply.

Very sincerely, yours,

HARLEAN JAMES, *Executive Secretary.*

INDORSEMENTS OF HOUSE RESOLUTION 137.

The following have indorsed House resolution 137, introduced by Hon. J. Charles Linthicum, fourth Maryland district:

ALABAMA.

Alabama Travelers, Montgomery.
Alabama Travelers, Mobile.
Chief of immigration and markets bureau, Montgomery.
Chamber of Commerce, Montgomery.
Shakespeare Club, Birmingham.
Commissioner immigration and markets bureau, Montgomery.

ARIZONA.

Thursday Afternoon Club, Kingman.
Snowball Miners' Union, No. 124, Western Federation of Miners, Oatman.
Tempe Woman's Club, Tempe.

ARKANSAS.

Railway Equipment Painters' Union, No. 51, Brotherhood of Painters, Decorators, and Paper Hangers of America, Argenta.

CALIFORNIA.

Country Club of Washington Township, Centerville.
Bakery and Confectionery Workers, Bakers' Union No. 3, Los Angeles.
The Ebell of Oakland, Oakland.
Journeymen Barbers, Local No. 148, San Francisco.
Contra Costa County Central Labor Council, Richmond.
Association for the Study and Prevention of Tuberculosis, San Francisco.
Printing Pressmen's Union, No. 146, I. P. P. A. U., San Jose.
Independent Order of Foresters, California Tubercular Sanatorium, Los Angeles.
International Association of Machinists, Lodge No. 824, Richmond.
Sacramento Federated Trades Council, Sacramento.
Laundry Workers' Union, Local No. 26, San Francisco.
Society for the Study and Prevention of Tuberculosis, San Diego.
To Kalon Club, San Francisco.
The "As You Like It" Club, San Diego.
Corona Club, San Francisco.
California Federation of Women's Clubs, Fresno County.
La Jolla Woman's Club, La Jolla.
Bakers Union No. 26, Pasadena.
Woman's Club, Watsonville.
Brotherhood of Painters, Decorators, and Paperhangers of America, Referendum No. 2, San Francisco.
C. H. Whitman, medical director Los Angeles County department of charities, Los Angeles.
The Santa Ana Society for the Study and Prevention of Tuberculosis, Santa Ana.
Vallejo Trades and Labor Council, Vallejo.
Carquinez Women's Club, Crockett.
Labor Council, San Francisco.
Woman's Improvement Club, Glen Ellen.
United Commercial Travelers, Council No. 405, San Diego.

COLORADO.

North Side Woman's Club, Denver.
 Rifle Reading Club, Rifle.
 International Brotherhood of Blacksmiths and Helpers, Local No. 138,
 Colorado.
 National Housewives' League, Denver.
 International Association of Machinists, Local No. 592, Grand Junction.
 Zeta Zeta Club, Sterling.
 International Brotherhood of Teamsters, Chauffeurs, Stablemen, and Help-
 ers, Local No. 453, Pueblo.
 Amalgamated Lithographers of America, Denver.
 Dr. M. Collins, Denver.
 Colorado Springs Gazette, Colorado Springs.
 Woman's Club, Denver.

CONNECTICUT.

City of Norwalk board of health, Norwalk.
 Public Health Association, Meriden.
 Theatrical Stage Employees, Local No. 350, Meriden.
 Piano, Organ, and Musical Instrument Workers, Local Union No. 29, Meriden.
 Woman's Civic League, Stamford.
 Journeymen Barbers' International Union, Local No. 215, New Haven.
 Central Labor Union of Danbury and vicinity, Danbury.
 Yale University, department of political economy, Prof. Irving Fisher, New
 Haven.
 The Fortnightly Club, Madison.
 South Norwalk Musical Protective Union, South Norwalk.

DELAWARE.

Milford Emergency Hospital, Milford.

DISTRICT OF COLUMBIA.

Association for the Prevention of Tuberculosis, Washington.
 Consumers' League, Washington.
 Director in the Association for Prevention of Tuberculosis, Washington.
 Chairman Interstate Commerce Commission, Washington.

FLORIDA.

International Association of Machinists, Seminole Lodge No. 280, Sanford.
 Woman's Club, St. Petersburg.
 The Wauchula Civic League, Wauchula.
 St. Augustine Typographical Union, No. 588, St. Augustine.
 International Brotherhood of Blacksmiths, Local 96, Jacksonville.
 Melbourne Woman's Club, Melbourne.

GEORGIA.

Mrs. Chas. Worfolle, chairman pure food commission, Columbus.
 Women's History Club, Kingston.
 Wymodausis Club, Valdosta.
 Savannah Kindergarten Club, Savannah.
 Chatham Local No. 11, International Brotherhood of Blacksmiths and Helpers,
 Savannah.
 United Commercial Travelers, Savannah.
 International Association of Machinists, Preston Lodge No. 6, Fitzgerald.
 East Point Woman's Club, East Point.
 Peter F. Bahnsen, State veterinarian of Georgia, department of agriculture,
 Atlanta.
 August Council No. 312, United Commercial Travelers, Augusta.
 Gainesville Council No. 416, United Commercial Travelers, Gainesville.

IDAHO.

The Pocatello Central Labor Union, Pocatello.
 Fortnightly Club, Harrison.
 Electrical Workers, Twin Falls.
 Burke Miners' Union, No. 10, Burke.
 Fortnightly Club, Coeur d'Alene.

ILLINOIS.

Pierian Club, Greenville.
 National Association of Marketing Officials, Chicago.
 Policy of the First Conference, Chicago.
 Housewives' League, Chicago.
 The Danville Trades and Labor Council, Danville.
 International Molders' Union of North America, Local No. 220, Belleville.
 Tuscola Woman's Club, Tuscola.
 Edison Park Woman's Club, Chicago.
 Galewood Lodge, No. 524, International Association of Machinists, Chicago.
 The Centralia Woman's Club, Centralia.
 Noyes Street Mothers' Club, Evanston.
 Madison Lodge No. 1, Amalgamated Association of Iron, Steel, and Tin
 Workers, Granite.
 Johnson City Trades Council, Johnson City.
 Research Club, Peoria.
 Women's Civic Federation, East St. Louis.
 The Order of Railroad Telegraphers, Chicago, Milwaukee & St. Paul System,
 Division No. 23, Chicago.
 International Association of Bridge, Structural, and Ornamental Iron Workers
 and Pile Drivers, Local Union No. 1, Chicago.
 Switchmen's Union of North America, Lodge No. 53, Decatur.
 Local Union No. 1722, United Mine Workers of America, Oglesby.
 Otter Creek Improvement Club, Streator.
 The Shakespeare Club, Farmer City.
 Hinckley Woman's Club, Hinckley.
 The Athena Library Association, Sycamore.
 The Monday Club, Morris.
 The Woman's Literary Club, Urbana.
 International Molders' Union, No. 18, Peoria.
 Illinois State Association of Graduate Nurses, Chicago.
 International Brotherhood Blacksmiths and Helpers, No. 44, Decatur.
 Travelers' Protective Association, Post W, Galesburg.
 Good Friday Lodge, No. 8, Amalgamated Association of Iron, Steel, and Tin
 Workers of America, Granite City.
 Household Science Club, Waverly.
 Woman's Club, Dwight.

INDIANA.

Woman's League, Bloomington.
 The Tuesday Club, La Grange.
 The Tuesday Club, Kendallville.
 Greensburg Department Club, Greensburg.
 Travelers' Protective Association, Terre Haute.
 Bay View Club, Kendallville.
 Winona Lake Literary Club, Winona.
 Carpenters District Council, Indianapolis.
 Orpheus Club of Aurora, Aurora.
 Resolutions Committee of the Ramblers, Ramblers Literary Society, Mount
 Vernon.
 Journeyman Barbers' International Union of America, Local Union No. 233,
 Linton.
 The Anti-Tuberculosis League, South Bend.
 Woman's Club, Winamac.
 International Union of the United Brewery Workmen of America, Local No.
 153, Evansville.
 Chamber of Commerce, East Chicago.
 Glass Bottle Blowers Association, Marion.
 Parlor Club, Indianapolis.
 Athensea Club, Richmond.

IOWA.

Twentieth Century Club, Linemore.
 Journeyman Barbers International Union of America, Cedar Rapids.
 Webster County Medical Society, Fort Dodge.
 Chautauqua Circle, Anita.
 Shakespearean Club, Osage.
 Ivanhoe Club, Bloomfield.
 Chautauqua Club, Waterloo.
 Krol El Deen Club, Boone.
 Library Reading Club, Alden.
 Woman's Club, Corydon.
 Friday Club, Esterville.
 Sunset Club, Grinnell.
 Woman's Club, Maquoketa.
 Cleo Club, Indianola.
 International Association of Machinists, Missouri Valley.
 Anita Literary Club, Anita.

KANSAS.

Monday Afternoon Club, Medicine Lodge.
 International Brotherhood of Electrical Workers, Local No. 226, Topeka.
 City of Topeka, Department of Food Inspection, Topeka.
 The Sorosis, Stockton.
 Friday Reading Club, Thayer.

KENTUCKY.

The Sorosis Club, Louisville.
 Newport Lodge No. 5 of Kentucky Iron, Steel, and Tin Workers, Newport.
 Woman's Club, Hawesville.
 The Anti-Tuberculosis League of Kenton County, Covington.
 Highland Civic Club, Louisville.
 United Commercial Travelers, Louisville.

LOUISIANA.

Current Events Club, Bunkie.

MAINE.

Biddeford Musician's Protective Union, Biddeford.
 The Old Orchard Club, Old Orchard.
 The Women's Educational and Industrial Union, Saco.
 The Progressive Club, Lisbon.
 Travelers' Club of Belfast, Belfast.

MARYLAND.

A. H. Kuhlemann, Baltimore.
 Max Colton, health officer, Cumberland.
 Dr. Frank J. Goodnow, president The John's Hopkins University, Baltimore.
 Baltimore Typographical Union, No. 12, Baltimore.
 United Brotherhood of Carpenters and Joiners, Baltimore.
 Alfred E. Sharp, president The Travelers Protective Association, Baltimore.
 The Woman's Club, Sparrows Point.
 Horace H. Leach, Baltimore.
 American Flint Glass Workers' Union, Baltimore.
 Maryland State and District of Columbia Federation of Labor, Baltimore.
 Baltimore Kindergarten Club, Baltimore.
 George Kahl, The Kahl-Holt Co., Baltimore.
 Women's Civic League, Baltimore.
 Dr. C. Hampson Jones, chief bureau of communicable diseases, Baltimore.
 Cumberland Academy of Medicine, Cumberland.
 Coopers International Union, Baltimore.
 Musical Union of Baltimore City, Baltimore.

MASSACHUSETTS.

Tuesday Club, Stockbridge.
 The Quabbin Club, Enfield.
 International Association of Machinists, Springfield.
 Arlington Woman's Club, Arlington.
 Melrose Highlands Woman's Club, Melrose Highlands.
 Quest and Question Club, Winthrop.
 Etaerio Club, Attleboro.
 Sheet Metal Workers' Local No. 289, New Bedford.
 Newton Federation of Women's Clubs, Newton.
 Clinton Antituberculosis Association, Clinton.
 Chicopee Falls Woman's Club, Chicopee.
 Women's Publicity Club, Boston.
 Lynn Musician's Association, Lynn.

MICHIGAN.

Michigan State Federation of Women's Clubs, Bay City.
 Woman's Club of, Ann Arbor.
 Railroad Lodge No. 53, Detroit.
 The Woman's Club, Pontiac.
 West Side Ladies Literary Club, Grand Rapids.
 Antituberculosis Society, Saginaw.
 Kings Daughters and Sons, Owosso.
 Federation of Women's Clubs, Saginaw.
 International Association of Machinists, Muskegon.
 Journeymen Taylors Union, Local No. 229, Detroit.
 Antituberculosis Society, Grand Rapids.
 Antituberculosis Society, Kalamazoo.
 Detroit Council No. 9, United Commercial Travelers' Association, Detroit.
 Kalamazoo Academy of Medicine, Kalamazoo.
 Grand Rapids Wood Carvers' Association, Grand Rapids.
 Woman's Literary Club, Plymouth.
 Hastings Woman's Club, Hastings.

MINNESOTA.

The Housewives' League, St. Paul.
 The Coterie, Benson.
 Journeymen Stone Cutters' Association No. 433, Sandstone.
 Current News Club, New Ulm.
 Woman's Civic League, Taylors Falls.
 Woman's Literary Club, Litchfield.
 Progressive Woman's Club, Virginia.
 Advisory commission, Minnesota State sanatorium, St. Paul.
 Trades and Labor Assembly, Brainerd.
 State chemist, St. Paul.

MISSISSIPPI.

Senatobia Civic League, Senatobia.
 Woman's Club, Hattiesburg.
 W. F. Hand, State chemist, Mississippi Agricultural and Mechanical College,
 Agricultural College.
 The Meridian Central Trades Council, Meridian.

MISSOURI.

The Allied Printing Trades Council, St. Louis.
 The Century Club, Louisiana.
 The Woman's Study Club, Ironton.
 Palmyra Civic League, Palmyra.
 Missouri Federation of Women's Clubs, Clinton.
 St. Louis Medical Society, St. Louis.
 Banner Lodge, No. 539, International Association of Machinists, St. Joseph.
 Bridge, Structural, and Ornamental Iron Workers, Kansas City.

The Sikeston Standard, Sikeston.
 Medical director and staff of Mount St. Rose Hospital, St. Louis.
 Ladies' Auxiliary, International Association Machinists, Sedalia.
 Metal Polishers, Buffers, Platers, No. 13, Hannibal.

MONTANA.

Women's Club, Hamilton.
 Lewistown Woman's Club, Lewistown.

NEVADA.

Reno Central Trades and Labor Council, Reno, Nev.

NORTH CAROLINA.

The Southern Cotton Oil Co., Charlotte.
 North Carolina Agriculture Experiment Station, West Raleigh.

NORTH DAKOTA.

Woman's Club, Ashley.
 Commissioner North Dakota Agriculture Experiment Station, Agricultural
 College.
 Minot Art Club, Minot.

NEW HAMPSHIRE.

Journeyman Barbers' International Union of America, Berlin.
 Friendly Club, Concord.
 Woman's Club, Milford.
 United Garment Workers, Whitefield.
 Irving A. Watson, State board of health, Concord.
 Center Harbor Woman's Club, Center Harbor.
 The Tuesday Club, Dover.

NEW JERSEY.

Amalgamated Sheet Metal Workers, Newark.
 The Woman's Club, Upper Montclair.
 Paragraph Club, Beverly.
 International Longshoremen's Association, Local No. 306, Hoboken.
 Union County Central Labor Union, Elizabeth.
 The Keyport Improvement Association, Keyport.
 Hat Finishers' Union, Local 14, Newark.
 Sunny Rest Sanatorium, Ancora.
 Central Labor Union, Camden.
 Bakery and Confectionery Workers, Atlantic City.
 Atlantic City Printing Pressmen and Association, Atlantic City.
 Woman's Club, West Hoboken.
 Woodbury Civic League, Woodbury.
 Monday Afternoon Club, Binghamton.
 Local No. 45, Sanitary Workers, Trenton.
 Board of Commissioners, Asbury Park.
 Egg Harbor City Tuberculosis Committee, Egg Harbor City.
 R. B. Fitz-Randolph, assistant director department of health of New Jersey,
 Trenton.
 American Pure Food League, Cranford.
 Improvement Society, New Brunswick.
 Department of health, Newark.

NEW YORK.

Columbian Club, Oneida.
 Directors of the Cayuga Preventorium, Ithaca.
 Central Trades and Labor Council, New York City.
 The Equal Suffrage League, New York City.
 Rochester Lithographers' Association, Rochester.

Mothers' Council, White Plains.
 The Coterie of Fayetteville, Fayetteville.
 Monday Club, Saugerties.
 Cohoes Committee for the Prevention of Tuberculosis, State Charities Aid Association, Cohoes.
 Carpenters and Joiners of America, New York City.
 International Wood Carvers' Association, Rochester.
 Amalgamated Meat Cutters and Butchers of North America, Auburn.
 Ulrich Study Club, Brooklyn.
 Kanatenah Club, Syracuse.
 Painters, Decorators, and Paperhangers, New York City.
 Tourist Club, Middletown.
 Central Federated Union, New York.
 Wood Carvers' and Modelers' Association, New York.
 Tug Firemen and Linemen's Protective Association, Buffalo.
 Yonkers Woman Suffrage Association, Yonkers.
 Paperhangers Local Union, No. 490, New York.
 Fortnightly Club, Rockville Center.
 New York Peace Society, New York.
 Consultant in Home Economics, Miss C. Q. Murphy, New York.
 Syracuse Council of Women's Clubs, Syracuse.
 Chas. E. North, The North Public Health Bureau, New York.
Albany Colony of New England Women, Albany.
 J. Simpson, 28 East Main Street, Waterloo.
 Philanthropic Club, Middletown.
 Monday Historical Club, Pulaski.
 Bakery and Confectionery Workers, New York.
 Woman's Club, Glens Falls.
 New York City Federation of Women's Clubs, New York City.
 Daily Food Alliance, New York City.
 Rainy Day Club, New York City.
 Women's Forum, New York City.
 Mothers' Club of Public School No. 20, Port Richmond.
 Women's Civic League, Tarrytown.

OHIO.

Journeymen Barbers' International Union of America, Local No. 500, Fostoria.
 Federation of Clubs, Warren.
 Cosmopolitan Club, Nelsonville.
 Research Club, Youngstown.
 International Association of Machinists, Alliance.
 International Association of Machinists, Newark.
 Deforest Lodge, Iron, Steel, and Tin Plate Workers, Niles.
 The Lorain Federation of Women's Societies, Lorain.
 Iron, Steel, and Tin Workers, Trumbull, No. 3, Warren.
 United Trades and Labor Council, Dayton.
 The Ross County Welfare Association, Chillicothe.
 Teamsters, Chauffeurs, Stablemen, and Helpers, Local No. 100, Cincinnati.
 Electrical Workers, Local No. 12, Newark.
 Central Labor Union, Tiffin.
 Cincinnati Board of Health, Cincinnati.
 International Association of Machinists, Hamilton.
 Nineteenth Century Literary Club, Conneaut.
 Advance Club, Northside, Cincinnati.
 Struthers Reading Circle, Struthers.
 Batavia Woman's Club, Batavia.
 The Tuberculosis Society, Dayton.
 The Crocus Junior Club, Bucyrus.
 The Research Club, Georgetown.
 International Brotherhood of Bookbinders, Canton.

OREGON.

Astoria Reading Club, Astoria.
 Progress Club, Marshfield.
 Woman's Study Club, Coquille.

OKLAHOMA.

Oklahoma Cotton Seed Crushers' Association, Oklahoma City.
Chickasha Cotton Oil Co., Lawton.

PENNSYLVANIA.

American Federation of Labor, Harrisburg.
Sunbury Civic Club, Sunbury.
Woman's Club, Clarion.
Reading Circle of 91, New Castle.
Woman's Club of Kiskiminetas Valley, Apollo.
Shakespeare Club, Tidioute.
Twentieth Century Club, Pittsburgh.
Woman's Club, Bethlehem.
International Brotherhood of Bookbinders, Erie.
Twentieth Century Club, Rochester.
The Civic Club, Waynesboro.
Brotherhood of Painters, Decorators, and Paper Hangers, Local 123, Allentown.
Paper Hangers, Local 123, Allentown.
Musicians Protective Union, Oil City.
The Central Labor Union, Lancaster.
Fort Pitt Telegraphers Club, McKeesport.
Licensed Tugmen's Protective Association, Erie.
International United Brotherhood of Leather Workers, Scranton.
Woman's Culture Club, Connellsville.
Department of health, Beaver Falls.
Woman's Civic Club of Southwest, Greensbury.
The Travelers' Protective Association, Lebanon.
The United Commercial Travelers, Meadville.
S. B. Ament, department of health, district No. 16, Boswick.
New Century Club, Easton.
Consumers' League of Eastern, Philadelphia.
Woman's Club, New Brighton.
Central Labor Union, Erie.
International Union of the United Brewery Workmen, Dubois.
Women's Civic Club, Philadelphia.
Twentieth Century Club, Pittsburgh.

RHODE ISLAND.

The Triangle Club, Kingston.
Frank A. Jackson, chairman board of food and drug commissioners, Providence.

SOUTH CAROLINA.

Barbers' Local No. 14, Greenville.
E. J. Watson, department of agriculture, commerce, and industries, Columbia.

SOUTH DAKOTA.

Britton Study Club, Britton.
History Club of Sioux Falls, Sioux Falls.
The Reading Circle, Canton.

TENNESSEE.

International Association of Machinists, Knoxville.
The Students' Club of Columbia, Columbia.
East Side Civic Club, Nashville.
Kosmos Club, Chattanooga.
Chattanooga Printing Pressmen and Assistants, No. 165, Chattanooga.
United Commercial Travelers, Johnson City.
Painters, Decorators, and Paperhangers of America, Knoxville.
Harry L. Eskew, commissioner of department of food and drugs, Nashville.

TEXAS.

The International Cotton Seed Crushers' Association, Paris.
 The Woman's Club, Waco.
 The Woman's Health Protective Association, Galveston.
 International Brotherhood of Boilermakers, Childress.
 Allied Printing Trades Council, San Antonio.
 Shakespearian Club, Sherman.
 Two and Twenty Club, Stamford.
 Commissioner, food and drug department, Austin.
 The Sesame Club, Marshall.
 Home Science Club, Vernon.
 Civic League, Del Rio.
 The Pierian Club, Amarillo.

UTAH.

United Commercial Travelers, Salt Lake City.
 Commissioner, dairy and food, weights and measures, and hotel departments, Salt Lake City.

VERMONT.

Altrurian Club, Springfield.

VIRGINIA.

In Hoc Signo Vinces Club, Roanoke.
 Old Dominion Citizens' Association, McLean.
 Journeymen Barbers' International Union, Local No. 309, Richmond.
 International Association of Machinists, Lynchburg.
 E. L. Adams Lodge, No. 275, Clifton Forge.
 Village Improvement Association, Berryville.
 E. C. Levy, chief health officer, health department, Richmond.
 Journeymen Tailors' Union, Norfolk.
 International Association of Machinists, Lodge No. 802, Petersburg.
 International Molders' Union, No. 128, Richmond.

WASHINGTON.

Painters, Decorators, and Paperhangers of America, Everett.
 International Association of Machinists, Bremerton.
 Sailors' Union, Aberdeen.
 Woman's Improvement Club, Sultan.
 Woman's Reading Club, Walla Walla.
 Woman's Educational Club, Walla Walla.
 Commencement Bay Lodge, No. 497, Tacoma.
 Woman's Club of Olympia, Olympia.
 The Alpha Club, Burlington.

WEST VIRGINIA.

The Woman's Club, Charleston.
 Monongahela Valley Trades and Labor Council, Fairmont.
 Central Labor and Trades Council, Clarksburg.

WISCONSIN.

Clio Club, Manitowoc.
 Twentieth Century Topic Club, Wauwatosa.
 Oconto Woman's Club, Oconto.
 Musicians' Protective Union, Wausau.
 International Boiler Makers, Ship Builders, Green Bay.
 Eau Claire Trades and Labor Council, Eau Claire.
 Woman's Club, Sheboygan.
 Woman's Club, Lancaster.
 Woman's Club, De Pere.
 Milwaukee Press Assistants, Union No. 2, Milwaukee.
 Bakery and Confectionery Workers, Green Bay.
 Glass Bottle Blowers' Association, Milwaukee.
 Butter, Cheese, and Egg Journal, Milwaukee.

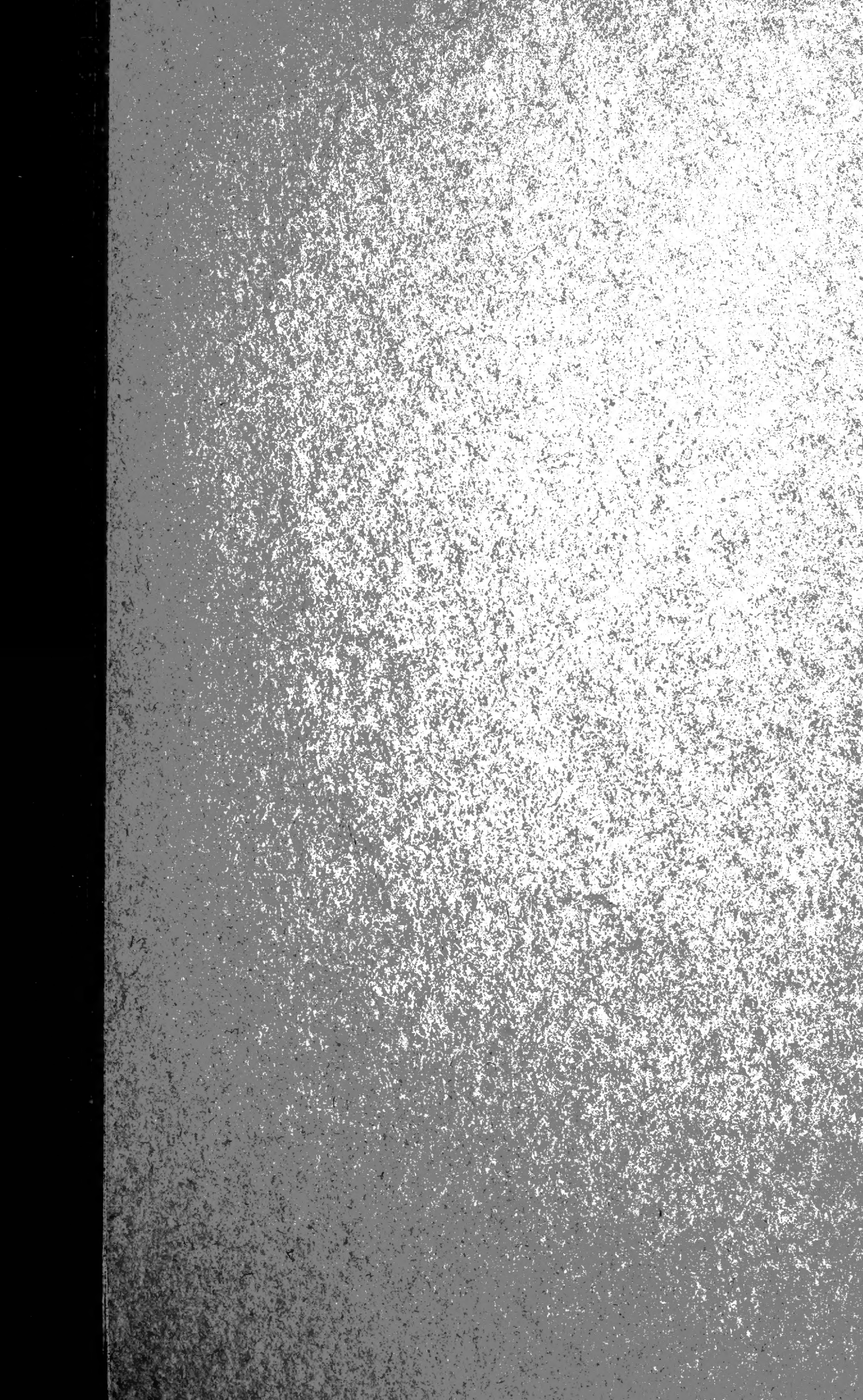


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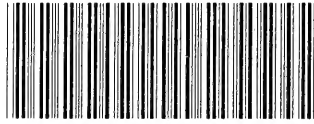
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