

**Tenth annual convention of the Association of State and National Food and Dairy Departments, held at Hartford, Connecticut, July 17-20, 1906.**

**Contributors**

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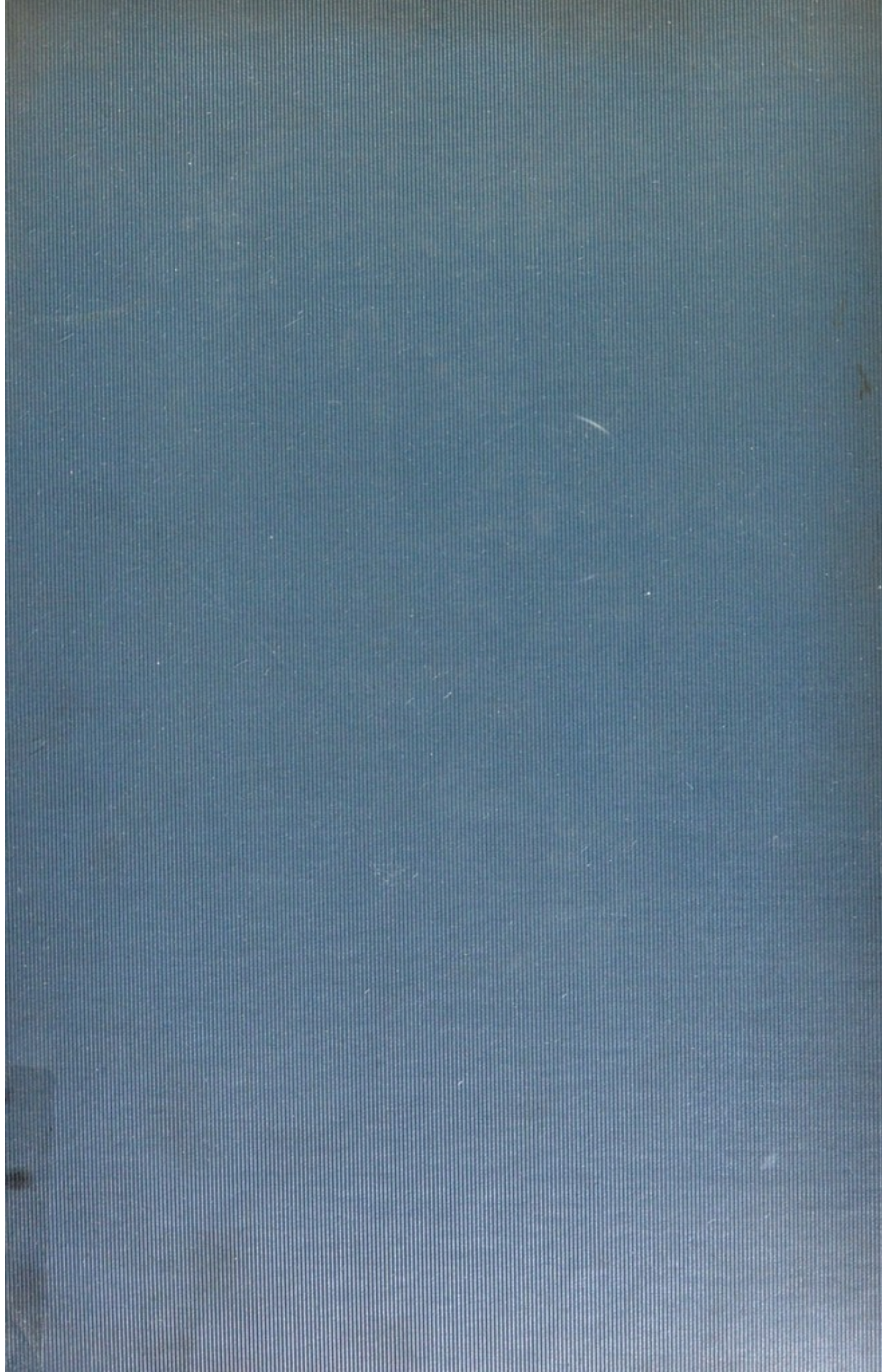
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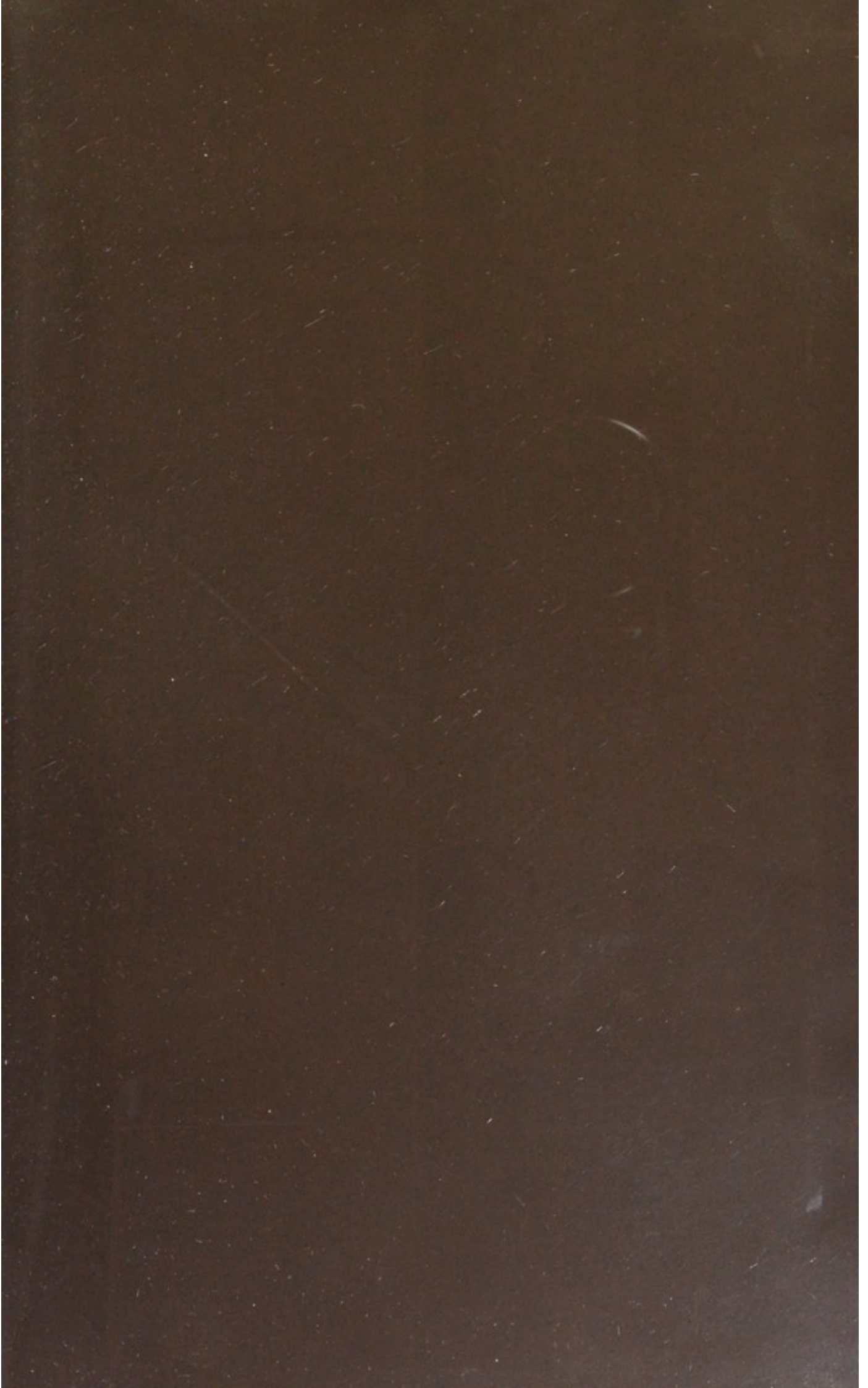
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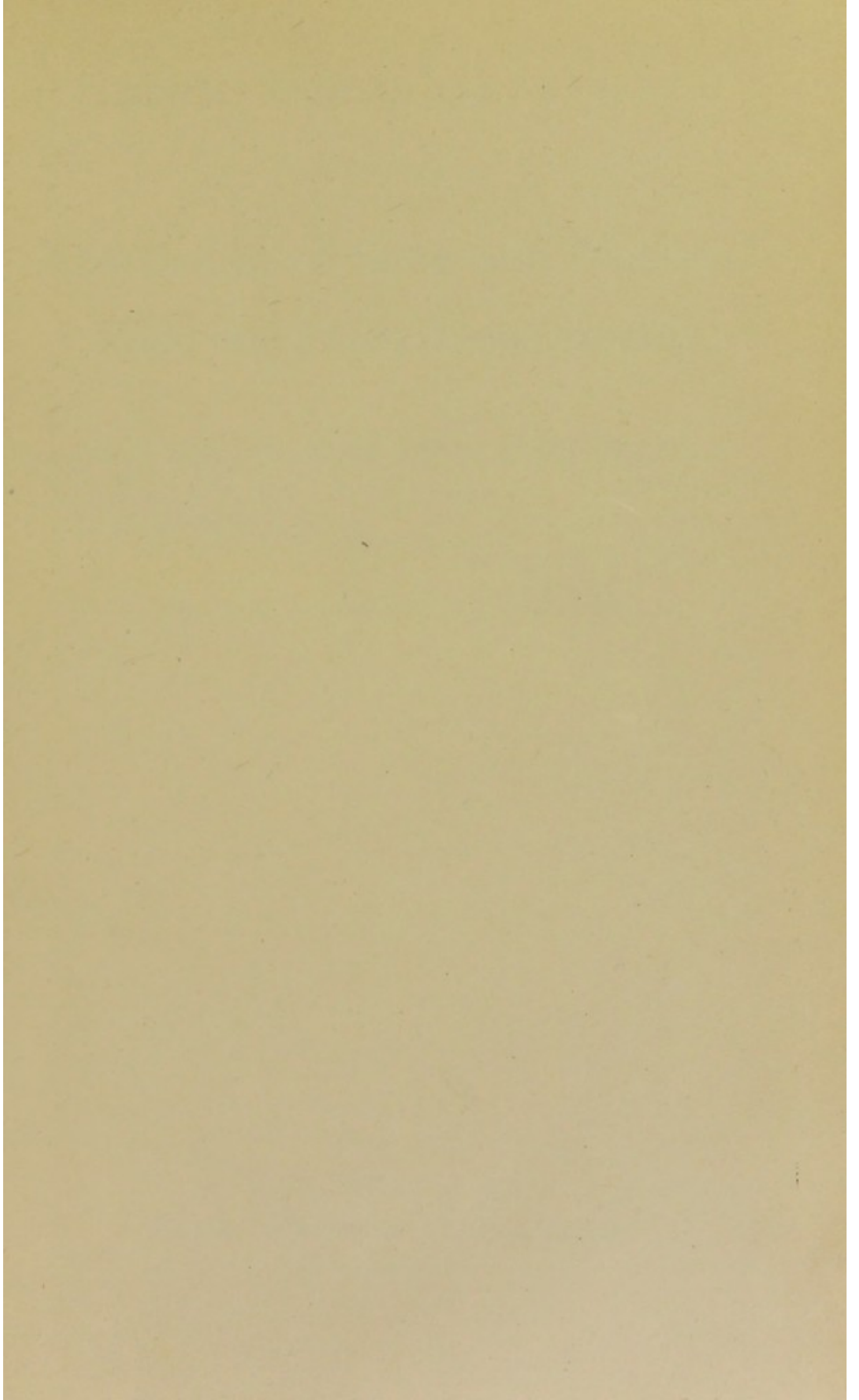


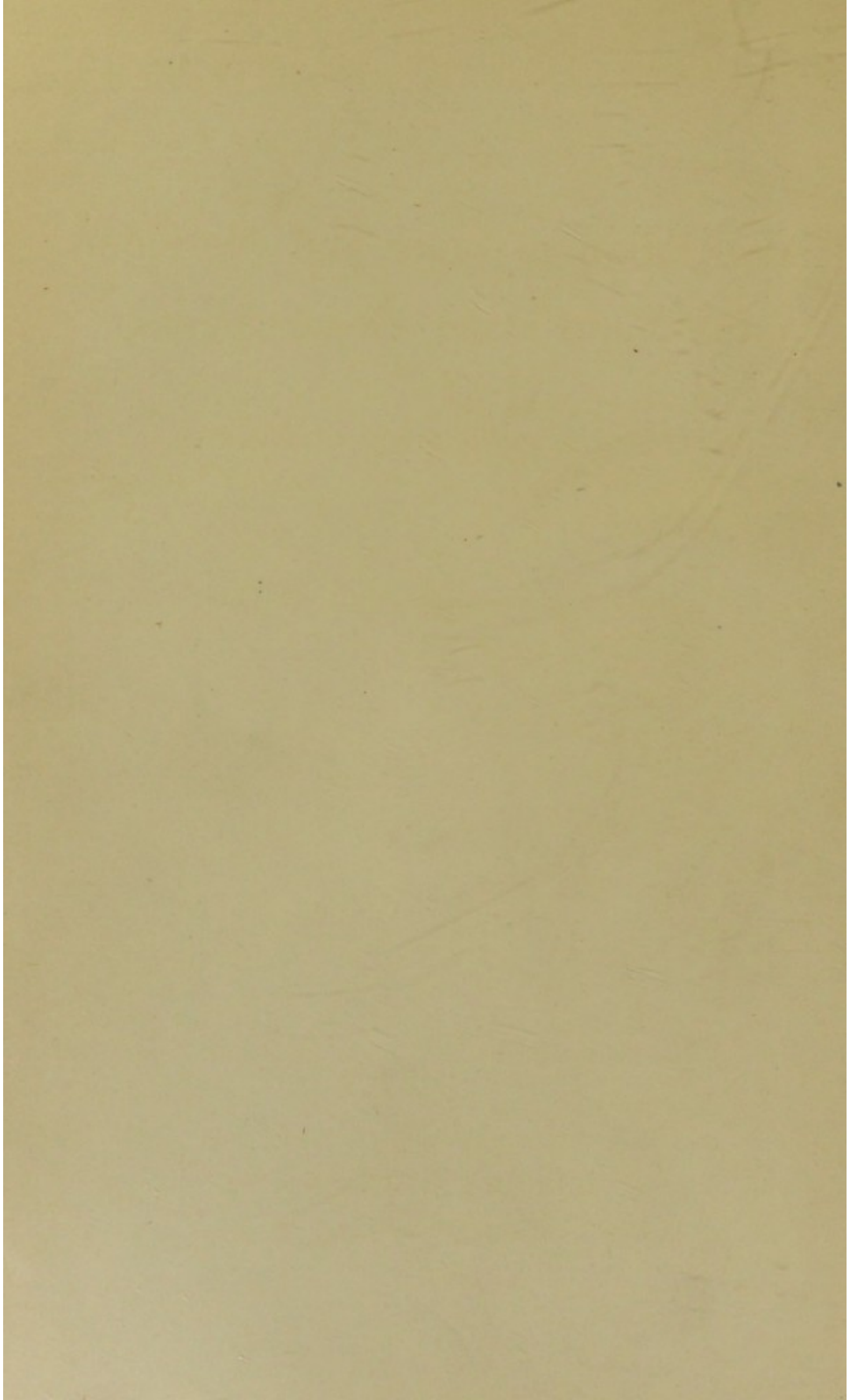


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TENTH ANNUAL CONVENTION

OF THE

Association of State and National  
Food and Dairy Departments

(INTERSTATE PURE FOOD COMMISSION)

HELD AT

Hartford, Connecticut, July 17-20, 1906

NEW YORK

JOHN WILEY & SONS

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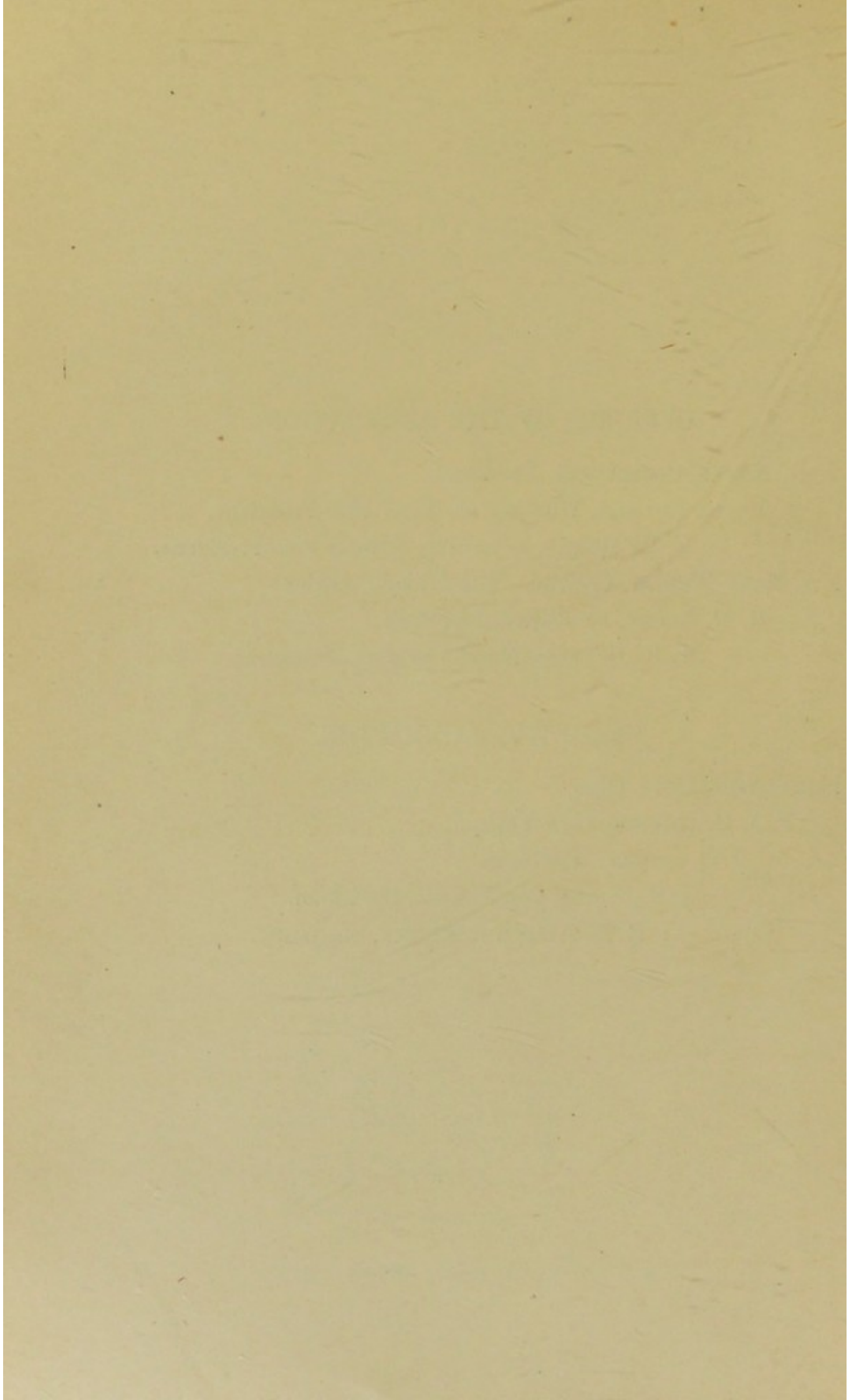
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F. J. H. KRACKE, New York.

J. Q. EMERY, Wisconsin.

J. B. NOBLE, Connecticut, Chairman.

R. M. ALLEN, Kentucky, Secretary.



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HARTFORD, CONN., JULY 17-20, 1906

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THE initial meeting of the Convention was held on Tuesday, July 17, 1906, at which addresses were given by His Excellency Henry Roberts, Governor of Connecticut, (see page 58,) and His Honor William F. Henney, Mayor of Hartford, (see page 59,) with response by Hon. Horace Ankeney, State Dairy and Food Commissioner of Ohio, (see page 60,) followed by an address by the Hon. J. B. Noble, President of the Association, (see page 61,) after which the meeting adjourned.

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Wednesday Morning, July 18, 1906.

Meeting called to order by President John B. Noble.

Appointment of Committee on Resolutions as follows:

|                       |              |
|-----------------------|--------------|
| Hon. J. Q. EMERY      | Wisconsin    |
| Hon. GEO. L. FLANDERS | New York     |
| Dr. RICHARD FISCHER   | Wisconsin    |
| Prof. JULIUS HORTVET  | Minnesota    |
| Hon. E. F. LADD       | North Dakota |

PRESIDENT NOBLE: There should be a Committee on Nominations chosen sometime, and it seemed to me that it might be

well to have this committee arranged for, so that they might have the work in mind. What is your pleasure?

MR. ANKENNEY: It has always been the custom of the Association that the Nominating Committee be appointed by the chair, and I see no reason for its not being done in this case.

PRESIDENT NOBLE: Well, if it is the wish of the Association I will appoint the committee, although I should have preferred that it be chosen by a vote of the Association. If it will be as well I will make the appointment a little later, when I have had time to think it over. Is there any other business to come before the meeting?

SECRETARY ALLEN: I desire to file the records which were not filed yesterday.

PRESIDENT NOBLE: Any other business? If not, we will proceed with our program, "Rulings of Commissioners and Authority Therefor," by Hon. A. H. Jones, State Food Commissioner of Illinois. Commissioner Jones is not present; has any one either his paper or a message from him?

ASSISTANT COMMISSIONER SCHUCKNECHT: Mr. Jones expected to be here up to the very last moment, when some matters came up which required his attention at Chicago. I do not know whether he had a paper prepared or was going to speak to you.

PRESIDENT NOBLE: I received a telegram from Commissioner Jones as follows: "Impossible to come. Extend regrets and good wishes to Association." The next on our program is "Uniform Labelling," by Hon. L. Davies, State Dairy and Food Commissioner, Washington. Has Mr. Davies sent any paper? [None sent.] The next paper in order is "Conflict of State Laws," by Hon. Geo. L. Flanders, First Assistant Commissioner of Agriculture, New York. [Mr. Flanders's paper will be found on pages 68-78.]

MR. F. J. H. KRACKE: The National Pure Food Bill was signed June 30, 1906.

PRESIDENT NOBLE: The next number on our program is "Co-operation between State and Federal Laws," by Dr. M. A. Scovell, Director, Kentucky Agricultural Experiment Station.

## REMARKS OF DR. SCOVELL.

Mr. President, ladies and gentlemen: I am greatly surprised to learn that the gentleman from New York (Mr. Flanders) has paid so little attention to the National Pure Food Bill that he does not even now know whether the President has signed it or not. But I am glad to know that there really are some New-Yorkers who are not politicians, for politicians would know that if the President failed to sign the bill before the adjournment of Congress, it would necessarily fail to become a law.

I believe that co-operation between the State and the national pure food laws will become a great benefit, and especially will the States be benefited by a national law. The first thing that a national law will tend to do is to unify standards and regulations. At the present time we have many State laws, but they differ widely in some respects in their operation, in their regulations, and in their standards. Take, for instance, milk. In some States the standard for fat is 3 per cent, in others  $3\frac{1}{2}$  per cent, and in some still more. The national standard is 3.25 per cent, and I assume that when the law goes into effect these standards will also be used. At the present time in Illinois 3 per cent milk is passed, while in Kentucky milk with only 3 per cent fat would be considered adulterated. Take another instance: glucose fruit-butter is shipped into several States and no one label seems to be sufficient for every State. Some State laws require that the label read "contains glucose." The regulations of another State would compel it to read "imitation fruit-butter"; still another, "adulterated fruit-butter"; and in some States not only must it be labelled "adulterated," but the name and percentage of the adulterant must be given. In the State of Michigan the sale would be prohibited because it would be called "adulterated," and the Michigan law provides that "no adulterated food product shall be sold in the State." In Kentucky, on the contrary, an adulterated article may be sold if it contains no harmful substances and if it is so labeled as plainly to show what it does maintain. Now it is evident that, with a national law being enforced, the tendency will be for the various States to co-operate so far as possible in making uniform standards and regulations. This will



be a great benefit to the people who buy as well as to those who sell. It will save an immense amount to the manufacturer and jobber in dollars and cents and in trouble, for at the present time the manufacturer is compelled in many instances to buy different labels for goods going into different States, and it sometimes happens that the goods thus labelled are mixed in shipping and those containing labels for Ohio, for instance, sometimes go into Kentucky and *vice versa*. This causes delays and loss in sales and much worry.

The effect of the enforcement of the National Pure Food Law will also be a great benefit to the several States in that the State authorities will be able to cite the manufacturer or jobber to appear before the court rather than the retailer, who is often innocently imposed upon. For instance, suppose a manufacturer of grain-vinegar in Cincinnati should sell a barrel of this vinegar as "cider-vinegar" to a grocer in Lexington. Our State law cannot reach the manufacturer. We should have to hold the grocer responsible for selling it as "cider-vinegar," even though it was labelled "cider-vinegar" and guaranteed to him as cider-vinegar, but now under the national law, which goes into effect January 1, 1907, the State authorities in Kentucky can, according to section 5 of the national law, notify the district attorney of the sale of such vinegar as "cider-vinegar."

Still more important will it be for the National Government to co-operate with the State departments. Through the Bureau of Chemistry, the agents, the commissioners, the chemists, and the inspectors of the various State departments might be appointed "special agents" of the Bureau of Chemistry under the law, and thus might be intimately connected in this way with the national department. This would assist the various State departments not only in the enforcement of the law, but it would enable them to do more work, as the funds would undoubtedly be increased by such co-operation.

#### DISCUSSION.

MR. FLANDERS: There is one question which I would like to bring up. I suppose that all of the so-called New Orleans molasses

which we get has been mixed by the producer with glucose or some similar product. Are there any special rulings on this point? Should it be labelled as a syrup? Or is molasses proper? As I understand it, a syrup is a saccharine solution made from the juice of fruits or herbs from which the sugar has not been extracted, and molasses is the sugar which is extracted from such syrup. Now that being the case, is a solution of New Orleans molasses and glucose properly labelled if called a syrup; in other words, is "syrup" a generic term?

DR. SCOVELL: In Kentucky it would not be allowed for sale as New Orleans molasses if it contained 90 per cent molasses and 10 per cent adulterant.

MR. FLANDERS: Is it fair, then, to sell it under the name of the cheaper article, since whatever there was in it of the better quality would make it really better than advertised?

MR. EMERY: I should say no; sell it for just what it is, giving the percentages, thereby being fair to all concerned.

DR. MARCKWORTH: My idea of this thing is to label such products Blend. I agree with Mr. Flanders in his definition of a syrup, but if the article is labelled a blend and the ingredients given, it seems to me that the label not only covers the provisions of the law, but states just what it is.

MR. BURKE: A section of the Iowa Laws calls for the percentages being given on the label.

DR. SCOVELL: We quite often find the label on the front and then the percentages on a small label on the back.

MR. FLANDERS: Since February we have been prosecuting quite a few cases in New York for goods labelled Maple Syrup and containing cane or corn syrup. We have also found them labelled Refined Table Syrup or Canadian Syrup.

DR. SCOVELL: Would you permit it to be sold as Vermont syrup?

MR. FLANDERS: Yes, I think that would be allowed.

MR. BURKE: According to Section 13, Iowa Laws, 231 cubic inches shall weigh eleven pounds.

MR. EMERY: In line with this question I would say that last winter we passed a special law on syrup, requiring that it conform to the national standards.

MR. BURKE: Do you insist upon the percentages of ingredients being given?

MR. EMERY: A request came to us the other day, and my first impression was to say, The United States allows that article to be sold as corn syrup, and why shouldn't we? I do not know but what we shall try to get a law on that particular point. I am

anxious to see everything sold for just what it is, and I am going to fight for that result.

DR. SCO ELL: You would permit it to be sold as corn syrup if the percentages were given, would you not?

MR. EMERY: I claim that if it contains anything which is not according to the standard, it is neither one thing nor the other, and the only way that this can be governed is for the Commissioners to have authority from police power. It does not seem to me that it would be right under the law to sell goods under any other name, and I do not like it. I have in mind now a case where an article was sold under the name of Pride Sorghum, and when it came into Wisconsin we found that it contained 40 per cent sorghum and 60 per cent glucose. We immediately prosecuted the case, and the Pride took a fall; it is now being sold under the name of Glucose Mixture. Glucose is all right as a food product, but let it stand on its own feet.

DR. C. H. IRION of Louisiana: I am very much interested in this subject, and it seems to me that the question could very easily be arranged. In Louisiana, where I come from, we call the syrup the by-product, and the molasses is the sugar after being extracted. You people up here never see New Orleans molasses unless you go down to Louisiana and see it. I think I am perfectly safe in saying that there is more glucose used there than in any other State in the Union. I am interested in the manufacture of New Orleans molasses. All of the syrups on sale in the open markets to-day that are sold as molasses or productions from cane are sold on the basis of mixtures or as glucose, and I think this Association should adopt some ruling governing the manner of adulterations of molasses with glucose, or else the syrup should be plainly labelled as a mixture of glucose and molasses. And also it should be sold for what it is worth; for instance, if a gallon of molasses were worth \$1.00 provided it was 100 per cent molasses, then a mixture containing 40 per cent glucose should be worth only 60 cents per gallon, plus the actual value of the glucose or adulterating mixture. Louisiana has recently passed a pure food law and placed it in the hands of the State Board of Health for enforcement, and I am up here simply to gain new ideas from you people as to our new work.

PRESIDENT NOBLE: Interesting as this discussion is, I think we shall have to continue with our program. The next number is "A Résumé of Food Control Work in America during the Past Year," by Dr. W. D. Bigelow, Chief of the Food Laboratory,

Bureau of Chemistry, U. S. Department of Agriculture. I take pleasure in introducing Dr. Bigelow.

## REMARKS OF DR. BIGELOW.

Mr. President, ladies and gentlemen: I received a request to speak to you on this subject just as I was leaving home, and since that time I have not had access to any records, and I am going to ask leave to file a more detailed paper with the Secretary later on. [No paper received].

PRESIDENT NOBLE: Would any one like to ask Dr. Bigelow any questions?

MISS ALICE LAKEY: What are you going to do when the can bears the name of the jobber instead of the manufacturer and is shipped into your State from another State?

MR. SCHUCKNECHT: The party under whose name the goods are sold stands responsible, and the fact that the jobber's name is on the can is evidence that he recommends and stands behind the goods.

MR. BURKE: Our law states that the name of the packer must be on the label, and we found just this trouble, but we obtained an opinion from our Attorney-General to the effect that if the jobber's name appeared on the label in the place of the packer, the jobber would be responsible and that the law would be covered.

MR. KRACKE: What about fictitious names on the cans in place of the real name of the packer?

MR. BURKE: We do not have any that we know of, but if we do find any we prosecute them.

MR. KRACKE: We find some of them in New York.

PRESIDENT NOBLE: Next is a "Review of Food Work in Foreign Countries," by Dr. A. L. Winton, Chemist, Connecticut Agricultural Experiment Station.

[Dr. Winton's paper will be found on pages 79-84.]

PRESIDENT NOBLE: The next number is "Food Investigations made by the North Carolina Department of Agriculture during the Past Year," by Dr. W. M. Allen, Chemist, North Carolina Department of Agriculture. I would say that I received a letter

from Dr. Allen, to the effect that he had been ill and is unable to appear before you, but I feel sure that Treasurer Bruner will speak for him.

TREASURER T. K. BRUNER: Mr. President, ladies and gentlemen: The first thing I desire to do is to make and file this report of the Treasurer, which I did not do yesterday afternoon. [The report will be found on page 51.]

PRESIDENT NOBLE: You have heard the report of the Treasurer of this Association; what is your pleasure?

SECRETARY ALLEN: I move its adoption.

Seconded by Mr. Kracke. Vote carried unanimously.

TREASURER BRUNER: I have no idea of what Dr. Allen was going to say, and with your kind attention I will read a few impromptu notes which I put in my pocket before leaving, lest I might need them.

PRESIDENT NOBLE: In introducing Commissioner Bruner, I should have also added that he is our great American writer.

[The subject of Mr. Bruner's remarks was "A Few Thoughts for the Good of the Order." See pages 85-87.]

PRESIDENT NOBLE: We have had a very interesting meeting this morning, and the discussion has been very instructive, but we have another session this afternoon which promises to be just as interesting, so I presume we had better adjourn for lunch and then be back promptly at two o'clock. Before we leave, however, there is one thing that I want to say to you. The Hartford Business Men's Association are planning to give you all a little automobile ride through the city to-morrow morning, leaving Hotel Garde at 9 A.M. and then after the ride leaving you at the Capitol, ready for to-morrow morning's session at about 10:30.

Meeting adjourned.

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Wednesday Afternoon, July 18, 1906.

PRESIDENT NOBLE: The meeting will please come to order, and we will take up the program for the afternoon.

MR. ANKENNEY: There is one thing which suggests itself to me and which I would like to bring before the Association before they

proceed to the program. According to the Treasurer's report of this morning, there are \$115.00 in the treasury, which were contributed by the various States. There will be certain expenses—for instance, these pretty badges which we have, the minutes of the meeting, etc.—and I would suggest that each of us buy four of these badges at 25 cents each, and then we shall have just so much more money in our treasury. [Applause.]

SECRETARY ALLEN: I move that Treasurer Bruner be appointed a committee of one to receive these funds.

TREASURER BRUNER: I shall have to beg to be excused from this service, as I leave for Washington to-day. But I would nominate Secretary Allen to take my place as such a committee.

Motion seconded and carried.

PRESIDENT NOBLE: I have just received a letter from the Jamestown Exposition Company, inviting this Association to hold its next annual meeting at Norfolk, Virginia. It has been the custom of the Association to hold its meetings where the expositions are held, in order to secure better rates of transportation, and next year the Jamestown Tercentennial will be held at Hampton Roads, Virginia. However, I will leave this matter for consideration later on. The first on our program for this afternoon is "The Rights of the Consumer," by Mrs. Walter McNab Miller, Chairman Pure Food Committee, General Federation of Women's Clubs. I take great pleasure in introducing Mrs. Miller.

#### REMARKS OF MRS. MILLER.

Mr. President, ladies and gentlemen: It is never well to begin a talk with excuses, but I feel it is only due the dignity of this body to say that the notes which I had prepared with some care for this meeting have gone astray with the gown I hoped to wear. Perhaps it is the discipline of natural consequences for attempting to address a men's meeting that sent *me* a trunk belonging to some man, while my outward adornment and inward thoughts are on the way to California; so I must accept the situation with the best grace possible.

It is a great pleasure to bring to you a greeting from eight hundred thousand women, and to express for them the sense of

indebtedness for the work you have done in securing the passage of the Pure Food Law. We feel it to be one of the greatest legislative measures of the past few years for safeguarding the interests of the home both from the standpoint of health and of ethics.

Well I remember of going, when a child, into my grandmother's attic, storeroom, and cellar, and exclaiming over the wealth of dried herbs, preserves, jams, apples, and vegetables stored away for a whole winter's consumption; but such things are not possible in these later days, save in the homes of the very wealthy or on the farm. The housekeeper of to-day must depend largely on tinned goods for varying her daily menu; and, once given the assurance that such goods are clean, wholesome, and to be had for an honest price, she will welcome each new product as it comes to her hand and let the canning and preserving go the way of other home industries with a thankful heart. This will be the first effect of the Pure Food Law in the home, but the mothers of the country feel that it will do much more than this.

In a peculiar manner mothers feel responsible for the morals and for the ideals of their sons. They try to inculcate a high sense of honor and of fair dealing toward all men, and to send their sons out into the world broad-shouldered, broad-minded, Christian gentlemen. But what happens then? The boy is confronted by so-called *business* standards which say, "Get the best of every man at whatever cost," and one of two things must come: either he remembers and acts on his mother's teaching and is a failure financially, or he says to himself, "Oh, mother means well, but she does not know 'business,'" and straightway adopts the prevailing standard of the men with whom he is thrown in contact.

Now this whole campaign for pure food is nothing more nor less than a struggle for truth and honesty in business matters, and the triumph of the forces working for it we regard as the triumph of right and rejoice over it exceedingly.

The General Federation of Women's Clubs are proud to have helped a little in creating the sentiment which demanded such a law, for while the making of law is a great thing, the making of public opinion is a greater and a more difficult matter.

It was a most inspiring moment, last June, when the General Federation in session at St. Paul joined itself to the National Congress at Washington and demanded in no small voice a share in the legislation of the common nation.

Word had been brought that the Pure Food Bill was dying in committee, and the women did what they could to voice the desire of one half the population of the United States for the passage of the bill. Washington was deluged with telegrams, the delegates of forty-seven different States sending one to each of their congressmen, while other national societies, the Consumers' League, the D. A. R., the Civic League, the Mothers' Congress, etc., sent telegrams joining in the general demand; and can any one suppose that these bodies, unrecognized by the Constitution as they are, failed to influence legislation?

Gentlemen, you can always depend upon us for anything you wish done to further the interests of the home, provided you let us know of your work.

You remember Froebel's idea of education is to be able to find the "interpreting word"—and that is my mission here to-day. *To* you I bring this message from the Federation, that you may never misunderstand our organization as some have done: "We stand for helpfulness and progress, especially in everything pertaining to women and children, and hold the safeguarding of our homes above all else." *From* you I shall take to our members the story of your long fight for America's reputation abroad and for her fair fame at home, of which splendid work, in the past and in the years to come, be assured of the appreciation and interest of the General Federation of Women's Clubs.

PRESIDENT NOBLE: The next on our program is "The Status and Effect of Oleomargarine Legislation," by Hon. P. M. Harwood, General Agent, Massachusetts State Dairy Bureau. Mr. Harwood is not in the room. Has he sent a paper or delegated any one to speak for him? [No reply in behalf of Mr. Harwood.] If not, we will take up the next paper, "City Milk-supply Inspection," by Hon. J. Q. Emery, Dairy and Food Commissioner of Wisconsin.



MR. EMERY: I am not going to talk to you this afternoon about milk as a food, nor am I going into the chemical analysis of milk and show its constituent elements, but rather shall show you some facts which have been brought to my notice by investigations in my State. [Mr. Emery's paper will be found on pages 89-95.]

PRESIDENT NOBLE: The next address is "The Proper Sanitation of Butter-factories," by Mary L. Wright, State Dairy Commissioner of Colorado.

MRS. WRIGHT: I promised to furnish a paper, but I did not promise to read it. If any one wishes to read it, it is here.

MR. ANKENNEY: I admire modesty, but it seems to me that our friend from Colorado has more than her share of it. Before reading this paper I would say that after the programs were printed I received a letter from Mrs. Wright to the effect that she would not have time to prepare a paper on "The Proper Sanitation of Butter-factories," but that if we cared to accept one which she had already prepared on "Cheese-making in Colorado Climate," she would be pleased to send it. It is that paper which I am about to read to you now for her. [See pages 96-104.]

PRESIDENT NOBLE: The next paper is "Color and Antiseptics in Butter," by Hon. E. K. Slater, Dairy and Food Commissioner of Minnesota. [The paper is given on pages 106-108.]

PRESIDENT NOBLE: The next paper is "Whiskey Investigations," by Professor James H. Shepard, State Chemist, South Dakota.

#### REMARKS OF PROF. J. H. SHEPARD.

Mr. President, ladies and gentlemen: About a year ago, at the Portland convention, it was rumored that the Commissioner from South Dakota had a problem on his hands. The State had decided to place its whiskeys and other beverages under the control of the Food Commission. The sum and substance of the new law is to the effect that whiskey should be pure and free from adulteration. The supposition was that the Commission knew everything (which is not true), and in pursuance of duty I took up the analysis of whiskey, and this afternoon it is my purpose to give you a little plain talk of what I have found in this investiga-

tion, since it is quite probable that whiskey and other beverages will rightfully come under the jurisdiction of all the State food departments sooner or later.

To begin with, I would say that there is probably no other article of food which has received so little attention as whiskey, strange as it may seem. It has come down to us from time immemorial without our knowing the constituent parts of it. In England considerable attention has been paid to this subject and much work has been done.

I expected to have some samples of the various classes of whiskey here to-day, but had not sufficient room to pack them upon leaving.

The Bureau of Chemistry of the U. S. Department of Agriculture has been doing a great work along this line. I understand that it has investigated 1000 samples of beverages, and I have been assured by the Chief that these investigations will be published and will be available for our edification as soon as possible. In North Dakota, Professor Ladd has issued a bulletin which is now ready for distribution.

There is one thing that I think I am warranted in saying: that so far our investigations have proceeded along lines in agreement with one another, and, so far as I know, chemists are helpfully co-operating and practically all agree. I think you will find no argument between them.

At the outset it is necessary that we understand that the production of intoxicating beverages is governed by United States laws which have been enacted for the purpose of controlling their production and sale as beverages. Several classes are legitimate, and the question of which to use as a standard was early encountered. This question may not seem very hard to you, but to chemists it did seem so. However, as boys we could always tell which was the best apple-tree because it had the most clubs under it; and as the subject was considered it became evident that some chemists might use one for a standard and some might use another. It was finally decided that we should call first-class whiskey that which was made under government supervision from start to finish, and the finished product kept in government warehouses,

stamped with the government stamp, and allowed to remain in the government warehouses for the purpose of aging. Under these conditions there is no possibility for any admixture to be made, or any adulterants to be put into it, so we have taken this as a standard.

My investigations show that there are four classes of whiskey. The first class is the one above described which is entirely under government supervision; and of this first class several different kinds are perfectly legitimate. The second class is a mixture or blend of two or more of these first-class whiskeys. This second class perhaps ought to have a distinctive name, and in passing I would like to repeat, as I have said before, I believe that this class should always be prefixed by some qualifying adjective. This second class is sold sometimes as "blended whiskey," or at least so I am told by some blending concerns who are making blends from first-class whiskeys. I will say this, however, that there is a lot of this second-class whiskey on the market to-day which is spurious and being offered for sale as the genuine article.

Now as to the third class. This is made by taking a barrel of the first-class whiskey and placing it in two or more barrels, then filling them up with silent spirit or dilute alcohol, and perhaps adding a little caramel for color, or a little something to flavor; we then have several barrels instead of one. Now this is also sold as a blend, but I hold that it should not even be called a blend; it is a "compound," and I would suggest that it be called either a compound or some similar name. Some one has suggested a very good name and called it "stretched" whiskey, which seems to fit the case very well.

Of the fourth class the least said the better. It is really not whiskey at all. It is made of alcohol and water and anything else that the manufacturer may have that he can put in to flavor and color it into a semblance of whiskey. It is purely an artificial whiskey and should most certainly be sold as such.

We have heard a great deal said about the dreadful things that are in whiskey. In taking up this question, with first-class whiskey we meet with a great deal of confusion, since the government manufacturers have competitors of whom they are

none too fond, and who are not afraid to say anything; but as commissioners I think we ought to give everybody fair treatment, and furthermore, whatever courtesies we can, we should grant them when they are really entitled to the claims they make. Because of these confusions which have arisen through diversity of opinion, the American people are in the fog and do not know what whiskey ought to contain. Take the fusel-oil found therein: many claim that twenty-five hundredths of one per cent is as much as good whiskey ought to contain, and it may be that we shall adopt the same standard. It was claimed that the only way to judge whether whiskey is right or not is to take into account solely the amount of fusel-oil; but now the ideas of people have been modified wonderfully. The original idea was that whiskey was alcohol and water, plus a little flavor. But whiskey is more than that. It is a very complex liquid. Our investigations have shown that it contains about 50 per cent each water and ethyl alcohol, some of the higher alcohols, some salts, some acids, some extractives, furfural and aldehydes. There are those who have said that all of these things are impurities; but if you extract all of them, you have left, not whiskey, but simply alcohol and water. These things are really necessary, and the man who makes artificial whiskey appreciates it, and has to use these things before he can get even a semblance of the first-class whiskey which is left in the warehouse for the purpose of aging or maturing. The idea was, among many, that this fusel-oil should be eliminated. Investigation shows that the fusel-oil, in first-class whiskey, increases during the time that the aging is continued.

Another point which I want to bring up is this. It seems that we have a good reason to place the whiskey which is made under government supervision in the first class, from the fact that if we didn't have the first class we could not blend it for the second, nor mix it with other ingredients to make the third class.

Upon the healthfulness of these ingredients I do not care to dwell at this time. This subject is discussed fully in my report to the South Dakota Commissioner on the "constants of whiskey." Somebody tells us that fusel-oil is a poison. So is ethyl alcohol. They all have their toxic values. Our investigations show that

the toxicity is not much in excess of ethyl alcohol, and the probability is that it is nothing like what has been supposed in the warfare that has been going on.

Under our new State law in South Dakota we have the privilege to exclude anything that is adulterated. However, the second-class whiskey, if sold as it should be, is purely a blend and would be allowed in our State.

Of course the first-class whiskey is the most expensive, the second-class a little cheaper, and so on down. All we as commissioners can do with the second- and third-class whiskeys is to see that they are properly labelled; but the fourth-class—this will stand a great deal of watching, for the manufacturer of this product does not consider the public either from the standpoint of health or from a monetary basis. In this latter class are sometimes found wood alcohol, strychnine, and belladonna, and in many cases capsicum is put in to give it the bite, and it seems to me that the United States cannot afford to allow such a thing to go on. We can force the manufacturers of artificial whiskey to label it, and we can, I believe, educate the American people; or perhaps we had better turn this last task over to the women, for we know that they can do it.

#### DISCUSSION.

STRANGER IN THE AUDIENCE (WOMAN): What do you consider the best, or first, class of whiskey is made from, rye, corn, wheat, or rye and corn?

PROF. SHEPARD: In the United States as well as in the old country these various substances are used, and so far as we know they are of equal value, so that when we come to distinguish between them the manufacturer prefixes some word, such as "rye whiskey"; if a mixture of rye and corn, he uses the word which we all know, "Bourbon whiskey." So far as health is concerned there is no difference, and the cost is about the same. In Ireland whiskey is made from potatoes.

STRANGER: I think I am safe in saying that whiskey is made according to law and that the refiners intend to keep it pure; but when it reaches the little groggery that it is mixed with inferior matter. I am ashamed to say that I know quite a little about its manufacture, and do not think that the manufacturer

or refiner should bear the blame if the whiskey has been adulterated before it reaches the consumer.

PROF. SHEPARD: I think that is very true, but the rectifier's license allows one to buy whiskey and also to buy alcohol. I would say right here, however, that I wish we had as much honor among our grocers in my State as we have among our saloon-keepers. We found that the latter were selling some 75 per cent proof whiskey, but just as soon as we advised them of it they stopped, and we have had no further trouble.

MR. BURKE: Don't you think this trouble will continue as long as the United States government sells a rectifier's license?

PROF. SHEPARD: No. It is too simple a matter to tell whether whiskey is anywhere near pure or not.

DR. E. N. EATON: Is it not against the principles for which we have been working to allow it to be sold without specifying the poisons contained therein?

PROF. SHEPARD: I presume you refer to the fusel-oil. While it is in itself a poison, it is associated with alcohol, which is another poison. The malic acid in maple sugar is also an impurity. When these poisons are contained in such small quantities and associated with other poisons, I do not think they should be considered quite the same as poisons associated with foods.

MR. FLANDERS: Fusel-oil is a poison, and I hold that it is just as much a poison when in whiskey in small quantities as when sold by itself.

MR. SCHUCKNECHT: It seems to me that these poisons would not be considered as poisons except when given for medicinal purposes to counteract some poison in the system.

MR. FLANDERS: I think that all the chemists here, and also physiologists if there be any here, will agree with me that a poison is a poison and so considered wherever it may be found; and the very fact of its being given for a medicine shows that the effect which the poison brings about could not be obtained unless it were a poison. For instance, we give strychnine for a heart-stimulant, and it is the effect of the poison which we want to get.

DR. FREAR: If you take that position, acetic acid is also a poison when used by itself, but when combined with the water of vinegar it would certainly not be considered so. I do not mean to say that when strychnine is present in small quantities that the article is not poison. In fact, the matter of food-control is a question of regulation against abuses and not a question of hair-splitting. For instance, if I fall into the water and exclude the air from my respiratory system I should probably drown before long, but because I use water and still keep the air passing in through my

nostrils it does not follow that the effect will necessarily be the same. Another thing that we have to remember is that we have both acids and corrosives, and sometimes it is hard to distinguish between the two.

PRESIDENT NOBLE: If there are no further questions we will take up "Theoretical and Practical Value of So-called Household Tests for Food Adulteration," by Professor Julius Hortvet, Chemist, State Dairy and Food Commission of Minnesota. [This paper will be found on pages 109-120.] I regret very much that we shall not hear the paper prepared by Professor A. L. Kniseley, State Analyst of Oregon, on "New Antiseptics Found in Foods," as on account of illness in his family he is unable to be present this afternoon.

Adjournment.

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Wednesday Evening, July 18, 1906.

COMMISSIONER ANKENNEY: In the temporary absence of President Noble I will call the meeting to order, and we will take up the program for the evening. The first paper on the list is "The Influence of Special Interests in the Enactment and Enforcement of Pure Food Laws," by Mr. Harry Beach Needham of Washington, D. C. [No paper received.]

PRESIDENT NOBLE: The next number on our program is "The Food Law and the Experts," by Dr. H. W. Wiley, the one man who requires no introduction to the American people. [Dr. Wiley's paper is printed on pages 121-135.]

PRESIDENT NOBLE: Before we adjourn I wish to call your attention to the automobile ride of to-morrow morning, and ask that you all be ready at nine o'clock.

Adjourned.

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Thursday Morning, July 19, 1906.

Meeting called to order by Secretary Allen, who announced as the next paper on the program "The Work of the National Consumers' League for Pure Foods," by Miss Alice Lakey, Chairman, Food Investigation Committee, National Consumers' League. [See pages 136-143.]

PRESIDENT NOBLE: The next paper in order is "A Year's Work in Indiana: Conditions Past and Present," by Dr. H. E. Barnard, Chemist, State Board of Health, Indiana. [Dr. Barnard's paper is given on pages 144-149.]

PRESIDENT NOBLE: The next paper is "Misbranding as to Weights and Grades of Canned Food Products," by Hon. E. F. Ladd, Food Commissioner of North Dakota. [See pages 150-156.]

Adjourned.

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Thursday Afternoon, July 19, 1906.

PRESIDENT NOBLE: The meeting will please come to order, and we will take up the program where we left it this morning—"Department Details: Helpful Methods for Inspection," by Hon. E. W. Burke, State Dairy and Food Commissioner of Wyoming.

REMARKS OF MR. BURKE.

Mr. President, ladies and gentlemen: I wish to apologize for not being here this morning when my turn came on the program, but I was given a delightful automobile ride through your charming city, and could not get back in time.

In handling the subject assigned to me, I shall confine myself entirely to the methods which I have been employing in the Northwest.

On September 30, 1903, Chapters 82 and 109, which cover foods, drugs, and drinks, became effective, and it was up to the State chemist to enforce them. Professor Slosson issued Bulletin No. 56, and Professor Knight, our present State chemist, issued Bulletin No. 62, showing our people the condition of food products in our State, and we realized at that time that Wyoming was the dumping-ground for all the other States around us.

Chapter 49, creating the office of dairy, food, and oil commissioner, became a law April 1, 1905, and I was appointed to enforce our present law. I gave our merchants and jobbers six months to dispose of any misbranded or adulterated stock that they might have on hand, and also gave them a chance to get right on the labelling question, as it would have been unfair to begin prosecutions right and left without their having any notice of what was expected of them. I asked our merchants to obtain guarantees for their goods when purchasing same. It took the



greater part of last year to get this law in running order among our people, as I have no assistant or office force and am compelled to cover the whole State for the purpose of inspection, as well as attend to the correspondence.

On the 9th of February of this year I commenced to collect samples, and up to the present time I have had twenty-four cases where they have pleaded guilty, and there are eighteen cases pending at the present time. I am just a Wyoming schoolboy with a determination to carry out the laws as they are given to me.

We have had some discussion in our State over Chapter 82, Article 1, Section 8, which covers compounds and mixtures of food, as we require that the percentage of ingredients be put on label where the value of the product has been lowered or depreciated. This section has caused no end of trouble, but I am standing my ground. I did not make the law, and if the people are not satisfied with what laws they have they must get new legislation, my part is to enforce what laws are given to me to enforce.

Another subject which I wish to take up at this Convention is maple-syrup, as I have had lots of trouble with it of late. Our Section 13 says that maple-syrup or -sugar shall be pure and unadulterated, produced from a maple-syrup or -sugar tree, and 231 cubic inches shall weigh 11 pounds. Our laws were copied mostly from the Ohio laws, and I believe we have done a world of good in our State, considering that we are small; some of the manufacturers try to get the best of us, and can sometimes take advantage, as it takes about sixty days to cover the State. However, as far as I know at the present writing, our merchants are working with me, obtaining guarantees and following my bulletins. I have taken these bulletins into the State among the people, and have distributed them among ladies' clubs, and have tried to obtain addresses of people to whom I could send and scatter them broadcast; I have talked to the people from country schoolhouse platforms. Our bulletins show what the results have been. In this way I have given the people of my State a complete knowledge of what I was doing, and I feel perfectly safe in saying that I can carry 90 per cent of the population of Wyoming with me to-day in my work.

Next year I am going to ask the Legislature for an assistant and also a clerk, and I think that the showing I have made should influence them to grant my request.

Mrs. F. N. Sheik, of the General Federation of Women's Clubs in our State, has been of a great deal of assistance to me.

This has been an up-hill fight for one man, and many manufacturers and jobbers have tried to take advantage, but we are determined to have the best of food in our State and are willing to pay for it. I am very sorry that our State chemist, Prof. H. G. Knight, could not have come with me, for he has spent about one half of his time on the stand with me in the last four months. In one instance where maple-syrup was adulterated and misbranded, the judge not only held the manufacturer for adulterating, but said that the County Attorney should hold him for obtaining money under false pretences.

I do not want to take up any more of your time, and I am no orator anyway, but I am glad to tell you of the work I have been doing in Wyoming, and more glad to get any new ideas I can from you people.

#### DISCUSSION.

MR. F. J. H. KRACKE: I should like to ask the scope of the law under which you work; does it comprise both dairy and food products?

MR. BURKE: It includes food, drugs and drinks, and illuminating-oils, and if there is anything else it doesn't cover, I have not heard of it.

PRESIDENT NOBLE: I introduce Mr. R. G. Evans, of the H. J. Heinz Company who will talk of "Catsup without Preservative."

#### MR. EVANS'S REMARKS.

Mr. President, ladies and gentlemen: Being called upon rather unexpectedly, and not being altogether accustomed to making offhand addresses upon specific subjects, I find myself in a somewhat embarrassing position. I can truthfully say, however, that it is a great pleasure to me to feel that our house is working closely in conjunction with the Food Commissioners of the country in their effort to secure improved methods of food preparation.

We are not only making tomato catsup to-day without arti-

ficial coloring-matter, but since the discussion of this subject at St. Paul a few years ago, we have been putting it up without artificial preservative. We commenced at the outset with a comparatively small quantity—twelve to fifteen thousand dozen, as an experiment—distributing it about the country where it would be subjected to varying climatic conditions. The next year we increased the experimental quantity, and have continued to increase it, until, feeling justified by our success, we are this year packing our entire output—which is larger than ever before—absolutely free from any preservative other than common salt. Whether this denotes progress we leave to you.

We find the present general trend of the trade in preserved foods of nearly all kinds to be in the direction of sealed packages, in preference to their sale in bulk. The average consumer would rather buy a one-pound original package than the same quantity dipped from a barrel or stone crock in the grocery-store. At the same time, the sealed package is tending toward a reduction in size, which aids materially in securing the keeping quantity of the goods without artificial means of preserving.

I believe that most of us who are engaged in food production are sincere in our efforts to secure improvement in quality, and that the quality of canned and preserved goods is better than ever before. I also believe that the untiring efforts of the members of this Association have accomplished this result. I think we all have cause to feel gratified with the progress of the last four years, and as the next four years go by I believe we shall see still greater achievement.

One of the things which we are anxious to see is a uniform standard for labelling. I presume the Committee on Food Standards will determine these formulæ and that the Food Commissioners will do the rest. So far as we are concerned, let us know what you want and we will gladly comply.

There is nothing that I can say upon the subject assigned, other than to tell you what we ourselves have done. We have put out very large quantities of catsup uncolored and without preservative, and have stood ready and have freely offered to refund their money if the people were not satisfied with it.

PRESIDENT NOBLE: We will next hear a few words from Mr. J. D. Miller, Attorney for the Chicago Packers' Association.

## REMARKS OF MR. MILLER.

Mr. President: I did not come here to talk, but to listen and learn, and it is not my belief that I can add anything to what I have heard so ably discussed; however, as stated by Mr. Evans, we, too, stand ready to do what you want us to do for you.

PRESIDENT NOBLE: The next on our list of manufacturers is Mr. J. P. Olney, President of the New York Canned Goods Association. [Mr. Olney's paper is printed on pages 224-231.]

DR. SCOVELL: Mr. President, I move that we proceed to the election of officers.

Carried.

MR. EMERY: I move that we proceed to an informal ballot for him who is to be the President of this Association for the coming year.

Seconded by Dr. Scovell. Carried unanimously.

MR. FLANDERS: As a matter of information I would like to ask how many votes each State is entitled to.

MR. ALLEN: According to the By-laws each State is entitled to three votes. The delegates from each State have usually consulted together and decided upon one to cast the three votes for the State.

DR. BARNARD: Mr. President, what arrangement is to be made as to the District of Columbia, represented by members of the Bureau of Chemistry?

PRESIDENT NOBLE: You have heard the question. What is the pleasure of the Association as to the number of votes to be cast by the District of Columbia?

MR. FLANDERS: I move that the District of Columbia be allowed three votes just the same as any of the States.

Seconded by Dr. Scovell. Carried unanimously.

PRESIDENT NOBLE: Will Commissioner Schucknecht and Commissioner Kracke please act as tellers, and will Secretary Allen please call the roll of States?

REPORT OF TELLERS: There are fourteen States, representing

42 votes, 41 of which are for Commissioner Horace Ankeney for President of this Association for the coming year.

MR. FLANDERS: I move that the Secretary be instructed to cast a ballot for the Association for Hon. Horace Ankeney for President of this Association for the coming year.

Seconded and carried.

SECRETARY ALLEN: I hereby cast the vote of the Association for Commissioner Ankeney, of Ohio, for President of this Association for the coming year.

PRESIDENT NOBLE: If it is the wish of the Association we will proceed to an informal ballot for the Secretary of the Association for the coming year. Will Secretary Allen please call the roll again?

REPORT OF TELLERS: Fourteen States are represented, and 42 votes are cast for Hon. R. M. Allen for Secretary of this Association for the coming year.

MR. EMERY: I move that Commissioner Flanders be instructed to cast the ballot of this Association for R. M. Allen for Secretary of this Association for the coming year.

Seconded and carried.

MR. FLANDERS: I hereby cast the vote of the Association for R. M. Allen for Secretary for the coming year.

MR. KRACKE: I would suggest that the President appoint a Nominating Committee of five, to report to-morrow, for the election of the balance of the officers.

PRESIDENT NOBLE: If it is the wish of the Association I will appoint the committee; but I would like to ask if there would be any objection to my naming the President-elect as chairman of that committee to help choose the balance of the officers with whom he is to work during the coming year.

MR. EMERY: I think that a very happy thought. A good idea.

PRESIDENT NOBLE: Then I will appoint as Nominating Committee:

|                     |          |
|---------------------|----------|
| Hon. HORACE ANKENEY | Ohio     |
| Hon. E. M. BURKE    | Wyoming  |
| Hon. HENRY KRACKE   | New York |
| Dr. M. A. SCOVELL   | Kentucky |
| Dr. R. E. DOOLITTLE | New York |

MR. EMERY: I heard my name mentioned yesterday as a member of a Committee on Resolutions, and I would like to ask who is the chairman, and who the other members are.

PRESIDENT NOBLE: The first name that I called was Hon. T. K. Bruner of North Carolina, and your name was second; but as Mr. Bruner has had to leave, it leaves you chairman of the committee, and I have added Hon. E. F. Ladd. The committee as it stands now consists of

Hon. J. Q. EMERY (Chairman)  
 Hon. GEO. L. FLANDERS  
 Dr. RICHARD FISCHER  
 Prof. JULIUS HORTVET  
 Hon. E. F. LADD

MR. EMERY: I would like, then, to call a meeting of this committee at Hotel Garde at seven o'clock this evening to consider what resolutions there are to be drawn.

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Friday Morning, July 20, 1906.

Meeting called to order by President Noble.

Invitations were read requesting the Association to hold its next annual meeting at Denver, Colo.; Sault Ste. Marie, Mich.; Lexington, Ky.; also reference was made to previous invitation received from Norfolk, Va. Commissioner Wright, of Colorado, promised the Association a good time if they should meet in Denver, and Commissioner Burke, of Wyoming, promised to help her fulfil her promise. Dr. Doolittle said that, since the Association was organized in Michigan, they should be most delighted to have the tenth anniversary there. Mr. Allen thought it was about time that a meeting was held somewhere in the South, and that Kentucky would live up to her far-famed hospitality if the Executive Committee decided in her favor.

SECRETARY ALLEN: I have here a telegram from the National Association of Wholesale Grocers, which reads as follows. (See page 55.)

MR. FLANDERS: I move that we answer that telegram as follows: "This Association has received your telegram, and, so

far as is in its power, will be glad to comply with your desires."

Seconded and carried.

MR. ANKENNEY: I made a suggestion here the other day relative to the sale of badges, and I would like to ask the Secretary how much money he has collected in this way.

SECRETARY ALLEN: Two dollars, one from Ohio and one from Kentucky.

PRESIDENT NOBLE: Connecticut will contribute the badges. And now, if there is no further business, we will proceed with our program for the morning—a paper upon "Formation of Standards," by Dr. William Frear, Assistant Director Pennsylvania Agricultural Experiment Station. [Dr. Frear's paper will be found on pages 172-194.]

PRESIDENT NOBLE: We would like to hear a few remarks from Dr. E. H. Jenkins, Director of the Connecticut Agricultural Experiment Station, on this subject of Formation of Standards.

DR. JENKINS: Mr. President, I have prepared no paper and have nothing to say which you have not already heard in Dr. Frear's paper.

I presume that he has spoken at some length on the question of standards, especially milk standards, and I trust that this Association will have received an idea, from this, of the work that is involved in establishing a standard for even one food product. The committee has been criticised for its slowness, but I do not think they have taken more time than was necessary. Possibly we have been slower than we might have been, but an operation of this kind requires not only the time of the committee but of all interested, and the work is necessarily slow. In Austria seven years were consumed in establishing a set of food standards, and for all they used so much time their standards are not perfect yet. There is a very great work for this Association to take up, and that is the formulation of rulings by the Commissioners under these standards as uniform as possible, for things are chaotic now. There will, of necessity, be some clash in the laws, and we cannot jump in and establish a set of rulings at once, but I hope that this Association will press itself into service with this end in view.

MAJOR WELLS: The point has been raised that the consumer should be considered in these matters. As a matter of information I would like to learn if the milk in New York State as it goes to the creameries is of the same standard as that sold in the streets of New York City.

MR. FLANDERS: I think I am safe in saying that the milk that is peddled in New York City is of equal quality with that sold to the creameries.

MAJOR WELLS: Personally I have grave doubts that this milk sold in New York City would test up to the same standard as that sent to the creameries about the State. In Pennsylvania we have no standards, as I have always fought against it. I once brought prosecution on a case where the test showed 8 per cent butter-fat, which was, of course, something very unusual. The facts were these: the man imagined that I was getting the sample for inspection, so added some cream to it.

DR. WILEY: If you had no standard how could you make this test? You must have some point to start from.

MAJOR WELLS: Couldn't any chemist tell the amount of butter-fat found in a sample of milk, and whether it was in accord with the solids contained in the sample?

DR. WILEY: No; not unless he had some basis to work from.

MR. EMERY: Before the next number on the program, I want to say just a word to the members of the Committee on Resolutions. I recall an anecdote that is told of the association who were framing the Constitution. They had worked hard and accomplished little, when Benjamin Franklin said, "Why can't we all get together and talk it over, and then perhaps we can do something," and I feel this way about the Committee on Resolutions, for I believe that we shall have some matters to consider, and I would ask that you all congregate in Commissioner Noble's office, Room 54, right away, so that we may get to work.

PRESIDENT NOBLE: The next paper is "Harmony of Standards," by Dr. Richard Fischer, State Analyst, Wisconsin. [See pages 195-197.]

MR. EMERY: I move that the suggestion made by Dr. Fischer in his paper be approved by this Association, and that the Presi-



dent decrease the Committee on Food Standards—appointed at Portland last year—from seven to five, to work in conjunction with the A. O. A. C. Committee on Standards.

Seconded by Dr. Scovell.

DR. SCOVELL: Mr. President, as an amendment to the Constitution that will require a two-thirds vote, will it not?

PRESIDENT NOBLE: If it is the pleasure of the Association we will take a vote, constitutionally, by States.

SECRETARY ALLEN: The vote is unanimous and therefore must be a two-thirds vote of the States represented.

PRESIDENT NOBLE: It is a vote. The next number on our program is "Purpose and Legal Status of Standards," by Hon. F. J. H. Kracke, Assistant Commissioner of Agriculture, New York. As Commissioner Kracke has gone back to New York, I would ask if he has either left a paper or delegated Commissioner Flanders or his brother, Henry Kracke, to speak for him?

MR. FLANDERS: I am the bearer of no message from him.

MR. H. KRACKE: I do not know whether he had prepared a paper or was simply going to talk to you, but he was obliged to leave, and he left no paper with me.

PRESIDENT NOBLE: Our next paper is "Purity and Wholesomeness in the Consideration of Standards," by Prof. Elton Fulmer, State Chemist, Washington. [No paper received.]

PRESIDENT NOBLE: The next paper is "Adulteration in Soda-fountain Syrups, Bottled Pops, and other Non-alcoholic Drinks," by Dr. T. D. Wetterstroem, Chemist, State Dairy and Food Department, Ohio.

MR. ANKENNEY: I received a letter from Dr. Wetterstroem in which he gives a number of very good reasons for not being here, but he does state that he has not had time to quite complete his paper, and while I am not authorized to give that as his reason for not being here, I think perhaps it had something to do with it. Perhaps he may send it in later.

PRESIDENT NOBLE: The next paper in order is "Fraud Element in Confectionery," by Prof. C. B. Cochran, State Analyst, Pennsylvania. [No paper received.] This finishes the program for the morning, but as it is still early shall we continue and finish up in one session?

AUDIENCE: Yes.

PRESIDENT NOBLE: The first on our afternoon program is "Adulteration in Extracts and Beverages," by Dr. O. S. Marckworth, Chemist, Dairy and Food Commission, Ohio. [Dr. Marckworth's paper is printed on pages 198-210.]

PRESIDENT NOBLE: The next paper is "Food Control Work in Pennsylvania," by Dr. B. H. Warren, Dairy and Food Commissioner, Pennsylvania. [No paper received.]

PRESIDENT NOBLE: The next paper in order is "Artificial Colors: (a) Injurious or Unwholesome, (b) Fraudulent," by Prof. J. O. La Bach, Chemist, Agricultural Experiment Station, Kentucky. [No paper received.]

PRESIDENT NOBLE: The next paper is "Maple-syrup Adulteration," by Dr. Charles D. Howard, Chemist, State Board of Health, New Hampshire. I see Dr. Barnard here in the room, who originally belonged to us here in New England, but has of late been affiliated with the department in Indiana, and we fully appreciate that what is our loss is Indiana's gain, but I wonder if Dr. Howard has delegated him to speak in his stead.

DR. BARNARD: I have a paper here which Dr. Howard sent me when he found that, on account of illness in his family, he would be unable to be here, the title of which is, "The Use of Sulphurous Acid in Food Products." [Dr. Howard's paper will be found on pages 211-214.]

PRESIDENT NOBLE: Our next paper is "Port Inspection," by Dr. R. E. Doolittle. [This paper is given on pages 215-223.]

PRESIDENT NOBLE: The next paper is "Labelling as to Correct Place of Manufacture," by Hon. E. W. Small, Dairy and Food Commissioner, South Dakota. [Paper not received.]

PRESIDENT NOBLE: We have with us to-day Mr. H. L. Harris, representing the Pacific Coast Borax Co., who is very desirous of saying a few words to you, and we will give him the floor for five minutes which we have left, before the Committee on Resolutions are ready to make their report.

#### REMARKS OF MR. HARRIS.

Mr. President, ladies and gentlemen: It affords me great pleasure, I assure you, to have the opportunity of saying a few

words in defence of borax. I have not heard a word spoken in its defence since the opening of this Convention.

Dr. Wiley, when speaking the other evening, criticised some of the deductions arrived at by Professor Liebreich. Why the doctor did not quote all of Professor Liebreich's final conclusions I do not know. As I have a copy of Dr. Liebreich's Third Treatise on the "Effects of Borax and Boric Acid on the Human System," it affords me pleasure to read the complete conclusions, which will show you that Professor Liebreich does not consider Professor Wiley's report authentic.

#### *Final Conclusions.*

Thus the conclusion drawn from an exhaustive examination of the figures and reports drawn up by Dr. Wiley is that no injurious effect was produced by the administration of the boron preservatives. The symptoms of ill-health noticed during the attendance at the borax-table must be attributed to inefficient hygienic conditions, and to an injudicious mode of administering the preservative, as well as in a few cases to an unsuitable choice of persons for this experiment in spite of medical examination.

1. With regard to weight, Dr. Wiley assumes that a loss of weight resulted. The average loss of 680 grams is so slight that it need not be ascribed to the use of boric acid and borax, but can be explained by chance occurrences at the preservative table. Moreover, a loss of weight does not by any means always mean an injurious influence.

2. The experiments on metabolism were undertaken with no equilibrium of nutrition.

3. The fore periods are too short to prove regularity in feeding.

4. The percentages of nitrogen and phosphoric acid in the food were constantly changing. Consequently

5. It is impossible to decide whether the excretion increased during the preservative period.

6. Dr. Wiley calculates the elimination of phosphoric acid in percentages. This method of reckoning is a fault in calculation when the supply of phosphoric acid is not constant, the more so that Dr. Wiley's figures are obtained promiscuously from positive and negative phosphoric acid balances in the fore periods.

7. On considering the separate tables we see that, in the rise and fall of the elimination of phosphoric acid, there is no connection between the magnitude of the dose of the preservative or the

number of days in the preservative period, and the amount of the elimination of phosphoric acid.

8. The hygienic arrangements were not on a scale to do justice to every individual.

9. The medical supervision and self-supervision were not sufficient for experiments of this kind.

10. The administration of the preservative, that is, of borax and boric acid in capsules, allows of no conclusions as to the effects of borates when added to food.

11. It is not necessary to go into the question of calories. Dr. Wiley's own words explain this best. He says:<sup>1</sup>

"The data are not wholly decisive, but very suggestive."

He does not say why they are suggestive, and he himself adds that his investigations were not exhaustive enough.<sup>2</sup>

12. No lasting injury to health was found in spite of transient disturbances caused by the room used for experiment and the administration of the boron compounds in capsules. On the contrary all the persons declared themselves to be in better physical condition after seven months than they had been before.

Professor Wiley stated in the meeting here last evening that about 5 or 6 pounds of moist food, including water, enters the stomach of the healthy young man (weighing 150 pounds) every day. If one half of one per cent of boric acid be allowed in foods and this allowance is extended to its legitimate conclusion, there would be one quarter of an ounce of boric acid eaten every day. This statement is correct; that is, if every article of solid or liquid food that a person partook of was preserved with borax or boric acid. It is unreasonable to suppose, however, that everything a person eats would be preserved with borax or boron compounds. A healthy person requires four or five pints of water per day, which would be free from any preservative. There is no necessity for preservatives in fresh meat, potatoes, turnips, cabbage, fresh fruit, and vegetables of all kinds; consequently about nine tenths of the food a person naturally partakes of would be free from any preservative whatever.

I do not advocate the indiscriminate use of preservatives in food products. There are some articles of food, however, that it

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<sup>1</sup>L. c., p. 237.

<sup>2</sup>L. c., p. 238.

is essential to preserve. For instance: the fishermen in Gloucester, Mass., learned years ago that, owing to climatic conditions, salt alone would not preserve codfish. A fungous growth presented itself along the backbone of the fish which caused it to be inedible, and could not be prevented by the aid of salt alone. The fishermen discovered, however, that a mixture of salt and boric acid prevented this fungous growth and enabled them to place upon the market a milder, sweeter fish than ever before. Fish cured entirely with salt must be parboiled or soaked overnight before it is edible. Parboiling not only withdraws the salt, it also withdraws much of the nutriment and original flavor. If the Gloucester fishermen could cure fish satisfactorily with salt alone, they certainly would not pay 10 cents per pound for boric acid to preserve their fish, when they can purchase salt for 1 cent or less per pound.

The Department of Agriculture have issued a bulletin to the farmer giving him instructions how to cure meats. The bulletin says: "Salt and sugar or molasses are the preservatives most commonly used and are the only ones necessary for the perfect curing of the finest quality of cured meats." The bulletin then says: "Salt is an astringent, and when applied alone it renders meat very hard and dry. Its action is first to draw out the meat juices. In a few days it will harden and contract the muscle-fibers, thus shrinking the volume of meat."

Under such conditions I do not see how the Department of Agriculture can recommend salt as one of the best preservatives. Salt, being an astringent and withdrawing the meat juices, certainly decreases the nutritive value of meat products that are preserved with salt. The action of borax or boric acid on meats is entirely different from salt. When used in pickled meats it prevents the pickle from withdrawing the albumen from the meat; consequently meats preserved with boric acid are far more nutritious than meats preserved with salt. Borax and boric acid are the mildest alkalines known. They are used very extensively for medicinal purposes and as food preservatives.

Almost every baby soon after it is born has its little mouth washed out with a solution of borax. The nurse, however, has

never been instructed to use precautions to see that the child does not swallow any of it. Every cavity in the human system has been washed out with borax or boric-acid solution with beneficial instead of detrimental results.

Professor Chittenden says that when borax or boric acid is used in the quantities necessary to preserve food it would have a tendency to accelerate the flow of gastric juices, thereby aiding instead of retarding digestion. I presume I have taken more borax into my system than any man in the United States, and I am very careful, I assure you, about what I put into my stomach. For instance, I did not attend the banquet last night—not because I object to banquets, but because I prefer to put only plain, wholesome, nutritious food into my stomach.

The Pacific Coast Borax Company do not object to labels. They would not care if to a package a label the size of this building could be attached showing the world that the contents were preserved with boric acid.

Cold storage, as we well know, is used very extensively for preserving perishable articles of food. The longer an article remains in cold storage, however, the quicker it deteriorates upon its removal therefrom. It seems that the bacteria, which have been held dormant by the low temperature, multiply very rapidly in a favorable temperature, and decomposition begins almost at once.

Borax or boric acid would prevent the propagation of bacteria. A preservative is not necessary when food products are in the hands of the producer or manufacturer, or when they are in the hands of the wholesaler. It is when the food is in the hands of the consumer that it must be in a sweet, wholesome condition, and the advantage of using boron compounds is that food products will reach the consumer in a pure, healthful condition.

We frequently read of persons being poisoned by eating ice-cream. The poison develops in the crevices of the can, owing to an unclean condition existing. If borax were used to cleanse the can, it would certainly prevent the propagation of poisonous germs.

As for the use of sulphurous acid, Dr. Wiley claims that wines cannot be made without its use.

DR. WILEY: I said nothing of the kind. It is bad enough for Professor Liebreich to misquote me, let alone you, who have been sitting right here listening to me. I said it was a question worthy of consideration by this Association as to whether wines could or could not be made without the use of it.

MR. HARRIS: I beg your pardon, Doctor, if I misquoted you. It was not my intention to do so.

In reference to the extensive use of borax and boric acid: the Pacific Coast Borax Company sell hundreds of carloads every year to the pork-packers, who are shipping meat, hams, bacon, and shoulders to England. The English nation demand meats packed in borax, and by its aid it obtains milder, sweeter, more easily digested articles of food than it possibly could do with the use of salt alone. The hams put up for the American market are not edible until they are soaked or parboiled. This process extracts much of the albumen, which is the nutriment; consequently salt-cured articles should be deemed adulterated on account of depreciating the nutritive value of the article preserved with it.

As I said before, the Pacific Coast Borax Company do not object to labelling all articles preserved with boric acid, so that the people can learn by their own palates the benefit of borax or boric acid on food products.

#### DISCUSSION.

SECRETARY ALLEN: What percentage of the business of the Pacific Coast Borax Company would be lost if boric acid were by law excluded from food products?

MR. HARRIS: If it were prohibited in food products, I presume the loss would be about 10 per cent. The pork-packers would still continue to use it on meats prepared for the English market. The enamelling concerns of the country also use a large quantity of borax.

SECRETARY ALLEN: Why is it that if the sale of meats and fish when preserved with boric acid is greater than when put up with salt, the large packers are giving up the use of borax?

MR. HARRIS: I beg your pardon, Mr. Secretary, but I know that the sale of borax to the large packers is greater than ever before in the history of the world.

MR. EMERY: It seems to me that the country ham which we get in the United States is not so unpalatable, and in the days of my boyhood, when our grandmothers used to cure their own hams, it never seemed to be so very unpalatable.

DR. WILEY: I am not going to say anything whatever about Professor Liebreich, for I do not consider it worth while, but I have read a number of letters signed by one H. H. Langdon elaborating upon the filthy condition of the Bureau of Chemistry. I would like to ask Mr. Harris if he is prepared to state that Mr. H. H. Langdon is not paid by the Pacific Coast Borax Company.

MR. HARRIS: I know that Mr. Langdon's name does not appear on the books or pay-roll of the Pacific Coast Borax Company.

DR. WILEY: It may be that his name does not appear on their pay-roll, but I happen to know that he is in their employ just the same. The fact of the case is that Mr. Langdon called at the Bureau of Chemistry, or rather walked in unasked after we had finished the day, and was found looking into a refrigerator where samples of the urine of the young men were kept, and it was of this particular refrigerator that he made so many glaring reports.

MR. HARRIS: Are you sure, Doctor, that there were not also samples of butter in the refrigerator near the door?

DR. WILEY: I am quite sure that the refrigerator that Mr. Langdon was looking in when the watchman found him and put him out is the one in which samples of urine are kept until the analyses can be made—a matter of a few hours.

DR. BIGELOW: May I interrupt you, Dr. Wiley? The refrigerator which Dr. Wiley refers to is very near the door, and at the time of which you speak it contained a few samples of butter which had been analyzed and which were kept in case any question should arise. The samples of urine were put in that night. Close beside this refrigerator, which, by the way, had been discarded for anything else other than the uses as before stated, is a little cupboard or locker in which are kept the paraphernalia used for these tests.

DR. WILEY: Thank you, Dr. Bigelow. Perhaps you think I know nothing whatever about my own business, Mr. Harris, but the gentleman whom you just heard speak is the one who had this particular branch in charge, and I presume he knows a little more about it than does Mr. H. H. Langdon.

I would say right here that the young men who are engaged in the work of the Bureau of Chemistry have just as clean quarters and just as good and as clean food as any person in the United



States; we do not have a marble-cased dining-room, but it is clean and wholesome.

Another point to which I wish to refer in answer to your remarks is a passage which you will find in the *Hartford Courant* of this morning: "Oxide of Iron in British Army Canned Meat. Contractors Fined for Adulterating Food. London, July 19.—Fines were imposed to-day on two army contractors for supplying adulterated and colored foodstuffs for the use of the troops in Hounslow Barracks. The evidence showed that potted ham and brawn sold by the contractors contained boric acid and was artificially colored with pink coal-tar dye and oxide of iron. Experts testified that when meat is beginning to putrefy, the application of boric acid will mask it, and the use of oxide of iron suggested the conclusion that the original color of the meat was not good. One of the defendant firms was Richard Dickson & Co., large manufacturers."

Does this sound to you as if the English people insisted on the use of boric acid in their meats? They have never passed a law even permitting its use, let alone requiring it. A bill was entered asking that one-half of one per cent be permitted, but Parliament has never as yet acted upon the bill, and the probability is that it never will.

MR. HARRIS: In reference to the hygienic condition of the dining-room and kitchen, Professor Liebreich says, in his *Third Treatise on the "Effects of Borax and Boric Acid on the Human System,"* page 6: "In Washington the report was widely spread that these rooms were totally unsuited in their arrangements for such experiments. As no plan of these arrangements is contained in the report, and a description by some critics might be too severe, I took advantage of a stay in Washington to inspect these rooms myself. It cannot be maintained that the dining-room is unsuitable under any circumstances. But considering its use as a table of experiment in which the more delicate observations on appetite and power of digestion are to be included, the rooms cannot but be described as inadequate. The kitchen and dining-room communicate only by a very narrow passage filled with chemicals. As the kitchen is a badly ventilated room, a mixture of chemical and kitchen odors must enter the dining-room. There were further, opposite to the dining-room and only separated from it by a narrow passage, a storage-room for machinery and malodorous oils, and another close to the dining-room and communicating with it. I can well imagine that continuous eating in such rooms would tend to diminish the appetites of young men, especially those who are used to something better,

and lead to the changes in metabolism attendant upon this decrease." \*

In reference to the army canned meat, the fines were imposed on the army contractors on account of the coal-tar dye and oxide of iron, not on account of the boric acid the articles contained. Boric acid under no circumstances can restore tainted or putrefied meats into an edible condition. It must be applied to the article when in a first-class condition.

PRESIDENT NOBLE: If there is no further discussion we will hear the report of the Nominating Committee.

CHAIRMAN ANKENNEY: The Nominating Committee would suggest the following list of names for the respective offices for the coming year:

|                      |                   |
|----------------------|-------------------|
| First Vice-President | E. F. LADD        |
| Second " "           | E. W. BURKE       |
| Third " "            | H. E. SCHUCKNECHT |
| Treasurer            | T. K. BRUNER      |

*Executive Committee.*

|                 |             |
|-----------------|-------------|
| J. Q. EMERY     | Wisconsin   |
| F. J. H. KRACKE | New York    |
| J. B. NOBLE     | Connecticut |

MR. FLANDERS: I move that the Secretary be instructed to cast one vote for the Association for the names as read for the offices for the coming year.

Seconded by Dr. Scovell. Carried unanimously.

SECRETARY ALLEN: I hereby cast the vote of the Association for the adoption of the report of the Nominating Committee.

DR. E. N. EATON: I desire to file with the Secretary the report of the Committee on Food Standards during my incumbency.

Filed.

PRESIDENT NOBLE: Is the Committee on Resolutions ready to report?

CHAIRMAN EMERY: The Committee on Resolutions, to whom was referred a resolution relating to the change of name of this

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\*At all events my observations tally with the report of H. H. Langdon in the English medical journal *The Nation*, Jan. 5, 1905, quoted in the German *Nahrungsmittel-Rundschau*, 1905, No. 4, p 41.

Association, has had the same under consideration and begs leave to report the following resolution and recommends its adoption: [See page 49.] Also your committee begs leave to submit the following resolutions [see pages 49-51] and to recommend their adoption.

Resolutions all passed unanimously.

MR. ANKENY: A suggestion has been presented to me, along the line of financing, that each department pledge themselves to give, say, \$15—some say \$25—toward the publication of the minutes of this meeting and what other expenses may accrue. We want to be assured that we are going to have sufficient funds to print these minutes.

DR. WILEY: I will pledge \$25 for the District of Columbia right now, and if necessary give you my check here.

MR. FLANDERS: In New York State we cannot pledge an amount in this manner. All bills must be sent in, receipted, and after they are approved by the department they go to the Treasurer and he sends the check; but no money is paid out until the Treasurer has his voucher therefor, and you have to receipt your bill before you get your money. But we can make purchases, and I would suggest that the Secretary learn what the books will cost and that each State pledge itself to buy a certain number of copies.

MR. ANKENY: Well, I don't see but what that will answer the purpose just as well if each State buys either \$15 or \$25 worth of the books. I move you that the Executive Committee be ordered to print these minutes at the earliest possible moment and that they obtain prices upon submitting copy and advise each department, so that the funds will be forthcoming by the time the reports are ready to leave the printer's hands.

Seconded by Dr. Barnard. Carried.

MR. FLANDERS: I would like to ask, for my own information, if there is to be any advertising matter in the publication this year.

SECRETARY ALLEN: In order to settle that question once for all, I move you that the proceedings of this meeting be published entirely free from advertising of any sort whatsoever.

Seconded. Carried.

SECRETARY ALLEN: I would also move that the official stenographer be ordered to make a transcript at the earliest possible date, under oath that it is the complete report and the only report or copy made, and send it to the Secretary, making an order on the Executive Committee for the money, they in turn to draw on the Treasurer therefor.

Seconded. Carried.

PRESIDENT NOBLE: I desire, before we close, to thank all of the members of this Association, as well as the Executive Committee, for the hearty co-operation they have given in making this meeting such a success. We of Hartford appreciate the honor that you have conferred upon us by meeting in our city, and we hope that the trip has been sufficiently enjoyable to you that you will all come again.

DR. SCOVELL: I move that we adjourn, subject to the call of the Executive Committee.

Seconded. Carried.

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## REPORT OF EXECUTIVE COMMITTEE, MADE BY THE SECRETARY.

LEXINGTON, KENTUCKY, July 14, 1906.

*To the Interstate Pure Food Commission:*

Gentlemen: As Secretary of the Commission and of its Executive Committee I herewith submit a report of the work of the Association and of the Executive Committee from July 20, 1905, to July 16, 1906.

The Constitution provides that the Secretary shall keep a record of the proceedings of the Association and of the meetings of its Executive Committee. The contract for the report of the 1905 Convention was arranged for by Mr. J. W. Bailey upon the authority of Mr. W. W. P. McConnell as President and myself as Secretary. At a meeting of the present Executive Committee just after the adjournment of the Portland meeting, the bill of Messrs. Lake and Jaquish for printing the minutes was

allowed and ordered paid. Later it developed that the funds from which the Executive Committee expected this bill to be paid had not been paid into the treasury of the Association, and when the minutes were ready for delivery, the Association was without funds. Messrs. Lake and Jaquish drew on me, as Secretary, for the amount, and I offered to advance the payment. This plan, however, was not approved by the majority of the Executive Committee, and the minutes remained in the hands of Messrs. Lake and Jaquish.

The Executive Committee met at the Ebbitt House in Washington, D. C., in November, 1905, at the call of Chairman Noble, to consider business pertaining to the Association, and a report of this meeting is herewith attached. While in Washington the Executive Committee, also the Legislative Committee of the Association, joined a number of those interested in national pure food legislation, in bringing the need of national pure food legislation again to the attention of President Roosevelt, with the request that he recommend same in his Message to Congress. The committee was informed by the President that the subject had been covered in his Message then in preparation. The memorial to the President presented at that time is herewith attached.

It was the work and suggestion of this Association which first brought the need for national pure food legislation to the attention of President Roosevelt in February, 1905. The subject at this time was presented in a memorial prepared jointly by a majority of the Legislative Committee of this Association, by a representative from the National Wholesale Grocers' Association, and by a representative from a manufacturing interest. The subject was also presented orally to the President by a member of the Legislative Committee of this Association. The letter asking for this hearing, together with the signed memorial, is herewith attached. On April 25 the Executive Committee met in Washington to consider plans for this Convention and other matters, and a report of the proceedings of that meeting and a program of the sessions of this Convention are herewith attached.

During the five years of my incumbency as Secretary public interest in the pure food question has grown to such an extent

that one man could well devote all of his time to the duties of this office, which include much correspondence. This correspondence is in the nature of requests both from the public and from the manufacturers. During the time the resolutions of the Association endorsing national pure food legislation have been constantly kept before Congress.

As directed by the Executive Committee, its resolution regarding the affidavits presented by Secretary Critchfield, of Pennsylvania, regarding the unwarranted publication of the Portland, 1905, journal of proceedings, has been given as wide a publicity as it was possible to give.

Yours very truly,

R. M. ALLEN,  
Secretary.

RESOLUTION REGARDING PUBLICATION OF JOURNAL OF  
PROCEEDINGS.

*Resolved*, That the Secretary be and he is hereby instructed to notify members of the Interstate Pure Food Commission and others interested, as follows:

*To whom it may concern:*

This is to give notice that the Executive Committee of the Interstate Pure Food Commission determined at its Washington, D. C., meeting, November 14, 1905, not to publish the proceedings of the Portland, Oregon, meeting. The Executive Committee, for reasons it will make fully known at the next regular meeting of the Commission, having reached this conclusion, desires to inform the public, and those interested, that it is in no way responsible for any publication of partial or imperfect reports, purporting to be "Proceedings of the Portland, Oregon, meeting of the National Association of State Dairy and Food Departments," and that the same wherever found are printed without the consent, permission, or authority of the committee or the Association.

The name of the organization was changed at the Portland meeting, and is now known as the "Interstate Pure Food Com-

mission," and no authorized report of said meeting has been or will be published, and the public will take notice accordingly.

(Signed) By the Executive Committee,

J. B. NOBLE,  
HORACE ANKENY,  
F. J. H. KRACKE,  
R. M. ALLEN,  
J. Q. EMERY.

WASHINGTON, D. C., April 25, 1906.

PROPOSED AMENDMENT TO BE INSERTED ON PAGE 17 \* AT END OF SECTION 3, AND MADE A PART THEREOF:

*Provided*, That in order to secure uniformity in methods of inspection and analysis of such samples, and promote collaboration between the State and national authorities in order to secure a greater efficiency of the food and drug laws and provide for mutual assistance, the Secretary of Agriculture is authorized to invite the officials charged with the enforcement of the food and drug laws of the various States to assemble, without expense to the Federal Government, at such times and places as he may deem proper for purposes of conference and counsel on all matters pertaining to the execution of said laws.

Approved,  
H. W. WILEY,  
Chief Bureau of Chemistry,  
United States Department  
of Agriculture.

Approved,  
J. B. NOBLE, Chairman,  
HORACE ANKENY,  
R. M. ALLEN, Secretary,  
Legislative and Executive Committee  
Interstate Pure Food Commission.

Approved,  
JAMES WILSON,  
Secretary of Agriculture.

STATEMENT PRESENTED TO THE PRESIDENT ASKING FOR MESSAGE TO CONGRESS IN BEHALF OF PURE FOOD BILL.

*The President:*

The undersigned, representatives of the State Food Commissioners, of the Consumers' League, American Medical Association,

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\* Food and Drug Laws.

and of the National Federation of Women's Clubs, respectfully represent:

First, that the interstate commerce in adulterated, misbranded, and imitated foods and drugs is of such a character that it cannot be properly controlled by State legislation alone, and that a federal law, fair to all interests and with full protection to the consumer, is needed to supplement the State laws in order to require all food and drug products intended for interstate commerce to be truthfully labelled, and to be labelled to show whenever any adulteration has been added or practiced in the preparation.

Second, that attempts to secure such legislation have been made in Congress during the past twenty years without success, and that such legislation is desired by the consumers, by those who have had to deal with the problem of controlling the adulteration and misbranding of food products, and by all of the food and drug interests whose success in business does not depend upon a continued deception of the people.

Third, that a proposition to truthfully label food products and to label them to make public whenever an adulteration has been added or practiced in the preparation is a proposition too fair to be denied, and we believe that such honest labelling will control the evils of adulteration and misbranding which have grown up in the commerce of foods and drugs.

The attention of the President is called to the accompanying exhibits which show the strong public demand for this legislation, and for facts he is referred to the investigations of the United States Department of Agriculture and of the State Food Commissioners, and the committee respectfully petition the President to recommend the passage of a law to control the interstate shipment of adulterated and misbranded foods and drugs in his coming Message to Congress.

-Respectfully,

(Signed) J. B. NOBLE, President Interstate Pure Food  
Commission; Food Commissioner, Connecticut;  
HORACE ANKENY, Food Commissioner, Ohio;  
Executive Committee Interstate Pure Food  
Commission;



T. K. BRUNER, Secretary Board of Agriculture,  
North Carolina;

ALICE LAKEY, Pure Food Committee, National  
Consumers' League and Federation of Women's  
Clubs;

Mrs. F. V. COLVILLE, Twentieth Century Club;  
E. F. LADD, Food Commissioner, North Dakota;  
M. A. SCOVELL, Director Kentucky Experiment  
Station;

R. M. ALLEN, Secretary and Executive Officer,  
Food Division, Kentucky Experiment Station;  
Secretary Interstate Pure Food Commission;

LOUIS LIVINGSTON SEAMAN, M.D., LL.B., late  
Major and Surgeon U. S. V. E.; Fellow New  
York Academy of Medicine;

Dr. C. A. L. REED, Chairman Committee on  
Legislation, American Medical Association.

Joined in memorial by telegram.

WASHINGTON, D. C., Nov. 16, 1905.

STATEMENT PRESENTED TO THE PRESIDENT OF THE UNITED  
STATES, FEBRUARY 9, 1905, IN BEHALF OF PURE FOOD  
LEGISLATION.

1. The Purpose of the Law. The object of the bill now pending before the United States Senate is to regulate interstate commerce in adulterated, misbranded, and unwholesome foods and drugs. The definition of foods is established so as to include not only all substances known as foods, but, in addition thereto, beverages, condiments, and all substances entering into them or into foods.

2. The Necessity for Such a Law is illustrated by the extent of adulteration which is practiced in all branches of the food and drug trade, and also from the effects of unwholesome articles added to foods on health and digestion.

3. The various laws which have been enacted by the different States—and almost every State has food laws—need the unifying principle of a national law to render them properly effective. It is evident that the State laws will be made to agree with the national law in definitions and general principles, differing only

therefrom in methods of execution. The enactment of a national law, therefore, will be beneficial to State officials and especially to manufacturers, who will find uniform legislation in the different States instead of different requirements in each State as at present obtains.

4. The widespread adulteration and misbranding of foods have a tendency to prejudice the people against all manufactured foods and to that extent injure every honest food producer, manufacturer, and dealer.

5. Efforts to secure national legislation have been constantly made since 1889. Numerous bills have been introduced, both in the Senate and the House. One of the earlier bills, known as the Paddock Pure Food Bill, passed the Senate but failed to pass the House. During recent years two bills have passed the House but so far have failed in the Senate. The pending legislation is endorsed by two National Pure Food Congresses, by eight Annual Conventions of State Dairy and Food Departments, by five Annual Conventions of the National Retail Grocers' Association. It is being urged by the American Medical Associations, Boards of Health, Labor Organizations, Consumers' Leagues, and Agricultural Societies, and the public and trade press, by all consumers, and by nearly all the great industries affected by its provisions. It is opposed only by those interests whose success in business depends upon a continued deception of the people respecting the character of the goods they consume.

6. The work of the various State officials in charge of food regulation, the researches carried on by the various State chemists and hygienists, and the investigations conducted by the U. S. Department of Agriculture, upon which the legislation now pending has been based, show the urgent need of national legislation.

7. The decisions of the State courts in upholding the constitutionality of food laws, and the U. S. Supreme Court in affirming the constitutionality of the regulations made by the Secretary of the Treasury respecting the standards of imported teas, show that the provisions of the pending bill are thoroughly constitutional and in harmony with the decisions of the highest courts in the land. At present, national legislation relating to foods consists of inspection of imported food products and of authority conferred upon the Secretary of Agriculture to establish standards of purity for food products. The pending legislation will extend this authority to interstate commerce in food products and thus place our own manufacturers and dealers upon the same basis as those in foreign countries. The enactment of the pending legislation will be beneficial to all classes of our citizens, producers,

manufacturers, and wholesale and retail dealers in foods, and especially to the consumer, guaranteeing to him a purity and genuineness and freedom from unwholesomeness of the articles of food which he and his family consume.

(Signed) J. B. NOBLE, President,  
National Association of State Dairy and Food Departments,  
Hartford, Conn.

HORACE ANKENNEY, Legislative Committee,  
National Association of State Dairy and Food Departments,  
Columbus, Ohio.

A. W. FARLINGER, President,  
National Retail Grocers' Association, Atlanta, Ga.

SEBASTIAN MUELLER, Representative of Manufacturers,  
St. Louis International Pure Food Congress, Pittsburg, Pa.

R. M. ALLEN, Secretary,  
National Association of State Dairy and Food Departments  
and International Pure Food Congress, Lexington, Ky.

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### RESOLUTION.

The following resolution was unanimously adopted at the International Pure Food Congress, St. Louis, Mo., September 26–October 1, 1904:

*Resolved*, That the International Pure Food Congress and the National Association of State Dairy and Food Departments, assembled in its Eighth Annual Session, September 26–October 1, 1904, at Congress Hall, on the Louisiana Purchase Exposition Grounds, at St. Louis, Mo., hereby records its endorsement of the Hepburn Pure Food Bill, H. R. 6195, as passed January 19, 1904, by the United States House of Representatives, and most urgently requests the passage of the same by the United States Senate.

#### GENERAL COMMITTEE ON RESOLUTIONS.

J. W. BAILEY, President of the Association and Chairman of the Congress, ex-officio.

A. H. JONES, Commissioner from Illinois, Chairman.

CHEVALIER G. ROSSATTI, Representative from Italy,  
Chairman, Committee on Future International Conference.

M. A. SCOVELL, Director Kentucky Experiment Station,  
Chairman, Committee on Uniform Interstate and International Standards.

H. W. WILEY, Chief United States Bureau of Chemistry,  
Chairman, Committee on the Use of Antiseptics and Color in  
Foods.

J. B. NOBLE, Commissioner from Connecticut,  
Chairman, Committee on Alcoholic Beverages.

HORACE ANKENNEY, Commissioner from Ohio,  
Chairman, Committee on Baking Powders.

ALBERT E. LEACH, Director Laboratory Massachusetts State  
Board of Health,  
Chairman, Committee on Drug Adulteration.

J. Q. EMERY, Commissioner from Wisconsin,  
Chairman, Committee on Legislation.

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### REPORT OF COMMITTEE ON RESOLUTIONS.

The Committee on Resolutions, to whom was referred a resolution relating to the change of name of this Association, has had the same under consideration and begs leave to report the following resolution and recommends its adoption:

*Resolved*, That Article L of the By-laws of the Interstate Pure Food Commission be and hereby is amended so as to read as follows:

Article L. Name. The Association shall be known as The Association of State and National Food and Dairy Departments.

Your Committee on Resolutions begs leave to submit the following resolutions and recommends their adoption:

*Resolved*, That this Association hereby expresses its appreciation of the great work performed by Mr. Adams as Dairy and Food Commissioner of the State of Wisconsin, as a member of this Association, and as a member of the Congress of the United States, that he was untiring in his efforts to produce results as an executive officer, as a member of this Association, and as a legislator in the interest of the great consuming public. That in these efforts he knew no compromises except such as the exigencies of the minute imperatively demanded in order that the object aimed at might have full fruition.

*Resolved*, That in his death the cause which this Association

represented, the cause for which he always stood, has met with an irreparable loss.

*Resolved*, That these resolutions be spread on the minutes of this Association, and that a copy be sent to the family of the deceased.

*Resolved*, That this Association rejoices that its ten years of persistent efforts to secure the passage of a National Pure Food Law have been crowned with success by the enactment by the Fifty-ninth Congress of such a law, and the thanks of this Association to that Congress are hereby recorded for that legislation. We pledge this Association to continued efforts to secure such further legislation as may be found necessary to strengthen the effectiveness of that law in accomplishing the purposes for which its enactment has been urged.

*Resolved*, That this Association most cordially appreciates and commends the attitude of his Excellency the President of the United States and of the Honorable the Secretary of Agriculture toward national pure food legislation.

*Resolved*, That the hospitality extended to us has far exceeded all the assurances given us by his Excellency the Governor of Connecticut and his Honor the Mayor of the city of Hartford, in their addresses of welcome, and has given not only a practical realization but also a new conception of New England hospitality. The automobile ride through the charming and historic city of Hartford, and the most enjoyable banquet at the Hotel Garde, furnished by the Hartford Business Men's Association, will remain with us as a delightful memory; and for these and other courtesies we hereby extend to the Business Men's Association and the citizens of Hartford our most hearty thanks.

*Resolved*, That the hospitalities and courtesies extended to us by the managers of the Hotel Garde have added greatly to our comfort and pleasure and have been all we could ask or wish; and that for the courtesies of the State authorities in extending to us the use of their beautiful Capitol, we extend our thanks.

*Resolved*, That the thanks and good-will of this Association are hereby extended to our retiring President, Hon. John B. Noble, and to the other officers for their faithful and disinterested services.

*Resolved*, That we hereby record our hearty appreciation of the painstaking and sympathetic services of the press in reporting the proceedings of this Convention.

Respectfully submitted,

J. Q. EMERY,  
G. L. FLANDERS,  
JULIUS HORTVET,  
RICHARD FISHER,  
E. F. LADD.

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## REPORT OF THE TREASURER.

### RECEIPTS.

1905.

|  |                 |
|--|-----------------|
| Sept. 23, F. J. H. Kracke, for New York. . . . .   | \$10.00         |
| Sept. 23, Horace Ankeney, for Ohio. . . . .        | 10.00           |
| Sept. 26, H. B. Warren, for Pennsylvania. . . . .  | 20.00           |
| Sept. 27, J. B. Noble, for Connecticut. . . . .    | 20.00           |
| Oct. 5, A. F. Hitt, for Idaho. . . . .             | 10.00           |
| Oct. 9, L. Davies, for Washington. . . . .         | 5.00            |
| Oct. 12, C. E. Nugent, for North Dakota. . . . .   | 10.00           |
| Oct. 13, J. Q. Emery, for Wisconsin. . . . .       | 10.00           |
| Oct. 16, T. K. Bruner, for North Carolina. . . . . | 10.00           |
| Oct. 18, Horace Ankeney, for Ohio. . . . .         | 10.00           |
| Total. . . . .                                     | <u>\$115.00</u> |

This amount is deposited in the Commercial and Farmers' Bank, Raleigh, N. C., subject to the order of the Association.

Respectfully submitted,

T. K. BRUNER, Treasurer.

RALEIGH, N. C., July 5, 1906.

RESOLUTIONS OF THE NATIONAL PICKLE-PACKERS'  
ASSOCIATION

IN CONVENTION ASSEMBLED AT CHICAGO, ILL., JULY 18, 1906.

1. *Whereas*, In our business in the United States, of packing pickles, catsups, preserves, jellies, fruit butters, mince meats, condiments, etc., *there is invested*, in our opinion, in grounds, buildings, plants, machinery, salting-station, and capital, an amount *not less than* one hundred million dollars (\$100,000,000.00); and

2. *Whereas*, In our sweet pickles, catsups, fruit butters, mince meats, etc., we have continuously used some kind of preservative (preferably benzoate of soda), and do now continue to use same; and

3. *Whereas*, In our long experience it has not, in any case, come to our knowledge that any one has been injured in health by eating our wares so preserved; and

4. *Whereas*, In our opinion, such foods so preserved are more beneficial to the consumer and less injurious to health than foods not so preserved, and whose condition is, therefore, more doubtful in the matter of preservation; and

5. *Whereas*, A large majority of the scientists of the country believe that the moderate use of preservatives is in no way injurious to health; and

6. *Whereas*, With few exceptions, the Food Commissioners of the different States permit the use of preservatives in such foods as require same, *as not injurious to health*; and

7. *Whereas*, The elimination of preservatives in food products would be destructive of so much of our business as requires same, as indicated above; and

8. *Whereas*, It is highly important that the rules and regulations for carrying out the provisions of the Pure Food Laws themselves should be uniform throughout the United States; and

9. *Whereas*, This Association, as early as December 9, 1905, unanimously endorsed a National Pure Food Law, and is glad that same is now upon the statute-books of the National Congress.

NOW, THEREFORE, BE IT RESOLVED BY THIS ASSOCIATION:

(a) That we hereby give unanimous utterance to the provisions of the foregoing statements;

(b) That we ask the departments at Washington to consider same in the formation of rules and regulations and in the interpretations given the Pure Food Law;

(c) That we ask the Food Commissioners of the different States to adopt such rules and regulations for the States as may be promulgated at Washington, so far as same may be compatible with their own laws—to the end that same be uniform throughout the land; and

(d) That the lawmakers of the different States are requested to adopt the National Law for the State Law, to the end that food manufacturers may have one law and one set of regulations and rules with which to comply instead of forty-six (46), as would be if each State has a Pure Food Law of its own;

(e) That a copy of these regulations be forwarded to the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor at Washington, D. C., and to each Food Commissioner in each State in the Union having such a Commissioner.

The members of this Association are as follows:

Keokuk Canning Company, Keokuk, Iowa.

Keokuk Pickle Company, Keokuk, Iowa.

Glaser, Kohn & Company, Chicago, Ill.

S. M. Dingee & Son, Evanston, Ill.

Stafford & Richardson Company, Chicago, Ill.

Squire Dingee Company, Chicago, Ill.

Benton Fruit Products Company, Benton Harbor, Mich.

C. F. Claussen & Sons, Chicago, Ill.

Williams Brothers, Detroit, Mich.

Milwaukee Pickle Company, Wauwatosa, Wis.

Manning & Slater Pickle Company, Des Moines, Iowa.

P. Hohenadel Jr. Company, Janesville, Wis.

J. Wagoner, St. Louis, Mo.



Globe Pickle Company, St. Louis, Mo.  
Dodson-Braun Manufacturing Company, St. Louis, Mo.  
Budlong & Company, Chicago, Ill.  
Haarmann Brothers, Omaha, Neb.  
J. Weller Company, Cincinnati, Ohio.  
Marshall Vinegar Company, Marshalltown, Iowa.  
Ottumwa Pickle Company, Ottumwa, Iowa.  
Meringo Pickle Company, Meringo, Ill.  
Knox Pickle Company, Chicago, Ill.  
William Henning, Chicago, Ill.  
Amason Vinegar and Pickle Company, Davenport, Iowa.  
M. A. Shaw Company, Chicago, Ill.  
Otto Kuehne Pickle Company, Topeka, Kan.  
Bloomington Pickle Company, Bloomington, Ill.  
Kuner Pickle Company, Denver, Colo.  
William H. Bunge Company, Chicago, Ill.  
Freestone Pickle Company, Benton Harbor, Mich.  
Canton Pickle Company, Canton, Mo.  
M. A. Gedney Pickle Company, Minneapolis, Minn.  
Hyman Pickle Company, Louisville, Ky.  
William H. Vaughan & Company, Detroit, Mich.  
Laughlin Brothers Company, Napanee, Ind.  
Reid, Murdoch & Company, Chicago, Ill.  
E. G. Dailey Company, Detroit, Mich.  
Cruikshank Brothers Company, Allegheny, Pa.  
Bause Brothers, Chicago, Ill.  
William Cordes, Chicago, Ill.  
Hirsch Brothers Company, Louisville, Ky.  
Libby, McNeill & Libby, Chicago, Ill.  
Buetal Pickling and Canning Company, Bay City, Mich.  
J. H. Dun, Fort Smith, Ark.  
Block Horn & Company, Kansas City, Mo.  
Elgin Pickle and Preserve Company, Elgin, Ill.  
Knadler & Lucas, Louisville, Ky.  
Burlington Vinegar and Pickle Company, Burlington, Ia.  
American Vinegar Company, Milwaukee, Wis.  
Windsor Pickle Company, Windsor, Mo.

Central Pickle Company, Peoria, Ill.  
M. Wolff & Son, Chicago, Ill.  
Rahn & Tofall, Quincy, Ill.  
B. F. Gentzch Sons, Buffalo, N. Y.  
Brumm & Brumm, Middleton, Wis.  
J. S. Budlong Company, Providence, R. I.  
Leroux Cider and Vinegar Company, Toledo, Ohio.  
Pickarts Vinegar and Pickle Company, Leavenworth, Kan.  
Pressing & Orr Company, Pittsburg, Pa.  
W. S. Collins Company, Elsbarry, Mo.  
Island City Pickle Company, Creston, Ohio.  
F. A. Kuehle & Sons Company, Murphysboro, Ill.

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## RESOLUTIONS OF THE NATIONAL WHOLESALE GROCERS' ASSOCIATION.

CHICAGO, ILLINOIS, July 19, 1906.

*President of National Association of State Dairy and Food Departments, Hartford, Connecticut:*

*Whereas*, Various State legislatures and the National Congress have enacted laws regulating the manufacture, sale, and transportation of food products; and

*Whereas*, The several State Food Commissioners have adopted rulings for the enforcement of the laws in their respective States; and

*Whereas*, Rules and regulations for the enforcement of the federal statute are now about to be framed; and

*Whereas*, In order to avoid unnecessary interruption in commerce it is desirable that the rules of the Commissioners of the several States and the regulations of the federal officials should be as nearly harmonious as may be consistent with the laws upon which they are based; therefore,

*Be it resolved*, That the Executive Committee of the National Wholesale Grocers' Association hereby requests the officials having charge of the enforcement of the food laws of the several States to adopt rules in harmony with the regulations which may

be adopted by the federal officials in so far as they can consistently do so.

## OFFICERS.

*President*, WILLIAM JUDSON (Judson Grocers' Company, Grand Rapids, Mich.);

*First Vice-President*, F. W. HANNAHS (Wilkinson, Gaddis & Company, Newark, N. J.);

*Second Vice-President*, W. T. CHANDLER (Franklin, McVeagh & Company, Chicago, Ill.);

*Third Vice-President*, THEO. F. WHITMARSH (Francis H. Leggett & Company, New York City);

*Treasurer*, IRA B. SMITH (Smith, Thorndike & Brown, Milwaukee, Wis.);

*Secretary*, ALFRED H. BECKMANN (New York City).

## EXECUTIVE COMMITTEE.

FRANK MADDEN (Reid, Murdoch & Company, Chicago, Ill.);

E. H. SAYRE (R. C. Williams & Company, New York City);

O. B. MCGLOSSON (M. Neil & Higgins Company);

W. N. TODD (Bittman-Todd Grocery Company, Leavenworth, Kan.);

F. C. BUSHNELL (F. C. Bushnell Company, New Haven, Conn.);

D. H. BETHARD (Jobst, Bethard & Company, Peoria, Ill.);

WILLIAM Y. WADLEIGH (Webster-Thomas Company, Boston, Mass.);

JOHN F. KELLY (Foley Brothers & Kelly, St. Paul, Minn.);

FRED R. DRAKE (Drake & Company, Easton, Pa.);

Major SAMUEL MAHON (J. H. Merrill & Company, Ottumwa, Ia.).

*Whereas*, Various State legislatures and the National Congress have enacted laws regulating the manufacture, sale, and transportation of food products; and

*Whereas*, The several State Food Commissioners have adopted rulings for the enforcement of the laws in their respective States; and

*Whereas*, Rules and regulations for the enforcement of the federal statute are now about to be framed; and

*Whereas*, In order to avoid unnecessary interruption in commerce, it is desirable that the rules of the Commissioners of the several States and the regulations of the federal officials should be as nearly harmonious as may be consistent with the laws upon which they are based; therefore,

*Be it resolved*, That we the undersigned, manufacturers and dealers in food products, hereby request the officials having charge of the enforcement of the food laws of the several States to adopt rules in harmony with the regulations which may be adopted by the federal officials in so far as they can consistently do so.

(Signed)

THE WILLIAMS BROTHERS COMPANY, Detroit, Mich.

BUETAL PICKLING AND CANNING COMPANY, Bay City, Mich.

ST. LOUIS SYRUP AND PRESERVING COMPANY, St. Louis, Mo.

A. MOFFETT & SONS, Chicago, Ill.

TOWLE MAPLE SYRUP COMPANY, St. Paul, Minn.

HIRSCH BROTHERS & COMPANY, Louisville, Ky.

FRANKLIN, McVEAGH & COMPANY, Chicago, Ill.

MARSHALL VINEGAR COMPANY, Marshalltown, Iowa.

MILWAUKEE PICKLE COMPANY, Wauwatosa, Wis.

JUDSON GROCER'S COMPANY, Grand Rapids, Mich.

SPRAGUE, WARNER & COMPANY, Chicago, Ill.

THE KUNER PICKLE COMPANY, Denver, Colo.

STAFFORD & RICHARDSON COMPANY, Chicago, Ill.

AUSTIN, NICHOLS & COMPANY, New York City.

J. WELLER COMPANY, Cincinnati, Ohio.

BAUSE BROTHERS, Chicago, Ill.

SNIDER PRESERVE COMPANY, Cincinnati, Ohio.

CURTICE BROTHERS COMPANY, Rochester, N. Y.

GRANT BEVEL COMPANY, Chicago, Ill.

GOODWIN PRESERVING COMPANY, Louisville, Ky.

C. F. CLAUSSEN & SONS, Chicago, Ill.

BUDLONG PICKLE COMPANY, Chicago, Ill.

OTTO KUEHNE PRESERVING COMPANY, Topeka, Kan.

HAARMANN BROTHERS, Omaha, Neb.

WILLIAM H. BUNGE COMPANY, Chicago, Ill.  
DURAND & KASPOO COMPANY, Chicago, Ill.  
OTTUMWA PICKLE COMPANY, Ottumwa, Iowa.  
GLASER, KOHN & COMPANY, Chicago, Ill.  
E. PRITCHARD, New York City.  
J. HUNGERFORD SMITH COMPANY, Rochester, N. Y.  
EDGAR BRICE, Crosswicks, N. J.  
REID, MURDOCH & COMPANY, Chicago, Ill.  
WILLIAM NUMSEN & SONS, Baltimore, Md.  
DODSON-BRAUN MANUFACTURING COMPANY, St. Louis, Mo.  
P. HOHENADEL JR. COMPANY, Janesville, Wis.  
M. A. GEDNEY PICKLING COMPANY, Minneapolis, Minn.  
P. A. MORTH, 42 River St., Chicago, Ill.  
THE HYMAN PICKLE COMPANY, Louisville, Ky.  
TRYUMPH CATSUP AND PICKLE COMPANY, East St. Louis, Mo.  
KEOKUK CANNING COMPANY, Keokuk, Iowa.  
BLOOMINGTON PICKLE COMPANY, Bloomington, Ill.  
WILLIAM H. VAUGHAN & COMPANY, Detroit, Mich.  
SQUIRE DINGEE COMPANY, Chicago, Ill.  
THE M. H. SHAW COMPANY.

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ADDRESS OF WELCOME BY HIS EXCELLENCY HENRY  
ROBERTS, GOVERNOR OF CONNECTICUT.

Mr. President, ladies and gentlemen: It is a great pleasure and privilege to welcome you to the State of Connecticut. You honor the State by your presence, as you have also honored one of her servants, Mr. Noble, by placing him in his present office. We note that the subject of pure food is being largely discussed at the present time, and your meeting is most opportune, coming as it does when this most important topic is being followed by all.

You will find the citizens of Connecticut a thrifty, frugal people, lovers of good order and good morals. This is a historic State and is known as the "Land of Steady Habits." The commonwealth of Connecticut has advanced with the progress of the country and has been ruled by liberal, just, and progressive laws. Educa-

tion has kept pace with other progress until our university, colleges, and schools are known throughout the country; within whose walls are gathered students from every clime, and from which have been and are being graduated men and women who are playing distinguished rôles on life's stage, distinctly uplifting, strengthening, and advancing civilization.

Agriculturally we have perhaps fallen a little behind; but the active brains of our people, combined with their diligence, enterprise, and inventive genius, have built up great industries, giving employment to thousands of respected and self-respecting men and women, than whom no State has a better and more reliable body of citizenship, and who have their full share in the glory of this little State, small in area but large in deeds and rich in patriotic, eventful history.

The avenues of the State are open to you, and you will find within our borders much to interest you. Let me indulge the hope and wish that your convention will be a successful one, and it is with most sincere pleasure that I offer you, in behalf of the people of Connecticut, a very gracious and cordial welcome.

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ADDRESS ON BEHALF OF THE CITY BY HIS HONOR  
WILLIAM F. HENNEY, MAYOR OF HARTFORD.

Mr. President, ladies and gentlemen: Your organization is very welcome to our city, for we are interested in anything that concerns the welfare of our citizens. There has been much discussion, recently, on the pure food question, and many remedies have been suggested, but at the bottom of all this agitation there lies simply an awakened public conscience. A man should deal with his neighbor on principles of simple, common honesty; and the work of your organization has been to see that he does so. The health of its citizens is the first consideration of a State, and your organization has done much to secure that health.

Recently there was a meeting of the Grocers' Federation in Great Britain at which some doubt was expressed as to the value of our government inspection stamp on goods put up in the United

States. As a result of an address to the President, that executive assured the Federation that if any goods stamped under the new law were found impure this government would hold itself responsible. The President was right when he guaranteed the stamp of the government, and I trust that goods bearing that stamp will be received without question. If any grievance arises, the responsible party will be punished. The American people are too fond of legislation. There is, to-day, a great cry for "further legislation"; but before this is enacted existing laws should be rigidly enforced. Until then all legislation is idle.

The business men have undertaken to entertain you while you are in Hartford, and you are in very good hands. I hope you will survive their treatment. Hartford sympathizes with the purposes of the Association, and in the name of her citizens I extend to you a cordial and hearty welcome and wish you a prosperous and profitable session.

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#### RESPONSE BY HON. HORACE ANKENNEY, STATE DAIRY AND FOOD COMMISSIONER OF OHIO.

Ever since my infancy I have been wanting to come to Connecticut and see the famous Connecticut Yankee, who always seemed different from other Americans, in his native garden plot. I had been brought up to look upon things from Connecticut as well-nigh perfect.

As a boy, I remember the sign on the gate at home, "Hartford Fire Insurance Co.," the sewing-machine bearing the name "Howe," the watch that was a "Waterbury," and when I went to wind up the clock the name "Seth Thomas" stared me in the face. We always knew that when rubber bore the trade-mark "Goodyear" it was sure to be the best; and then there was tobacco too. It was in Connecticut, too, that incorporation of joint stock companies was first practiced, which resulted in great good to the people of the country.

Heretofore we have had no guarantee that products which were good at home would be equally good abroad; but now,

thanks to the interstate commerce control, we feel sure that American products will be equally good everywhere. We have been so swimmingly successful in America that we forgot that honesty should stamp all business all the time and came to look upon a man as honest until he was found out. But people came to see that their pocket-books as well as their health were being defrauded, and they are aroused to action against frauds.

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ADDRESS BY HON. J. B. NOBLE, PRESIDENT NATIONAL  
ASSOCIATION OF STATE DAIRY AND FOOD  
DEPARTMENTS.

Members of the Interstate Pure Food Commission: It is a great pleasure as well as honor to meet so many members of our Association here to-day, working as we are towards one common end, moved by the same principle and using our best endeavors to accomplish the same object.

We are very glad to see so large a gathering here. We welcome you to New England and the good old State of Connecticut. I say old State because it is old compared with many of the States from which you come.

Since early in sixteen hundred Connecticut has been always closely connected with the history of our country. One of the thirteen original colonies, she was prominent in all of the early struggles of our colonial period and took an active part in the great trial with the mother country which laid the foundation for our national existence.

As we meet here in the Capitol of our State, built within the appropriation, we would with pride respectfully call your attention to the fact that Connecticut is the only State which has always had possession of her original charter, which was granted by Charles II. in 1662, and although it lay, for a short time, in the old Charter Oak, it is now safely guarded in our State library, and its provisions are examined by many interested visitors.

Connecticut has been called "the land of steady habits," but she is also, with reason, called "the constitution State." As



a colony she lived under the first written constitution in the New World, and the underlying principles of this constitution formed the basis of later constitutions in our country.

Connecticut has always been a progressive State. Some of her enterprising citizens, early seeing the good which would come from such an institution, planned the organization of an experiment station—the first in the United States. This has, ever since it started, been a power for good and has saved many thousands of dollars to the citizens of our State. Under its development in later years, in connection with the Dairy Commissioner's Department, the pure food work of our State has been carried on.

I wish to express to you all our appreciation of your efforts in coming here, so near to the eastern border of our continent, many of you travelling many miles from your home States to hold our annual meeting. Our State is small in area and in population compared with many of your great States of the West, but we of New England are just as much interested in the great work in which we are engaged, as an association, as you of the West, and we hope that your stay here will be pleasant and that this meeting will be one of interest and profit to us all. The goodly number present speaks well for the Association. You have come from all parts of our country for the purpose of conference and discussion on one of the grandest and most important questions which can occupy the thought and attention of any class of people of the present day. It is only a few years ago, comparatively, that the subject of food adulteration was considered of sufficient importance for legislation in our country, although in the Old World action had been taken for centuries. With rapid growth in population and the great increase in business there came the desire to accumulate more wealth, and it seemed to many that there was no surer road to obtain this object than through the sale of cheap, adulterated, and sometimes poisonous food products.

When this was first brought to the attention of the people and States commenced to pass pure food laws, opposition was met with; but when, in later days, the search-light of investigation had been turned on, and the people were able to see things

as they were, all this was changed, and now we see manufacturers and dealers joining hands with the Commissioners and with the people in support of the pure food laws of our country. When the cause for which any law is enacted is found to have merit in it and the laws are to be for the good of the people and of the commonwealth, they are bound to stand and in the end receive the approval and support of the mass of the people. No one can question the fact that the preparation of food products and having them pure and free from poisonous and injurious ingredients is one of the live questions of the day and intimately and closely concerns every individual.

August 25, 1897, this Association was organized in the Cadillac Hotel at Detroit, Mich. There were only a few States represented at that time, but the organization of this Association was no mistake, for it has proven a great success; and better results have been accomplished than even its most sanguine adherents ever expected. We have here, now, a large gathering of Commissioners and chemists coming from those States which are fully aroused to the importance of the cause of pure foods and realizing the necessity for active work. These States have now stringent pure food laws and earnest, conscientious Commissioners engaged in carrying out their provisions. This Association was organized that these men might have a chance to meet, exchange experiences, gain new light on their work, and receive new inspiration, and thus, by working in harmony with each other, be better enabled to carry on their work successfully.

In the preparation of food products methods have changed very materially in the last few years, especially in some of the more prominent divisions. Now we see large factories engaged in the manufacture of food products of different kinds, and great quantities of canned productions are used in every State and in nearly every family. Our attention has been very forcibly brought during the last year to the facts connected with the canning industry of the country by the investigations which have been made of late. A large amount of capital is invested in the establishments which are preparing the meat products of our country as well as those of other kinds. We have nearly 1000 establish-

ments engaged in the slaughtering and meat-packing industry, with an invested capital of \$237,699,440, employing 12,075 officials and clerks and 74,132 wage-earners, using for the year 1905 material costing \$805,856,969, turning out a total product valued at \$913,914,624. The value of canned goods put on the market for 1905 was \$7,697,815. We have 2687 establishments for canning fruits, vegetables, etc., with a capital of \$69,589,316. The total number of pounds of canned vegetables for the year 1905 was 1,672,759,439, with a total value of \$45,262,148. Of canned fruits there were produced 295,760,325 pounds, valued at \$11,644,042. Of canned fish there were put on the market in 1905 259,469,861 pounds, with a value of \$15,966,513.

These all represent a very large business, and the value of the finished products is enormous; and it is incumbent on all manufacturers and producers of these food products that they should be so prepared as to be healthful and in no way injurious to the consumer. Sinclair in his "Jungle" book created quite a sensation through the country, and in some cases perhaps his illustrations may not have been overdrawn; recent investigations seem to have borne out many of his statements and to have shown to the country that for the good of manufacturers and consumers there should be strict rules and regulations regarding the output of these products so that no criticism may be made from any source.

Under the new national law, passed by the late Congress, there will be a very careful examination and investigation of all packing-houses and of all branches of these houses, so that the standing of all these products, both at home and abroad, will more than ever before redound to the credit of manufacturers and packers and be satisfactory to all consumers.

Among the great variety of food products which are on the market at the present date, and the many investigations which are necessary to be made by all of our Commissioners, we are sometimes likely to lose sight of one of the first principles of many of our State pure food laws. In many of our States the Commissioners are called "Dairy and Food Commissioners," and the dairy part of it should not be lost sight of; for it is a very great

industry throughout the country, and in many of our States leading all others, especially in agricultural lines. The necessity for an oleomargarine law regulating and limiting the sale of all imitation butter in the different States was the starting-point of many of our pure food laws. The new national law of 1902 has very largely decreased the manufacture of oleomargarine throughout the country. The increase of the tax from two to ten cents per pound for colored oleomargarine has materially reduced its use, and probably none of us have as much work to prevent the sale of colored oleomargarine as in years past. But still there is much to do in the line of renovated butter and also regarding the milk traffic of the different States. In 1905 there were 8926 establishments producing butter, cheese, and condensed milk, with a capital of \$47,255,556. The total amount of milk used in these establishments was 12,147,304,550 pounds, with a value of \$142,920,277; the amount of cream used, 588,486,471 pounds, costing \$28,371,040. The total value of butter produced was \$113,189,453, which was received from 551,247,148 pounds. The number of pounds of cheese manufactured was 331,685,290 pounds, with a value of \$28,463,192. The total number of pounds of condensed milk was 308,485,182 pounds, with a value of \$20,149,282. In Connecticut dairying is one of our leading agricultural interests, but of course our output is very small as compared with the great States of the Middle West. The total amount of butter produced in Connecticut is gradually decreasing, but this is owing almost entirely to the rapid growth of our great manufacturing centers, and the ready facilities for transportation to the large cities of Boston, New York, and Providence. The purity of milk is a subject which appeals to nearly every person, either young or old. Its daily consumption in every family in the land amounts to a large quantity in the aggregate, and it should be free from all contaminations and from any and every thing which would render it injurious to health. Great care should be taken in all dairies and in all methods of transportation and of delivery to consumers.

There are many subjects of great importance in the administration of our pure food laws which will come before this Asso-

ciation and be fully discussed; these questions are of great importance to the manufacturers and to the consumers, and they should be fairly treated and decisions reached which will place this Association in a stronger position throughout the country than ever before.

One of the great questions which have engaged the attention and interest not only of this Association, but of many people all over our country for the last few years, has been finally settled. Congress has given us a national pure food law. After much discussion and difference of opinion between the Senate and the House of Representatives they, in the last days of the session, agreed to the report of the conference committee; the bill was passed, signed by the President, and so became a law.

The Dairy and Food Commissioners of the country can congratulate themselves that soon they will have this strong bulwark of national legislation to aid and strengthen them in their work. After several years of hard and earnest endeavor on the part of a few men, the grand result has finally been accomplished. Greater interest has been shown in this matter the last two years. Some of the constituents of many of the members of Congress have had their influence. Organizations of various kinds have been aroused and with interest and enthusiasm have worked for the passage of this law. We cannot help congratulating ourselves that this organization has had some influence in accomplishing the results attained. We believe that our committee who last year went to the White House and listened to the strong argument presented to the President by Hon. Horace Ankeney, Dairy and Food Commissioner of the State of Ohio, regarding this legislation, were satisfied that good results would follow and that the President himself was perhaps more fully aroused to the importance of this matter than even he had ever been before.

Gentlemen of the Association, as we look back over the record of our country during the last quarter of a century, we see great advance made in all our industrial movements. We live in one of the greatest countries in the world, rich in all her resources. The foreign commerce of the United States for the month of April, 1906, aggregated \$251,000,000, of which \$107,000,000 was

for imports and \$144,000,000 for exports. For the ten months ending with April, 1906, the imports were \$1,021,000,000, and exports \$1,482,000,000. All this shows the enormous business of our country. Our manufacturers are strong, alert, keen, sharp business men who are turning out a finished product which commands the admiration of the world and receives the best testimonial that can be offered in that it finds ready sale in the open markets of the world. These manufacturers, from a business point of view, know that it is to their interest to have these goods always stand just as they are represented, true to their name and able to bear the strongest test at all times. Now the same principle should apply to all producers of food products. Food is one of the vital essentials of our existence; no one can live on air that is vitiated or poisoned with gases, so we should have food which is pure and healthful, not loaded down with non-essential make-weights or baptized with poisonous coloring-matter, or whose keeping qualities have been enhanced by the use of those diabolical acids and preservatives which have such an effect on our digestive organs as to lead many to the use of those patent medicines which are claimed to have such an invigorating influence on our systems and whose virtues are lauded by flaming advertisements in papers and periodicals. Some of these patent medicines have received free, good advertising in *Collier's* during the last year; which has made mighty interesting reading to those who like Peruna, Liquozone, and many of the great cure-alls of the age.

Fellow Commissioners, we have greater opportunity than ever before for a crusade against the great evil of adulterated foods. The government is with us, the people are with us, and all Commissioners can enter upon their work for the coming year with renewed courage and strength. Rejoicing in the great advances which have been made in the years that have passed in the work for pure food, let us look forward with new zeal and courage to the successes which we hope will crown all our efforts in the years to come.

## CONFLICT OF LAWS.

By Hon. GEORGE L. FLANDERS, First Assistant Commissioner of Agriculture,  
New York.

THE government under which we live is peculiar when compared with other and older governments. John Quincy Adams speaks of it as a "complicated machine, an anomaly in the history of the world." It is a government with a written constitution. Dr. Brownson says that the American Constitution has no prototype in any prior constitution. The American form can be classed throughout with none of the forms of government described by Aristotle, or even by later authorities. Aristotle knew only four forms: monarchy, aristocracy, democracy, and mixed governments. The American form is none of these, nor any combination of them. It is a new, original contribution to political science. It was evidently the intention of the fathers in forming this government to so place and distribute the power that it would remain with the people and yet be not so unwieldy as to be impracticable. We, who have been born and live under it, perhaps do not realize the thought, care, and ingenuity required to construct a government that would be sufficiently conservative to insure the rights of the people as against the possible ambitions of those who might be clothed with power or authority, and at the same time sufficiently strong and aggressive to protect itself as against the menacing advances from the outside.

Just where the ideas originated that finally shaped the course of thought that gave us this peculiar form of government it might be hard to determine, at least with sufficient authority to make the opinion unanimous. Dr. Brownson, however, gives great credit to the Five Nations for the example that gave the fundamental thought to the originators. He says relative to it: "It is a noteworthy fact that the system that we have of dividing the sovereignty and jurisdiction of government, as to subject-matter, between the States and the United States, making the States supreme over their respective territories and inhabitants as to certain subjects of power, and the United States supreme over the whole territory and all inhabitants as to the subjects of power confided

to it, is somewhat like the system of government of the Five Nations, or Iroquois Nation, which originally inhabited New York. The government inaugurated under the Articles of Confederation was still more like the Iroquois form in that it embodied the distinctive feature of reliance upon moral force alone to enforce obedience to the federal authority by the local governments and the inhabitants. The Iroquois were the most powerful Indian tribe with which the English settlers came in contact, and this remarkable feature of their system of government, and its wonderful efficiency, excited much attention and caused it to be described by pre-Revolutionary writers. The framers of the Constitution must have been conversant with this Indian government, and they may have received from this humble source some important suggestions for the system they adopted."

Whether our pattern was formulated in the savage mind as a result of conditions and requirements that necessitated unity, I do not know. The fact that it is good for its inhabitants and beneficent to mankind is sufficient for me to give it hearty words of approval and loyal support, irrespective of whether its origin was in the untutored mind of the savage, or whether it came from the scholastic mind of his white brother. It is here, and here to stay, and whatever else it may stand for, it is emblematical of unity, of coherence, and not of conflict, save in minor details and save such mental conflicts as produce the alertness necessary for progressive mental activity. It should not be expected here more than elsewhere that all our beneficial results can be produced without conflict of opinion as to the best methods to obtain them.

Before speaking directly on the question of the conflict of laws, let us consider briefly the source of power of the law-enacting bodies in this government, the origin and extent of the power exercised by each, and the possible results upon such laws so passed by other branches of the government or governments. The people of this country under the theory of our government are the supreme power, and their will is the supreme law; they have ordained certain methods and certain channels by and through which that law shall be expressed, by and through which that law shall be enforced, by and through which that law shall



be interpreted. For that purpose they have constructed a nation and they have constructed forty-six States; the nation being a government for the whole people of the country, and each State being a government for the people within its borders. The national government has a constitution formed by the whole people, defining the powers, duties, and rights of the government and enumerating the restrictions placed upon powers and rights of States. Each State has its constitution formed by the people of the State, which determines certain things which must and must not be done. This constitution is the fundamental and supreme written law of the State and controls, providing it is not in conflict with the powers or prohibitions granted or provided in the national Constitution. At this point we should bear in mind the distinction between the two constitutions. The powers granted in the Constitution of the national government are derivative powers granted to that government by the people as a whole and are not supposed to be powers inherent within the government itself, so that it is a general proposition if the national government desires to take action in any direction it must first inquire of its Constitution whether the power to take such action has been granted by the people to it. If such power is not found to have been conferred, such action cannot be legally taken.

On the contrary, all powers not granted or given to the national government are supposed to be reserved to the States, and a State has the right to take such action as it may see fit, provided that its own constitution does not forbid it, or that such action is not to exercise a power granted to the national government and has not been forbidden to the State in the national Constitution; so that when it is desired that the State government shall take action the inquiry is, Is such action within the powers given to the national government, or is it forbidden in either of the constitutions, national or State? If not, then the power so to do is inherent within the people of the State. At this point we discover the first possible chance for a conflict of laws. There are forty-six States, each with its fundamental law or constitution. It would be phenomenal indeed if these forty-six constitutions agreed in every particular upon all questions affecting the people. If they do

not agree, there is no way for reconciliation except by amendments from the people. If these constitutions do not agree with the national Constitution, reconciliation is easy from the fact that those parts of State constitutions that are in conflict with the national Constitution are to that extent null and void.

It might be well here to remark that two laws or constitutions that do not agree do not of necessity conflict in the ordinary meaning of the word, but I do not assume that it was the thought in the mind of the person assigning the subject that we should consider the question of absolute conflict in the laws in that sense, so much as to consider the deleterious results that may arise from a lack of absolute agreement.

I find in the Encyclopedia of Law, under the head of "Conflict of Laws," a definition, subdivision 2 of which deals with interstate jurisprudence, which reads as follows: "In interstate jurisprudence the phrase, conflict of laws, relates to the doctrine which treats of the opposition or inconsistency of the laws of the different States of the Union, or the domestic laws of any particular State, upon the same subject."

From this standpoint the laws in two different States might deal with a given subject in a different manner and be termed "conflicting laws," and yet be so worded that if they were both enacted by the same legislative body they could both be enforced without the one repealing the other by implication, that is, they would be laws that would not agree each with the other from the fact that they dealt with the same subject in a different manner.

We will see from the foregoing that the power of the national government and the power of the State government may be considered under the head of derivative and original powers, the power given the national government being derivative as distinguished from original or inherent.

One of the powers of a State, an inherent power, is the police power. The limitations of this power cannot be given definitely, yet in general terms it can be stated as a power inherent within the State to enact legislation, to protect the life, health, and morals of the people.

The national government as such has no police power and can,

therefore, exercise no police power directly and can accomplish no results in this field except by indirectness, for instance by enacting statutes under powers that have been granted which indirectly will produce the results desired. For example, it can enact laws under the clause giving the national government power to regulate commerce between the States in such a way as to, in effect, produce the same results as to interstate commerce goods that are sometimes produced by enactments by the States under the police power. It is under the inherent police power that the several States have enacted the so-called "pure food legislation" which is without doubt essentially the legislation that it is desired to have considered under this subject; but it is under the clause to regulate commerce between the States that it is sought to have the national government pass a pure food law, which at this writing I understand has passed both branches of Congress and is probably signed by the President.

If we are to have in this country the results desired and aimed at by so-called pure food legislation, there should be a national law and there should be a law in each State of the Union. The State laws should be alike as nearly as conditions will permit, and conform to the national law, which can only apply to commerce between the States; thus the States would take care of the questions within their own respective limits, and the national government would enforce the provisions of the national law as to all food products transported into any State from any other State or Territory or foreign country. These laws should be in the form above stated, for a number of reasons:

First, it would be a great convenience and benefit to the manufacturer, jobber, and wholesaler if the requirements of the national law and the State laws were all the same; then his marking or branding for one State would qualify the goods to enter or be sold in any other State in the Union, providing such marking, branding, or labelling was within the requirements of the national law. Further, the enforcement by the national government of such a law would greatly aid in the enforcement of the different State laws, the compliance with one being practically the compliance with another; and yet without doubt, after all that can

be done by legislation, we would still have the possibility of a conflict of laws from either of the following reasons: because the constitutions under which these laws were enacted might be different, or they might be construed differently, so that a statute under one might be construed constitutional and under another unconstitutional; possibly not from varying wording in State constitutions, but from another element that must be taken into consideration, namely, from the court that has the interpretation. To illustrate this point permit me for a moment to call your attention to two cases—one tried in New York State and the other in Pennsylvania.

In 1884 the legislature of the State of New York passed a statute known as Chapter 202 of the laws of that year. Section 6 of that law provides as follows: "No person shall manufacture out of any oleaginous substance or substances, or any compound of the same other than that produced from unadulterated milk, or of cream from the same, any article designed to take the place of butter or cheese produced from pure, unadulterated milk or cream of the same, or shall sell or offer for sale the same as an article of food."

The legislature of Pennsylvania passed an act on May 21, 1885, entitled "An act for the protection of the public health, and to prevent adulteration of dairy products, and fraud in the sale thereof," Section 1 of which reads as follows: "That no person, firm, or corporate body shall manufacture out of any oleaginous substance, or any compound of the same other than that produced from unadulterated milk, or of cream from the same, any article designed to take the place of butter or cheese produced from pure unadulterated milk, or cream from the same, or of any imitation or adulterated butter or cheese, nor shall sell, or offer for sale, or have in his, her, or their possession, with intent to sell the same as an article of food."

It will be seen that these two sections are practically the same, that is, they both prohibit the manufacture, sale, or offer for sale within their respective States of any oleaginous substance not made from pure milk, or cream of the same, as a substitute for butter.

Under the New York State law an action was brought against one Morris Marx of New York City for violation of this section, and the court of last resort of the State of New York held the law to be unconstitutional on the ground that in the course of the progress of science an entirely wholesome substance might be found that could be manufactured out of an oleaginous substance not made from pure milk, or cream of the same, that would be a benefit to the people and be so sold as not to be a fraud and as not to deceive the purchaser, and yet the ban of this law would be upon it, and they held that such a law was unconstitutional.

In Pennsylvania an action was brought against W. L. Powell of Harrisburg for violation of Section 1 of the Pennsylvania law. The case went to the court of last resort of that State, and the law was held to be constitutional, both as to the State Constitution and the national Constitution. This case was taken to the Supreme Court of the United States on the theory that it was in conflict with the 14th Amendment to the Constitution of the United States (it was reported in 127th U. S. Supreme Court Report, page 678), and was held by that court not to be repugnant to the 14th Amendment of the Constitution of the United States, so the result of the litigation in the two States was to the effect that the same statute in one State was constitutional and in the other State unconstitutional.

These two cases illustrate the possibilities as to the results of litigation in the different States of the Union where the legislation is the same. There may be many reasons to account for such results; for instance, the same state of facts may not be presented in each case notwithstanding that the facts may be exactly the same, consequently the court has before it in each case a different state of facts upon which determinations are based. This point is well illustrated in two cases involving a food product that were decided by the U. S. Supreme Court, namely, *In re Plumley*, a Massachusetts case, and *Schollenberger v. Pennsylvania*. These were two oleomargarine cases in which the decisions were different, and they were different because the state of facts presented to the court was different.

In the Plumley case (reported in 155th U. S. Supreme Court Report) the state of facts as presented to the court was to the effect that the defendant had imported into the State of Massachusetts an original tub of oleomargarine colored yellow, causing it to look like butter, and sold it there in violation of the State laws. He was convicted, and the case was taken to the Supreme Court of the United States, which court confirmed the conviction, holding that the law under which he was convicted was constitutional as applied to the particular package, as it was an imitation or counterfeit and it was within the police power to prohibit a counterfeit or fraud.

In the Schollenberger case the facts were exactly the same, but as presented to the court the fact that the oleomargarine was colored in imitation or semblance of butter was not included, so that the court in handling this case had all the facts that were in the Plumley case save the fact of imitation, and they held that the law of Pennsylvania was unconstitutional as to this product, as it was a legitimate article of commerce and it was beyond the police power to prohibit the sale within that State of an original imported package of such goods, and the law was declared unconstitutional as to that particular package.

The court in deciding the Schollenberger case distinctly stated that the decision was not in conflict with the decision *In re Plumley*, but distinguished one case from the other as above. Notwithstanding this we find that Freund on the Police Power (Sec. 62) gives expression to his views on the two cases as follows:

“The most conspicuous instance of the prohibition of a useful industry is to be found in the legislation against oleomargarine. Statutes forbidding the manufacture and sale of any article made of oleaginous substance or compound other than milk or cream, designed to take the place of butter, have been upheld in several States, including Pennsylvania, Maryland, and Minnesota, and the Pennsylvania decision has been confirmed by the Supreme Court of the United States. But the Supreme Court in subsequently declaring the prohibition invalid for purposes of interstate commerce has cast considerable doubt upon the soundness of its earlier ruling.”

It is difficult to see how Freund draws the conclusion that the court has cast considerable doubt upon the soundness of its earlier decision. The holding of the court in these two cases seems to pronounce unequivocally that it is within the police power of the State to prohibit the sale of a counterfeit or fraud within its borders, irrespective of whether it was manufactured within the borders or imported in the original package, but that when the counterfeit and fraudulent features were left out, and the question before them was simply the question of the State, by an enactment, regulating commerce between the States, then such act would be invalid.

The words of Freund, "The most conspicuous instance of the prohibition of a useful industry is to be found in the legislation against oleomargarine," in my judgment show a bias of mind rather than a knowledge of facts. It is a case of drawing a conclusion for the reader in advance of the statement of facts that the writer may imagine upholds the conclusion. Such statements produce another kind of a conflict that may be so misleading to an executive officer as to produce a state of mind not conducive to zealoussness. Yet from the above we see how somewhere between legislation, court decisions, and text-books on law apparent conflict exists.

In addition to the above-indicated ways that conflicts or apparent conflicts may arise, there is one more that may be mentioned, namely, so-called rulings by executive officers in States who are charged by statute with the enforcement of the food laws. Even if the laws in all the States were, as it seems desired they should be, uniform, and in uniformity with the national law, it is doubtful whether the construction placed upon the different statutes by different executive officers would be as harmonious as the statutes themselves. This alone would be a great source of annoyance, and possibly tantamount to a conflict in statutes. For this difficulty there is in my judgment in this organization, if continued, a remedial germ that may, if it is nurtured properly, develop a power tending toward harmony of views upon similar statutes, if they are ever obtained.

At the present time the following States in the Union have a

general food law, but they do not all have the same scope and breadth, viz.:

|              |                |                 |                 |
|--------------|----------------|-----------------|-----------------|
| Alabama,     | Kentucky,      | Nevada,         | South Carolina, |
| Arkansas,    | Louisiana,     | New Hampshire,  | South Dakota,   |
| California,  | Maine,         | New Jersey,     | Tennessee,      |
| Colorado,    | Maryland,      | New York,       | Texas,          |
| Connecticut, | Massachusetts, | North Carolina, | Utah,           |
| Florida,     | Michigan,      | North Dakota,   | Vermont,        |
| Georgia,     | Minnesota,     | Ohio,           | Virginia,       |
| Idaho,       | Mississippi,   | Oklahoma,       | Washington,     |
| Illinois,    | Missouri,      | Oregon,         | West Virginia,  |
| Indiana,     | Montana,       | Pennsylvania,   | Wisconsin,      |
| Iowa,        | Nebraska,      | Rhode Island,   | Wyoming.        |
| Kansas,      |                |                 |                 |

Delaware is the only State that has no general food law, but it has a law relative to the following products: breadstuffs, candy, butter, meat, fruit.

There is a general food law in Alaska, District of Columbia, Hawaii, New Mexico, Philippine Islands, and Porto Rico.

In addition to this the national government has laws relative to the inspection of exported and imported foods and tea; the standard of purity of food products; misbranding of foods—flour, oleomargarine, and process butter—with the prospects at this time of a general pure food law, which has passed both Houses and is probably signed by the President.

The following States have officers authorized to enforce their food laws:

|              |                 |               |             |
|--------------|-----------------|---------------|-------------|
| Connecticut, | Michigan,       | Ohio,         | Washington, |
| Florida,     | Minnesota,      | Oregon,       | Wisconsin,  |
| Idaho,       | Nebraska,       | Pennsylvania, | Wyoming.    |
| Illinois,    | New York,       | South Dakota, |             |
| Iowa,        | North Carolina, | Utah,         |             |

In other words, eighteen of the forty-five States having general food laws have special officers for their enforcement.



An examination of these statutes will disclose the fact that power in various degrees is given to these eighteen special officers or departments and that these statutes vary in scope of ground; all of which produces practically conflicting conditions for the dealers in food products.

I cannot attempt, in the length of time that I have to discuss this subject, to undertake to compare step by step the different laws of the different States, to discover the many apparent conflicts, as it would conflict with both my time, my inclination, and the respect due to your patience. Suffice it to say that in my judgment the thing desired is that each State should have a general pure food law, with an officer charged with the responsibility of its enforcement and with adequate machinery. The national government should have a pure food law, with a special officer charged with the responsibility of its enforcement and with adequate machinery for that purpose.

There is much that may be said upon the question of what the words "adequate machinery" would imply. I will not, however, attempt to discuss that at the present time, but will be content with saying that with such State and national machinery, and with yearly meetings of the executive or ministerial officers, ultimately a condition might be brought about that would reduce to a minimum the so-called conflict of laws between the different States and the nation upon this question.

## FOOD WORK IN FOREIGN COUNTRIES.

By Dr. A. L. WINTON, Chemist, Connecticut Agricultural Experiment Station.

THE present is an era of food investigation. The physiologist, the sanitarian, the chemist, the sociologist, and the domestic economist are bending their energies to weighty problems of nutrition and to measures for checking the abuses that have crept in with the march of civilization. Twenty years ago a single German journal, with about 400 pages each year, sufficed for a record of the world work in food investigation. To-day this journal, under a new name, prints about 1600 pages, and other journals in French and English, as well as numerous government and state reports, swell the literature to enormous proportions.

A comprehensive review of food investigation in foreign countries for a single year is a task for a corps of editors, each a specialist devoting his whole time to a limited field. A mere list of articles published in a year would weary in the recital.

In this paper we will confine our attention to a very brief consideration of a few matters of general interest such as new forms of adulteration, important court decisions, and experiments relating to the wholesomeness of products, overlooking entirely analytical methods, intricate analyses, and other matters of a purely scientific nature.

As in previous years, milk adulteration has demanded its full share of attention. In England the public analysts have been particularly active in bringing to justice milkmen selling milk containing boric acid. In making the reports the English analyst is required to give the amount of boric acid present. This, it appears to me, places unnecessary work on the analyst and delays the processes of justice. In my opinion, an analytical

test should be accepted as evidence and the presence of any amount of boric acid, small or large, should be considered an adulteration.

In the early days of butter substitutes, oleo-oil, prepared from beef fat, and neutral lard were common ingredients. In recent years, however, cottonseed-oil, cocoanut-oil, palm-oil, and other vegetable oils have come into use. The use of cocoanut-oil appears to be on the increase; at least, its use and detection have been subjects for extensive discussion in the journals.

The chemical bleaching of flour is a matter of grave importance because the treatment may affect the quality and wholesomeness of the product. The Paris Association of Bakers, during the year, appointed a committee to investigate the effects of bleaching on the composition and quality of flour. The work was carried on under the direction of their chemist, Professor Arpin, who reported the results obtained. Three processes in use in the mills in the vicinity of Paris, namely, the Andrews, the Alsop, and the Frichot process, were investigated. All of these processes employ as bleaching agents ozone and nitrogen peroxide. Somewhat exhaustive analyses were made in each case of the untreated flour, the treated flour, and the overtreated flour, also of bread made from each. The results of these analyses failed to show any difference whatever between the untreated flour and that which had been bleached or even overbleached. No nitrous compounds were found in any case. The bread made from the bleached flour was also practically the same in composition as that from the untreated flour. Bacteriological examination also failed to show any decided differences.

If these results had been obtained by a chemist in the employ of the promoters of these bleaching processes they doubtless would have been exploited as proving beyond question that bleaching was in no way detrimental to the flour. The bakers of Paris, however, appear to be common-sense men. Apparently they were aware that although chemical, bacteriological, and physiological experiments may show certain products to be unquestionably unfit for food, they may fail to give any information as to the quality of other products and almost never can be relied on to show beyond question that products are absolutely harmless.

Notwithstanding the results of the analyses reported, the committee went further and examined the flour and the bread made from it by the commercial tests ordinarily employed by bakers. These tests showed positively that, although the appearance had been improved by the bleaching, the flour itself and bread made from it had suffered in flavor, and this fact alone was sufficient to condemn the processes. The committee wisely concludes that it is inadvisable to introduce into a natural product *par excellence* chemicals which, without adding to its real value, may, on long-continued use, prove to be harmful.

Analyses of a considerable number of egg-powders have been reported. Some of these powders are desiccated eggs with or without preservative or other admixture; others are skim-milk powders colored in many cases orange-yellow in imitation of the yolk color.

German chemists, during the past few years, have been active in devising means for disclosing the true character of noodles made without eggs but colored yellow with vegetable or coal-tar dyes. By improved methods it is now possible to determine in noodles just how many eggs, if any, were used for each pound of flour and to decide whether the yellow color is due to eggs or to the dyes. It is believed that we are now in a position to suppress this fraud.

Considerable work has been done in the examination of meat extracts, but the results, with our present knowledge, are chiefly of scientific importance and are of little interest to one engaged only in detecting adulteration.

Numerous cases of adulteration of sausage with preservatives, starchy matter, and artificial colors have been detected. Attention has also been called to the presence of starchy matter in canned corned beef.

The disclosure of certain abuses in the Chicago packing-houses has naturally furnished foreign journals with much material for adverse criticism of our meats and meat products. This will probably be followed by increased zeal in the inspection of our exports. Most of the irregularities recently disclosed are not, however, of the kind that can be detected by chemical or micro-

scopical examination of the products. Furthermore, we believe that these irregularities have already been corrected.

Of late a large amount of data on the composition of fruits and fruit juices has been secured in foreign laboratories. The very exhaustive analyses which have been made will be of great value in establishing standards of composition for fruit products, such as jams, jellies, and fruit syrups, which, abroad as in the United States, are often grossly adulterated.

Notwithstanding stringent laws, the use of copper in canned vegetables and pickles still continues. Not only canned peas and string beans but also canned spinach are greened with copper sulphate. A number of convictions for the use of copper in canned spinach have been secured in the United Kingdom.

Owing to the ease with which glucose syrup can be detected in honey, this adulterant has now been largely replaced by cane-sugar syrup or invert-sugar syrup. An adulterant sold under the name of "Fruktin" was found to consist of beet-sugar (which of course is the same chemically as cane-sugar) with one quarter of 1 per cent of tartaric acid and coal-tar coloring. Fruktin honey, prepared from this product by boiling with water according to the directions of the manufacturers, contained 69 per cent of invert-sugar and 14 per cent of cane-sugar. Another honey adulterant, known as "Honamin," contained about 30 per cent of cane-sugar mixed with true honey and possibly invert-sugar.

The agitation over the presence of arsenic in beer has not entirely subsided. Analysts in England are still engaged in making numerous tests both of the beer itself and the materials used in its manufacture. It is claimed that minute traces of arsenic may occur in beer that is made entirely from malt and hops, which, if true, necessitates fixing the limits for the arsenic content of the natural product.

It is a remarkable fact, and one that greatly impedes the food expert in performing his duty, that certain natural products contain minute traces of the very materials which are added to them as adulterants. For example, boric acid is a normal constituent of certain wines, salicylic acid and benzoic acid of a number of fruits, fluorine of potable water, and so on.

But it is the adulteration and misbranding of distilled liquors that has been the chief subject for investigation and discussion. English officials have been hot in their pursuit of dealers in so-called brandy and whiskey consisting of neutral spirits skilfully mixed with flavoring, coloring, beading-oil, and the like.

Especial interest has centered in the test whiskey cases of *Islington Borough Council v. Wells* and *v. Davidge*, which, after eleven sittings before the magistrate, were decided in favor of the prosecution on February 5, but have since been appealed. The accused were arrested for selling, under the names of Scotch whiskey and Irish whiskey, liquors consisting entirely of "patent still," "silent," or "neutral" spirit which was not the product of grain and was not really, therefore, what was generally accepted by the public as Irish or Scotch whiskey. The prosecution also laid emphasis on the fact that the product of the patent still is much cheaper than that of the pot-still, which alone should be used for making genuine Scotch or Irish whiskey.

Both Irish and Scotch whiskey were claimed by the prosecution to be "spirits obtained by the distillation in a pot-still of fermented wort mainly derived from malted barley and unmalted barley, but there might be a small addition made of corn [not Indian corn] indigenous to the country by whose name the whiskey was designated." The distillation is by direct fire heat. Since the pot-still has but one egress, all the volatile elements (including aldehydes, acids, furfurols, ethers, and higher alcohols) are condensed together, thus giving the characteristic taste and smell to the whiskey. The peculiar peaty flavor of Scotch whiskey is due to the peat used as fuel in drying the malt. Silent or neutral spirit, on the other hand, is a product of grain, usually Indian corn, made in the patent still. This still has three means of egress, two of which serve to draw off the by-products, while the third carries off the main product, which consists chiefly of alcohol and water. The spirit produced in this way, so it was stated, is called "silent," because it does not speak of its origin, and in this it is unlike whiskey, which is eloquent of the grain from which it was made. It lacked the characteristics of whiskey taste, smell, secondary products, and dietetic properties. The

pot-still has been in use over a hundred years for producing true Irish and Scotch whiskey.

The defense claimed that the terms "Scotch" and "Irish" properly referred to the country where the whiskey is produced, regardless of the kind of still employed. They also laid great stress on the advantage of removing certain impurities such as fusel-oil, etc.

The magistrate in delivering his judgment stated that the evidence went to show that patent-still spirits was not whiskey. When mixed with the product of the pot-still it had long been sold to and accepted by the public as whiskey, but he was not called upon to say whether such a designation is allowable. He did hold, however, that the terms "Irish" and "Scotch" should be applied only to whiskey made by Irish and Scotch methods in the pot-still. In the case of Irish whiskey the mash was made of about 75 per cent of barley malt, the rest being barley, wheat, oats, and rye, while in the case of Scotch whiskey it is made entirely of malt. Maize should not be used in either product.

Of the numerous articles on the use of preservatives time will permit me to refer to but one, namely, Professor Liebreich's critical review of Dr. Wiley's experiments. Since Professor Liebreich has for some time been before the public as an advocate of the use of borax and boric acid, his criticism will not have the same weight as those of impartial observers.

In this brief paper I have merely touched on a few subjects of special interest to American food departments. We owe much of our knowledge of food examination to our foreign brethren, and we should ever be on the alert to profit by their experience.

## A FEW THOUGHTS FOR THE GOOD OF THE ORDER.

By Hon. T. K. BRUNER, Secretary Board of Agriculture, North Carolina.

THE exposures and revelations in the public press of the United States during this year have gone thundering around the world in tones defamatory of us as a people, of us as purveyors of deleterious foods; of filthy foods, of more filthy methods; of baseness in the packing-houses of our land. We are, as a people, regarded abroad with derision, and our food products with abhorrence. That we as a people do not deserve this denunciation you and I know. But the great worlds beyond the seas do not know. You and I and the masses in the United States are held jointly responsible for the infamy which has come upon us by reason of the greed, the fraud, and the dishonesty of the men and interests represented in our packing-houses.

We, as food officials, are held more to blame, perhaps, and receive more criticism than the rest of our fellow citizens who are not charged under the laws with the protection of the public—the helpless—against such practices as have been thrown to view during the year.

This is, perhaps, natural; but our people should know that our financial equipments are meager; that our moral support is limited because of the vast financial interests involved (and the worship of mammon has not lessened with the spread of Christianity); that our legal powers are in most cases inadequate.

I am here to say that, under the adverse circumstances under which most of us are compelled to labor, the work performed by this Pure Food Commission as a whole for the betterment of the fraudulent abuses to which our food and drink have been subjected is nothing short of marvellous. It is the greatest work done for physical man since the founding of this government.



To it, my friends, may be traced the origin of the more spectacular exposures recently shocking the intelligence of the world.

American foods and methods are just now under the limelight. The great critical eye of the civilized world is upon them and upon us. It is not discriminative, but envelops the whole of American character in its disapproving glance. We are branded and tabooed; our foods are derided and openly refused in the marts of the world as foul and unclean.

We do not deserve this denunciation; the masses are honest and may be depended upon to right a wrong. Meantime we must suffer for the wrong-doing of our fellow citizens the packers.

One of the most painful of the revelations is the fact that the "very best" of the materials turned out of our great fraud-perfecting packeries is for export. The diseased and the unfit are retained for home consumption. The more rigid and compelling laws of the Europeans have brought this about.

Our packers are acting upon the principle enunciated by a very economical farmer, who made it a rule to sell everything from the farm that the cattle and hogs would not eat, and what they would not eat he ate himself.

So we are told that our packers send abroad the "very best" they produce, and keep for us that which is unfit to pass the scrutiny of our European friends. There is a sort of consolation about it after all. It is a great boon in that we are sure that our best foot is foremost. Heaven only knows what would be thought of us as a people if the other foot, the one we keep at home, were foremost.

Food officials, friends! What can we do officially and personally to put a stop to this infamy? It is nothing less. Many of us are handicapped for means or law power to deal with these questions as we would. The only safe thing for the people of the States, as I see it, is to move for a strong, comprehensive, compelling national law, which knows no State lines in its provisions and enforcement, supplemented by vigorous sustaining State laws which shall be enforced as rigidly and as promptly as those against any other crime upon the calendar.

True, in the past we have talked about these matters, appointed

committees, gotten up petitions and the like; but something more is needed—something to energize and vitalize our work, to give life to it, to make it felt both as a restraining force and a great moral force demanding recognition of all men. The Commission has been the guide, the finger pointing the way, and its promptings have led in the right direction, but it must no longer content itself with pointing the way. It must lead. Its members should be found in the front ranks, in the van of the movement, so that all may know why we “cumber the earth” officially.

Ours is necessarily a work of education. Education is a slow process, but when achieved its light is not hidden. Do not confine the results of your work to bulletins and official documents—official graveyards—but go into the daily, the weekly, and the monthly press, illustrate your matter—write stories instead of reports; tell what you know, what your chemists have brought to light, in such a way as to compel attention. Warn the people promptly of the truth as determined by your investigations. Continually urge better legislation, both national and State, and thus equipped enter the fight for the right against the wrong, for honesty and fair dealing against deception and fraud in the foods of the people.

It is a great work, a humane work, a Christian work; we must be valiant, strong, determined, for we have cupidity, deceit, fraud, knavery, and the wiles of science and the devil to fight.

#### DISCUSSION.

PRESIDENT NOBLE: Commissioner Bruner has given us just a little bit of a paper, but I know he is full of information, so just question him all you can.

MR. FLANDERS: Did I understand Commissioner Bruner correctly in his thought that the national law should overrule the State law?

MR. BRUNER: The idea which I tried to bring out was not that the national law would stretch over and usurp the rights of the State law, but that they might conflict and that the States should endeavor to so mould over their laws as to, as far as possible, conform to the national law.

MR. FLANDERS: Merely a misunderstanding on my part.

MR. EMERY: It seems to me that this is a question of great importance. The manufacturer and jobber are continually asking for a uniform label which can be used in interstate commerce. This conflict between the national and the State laws is a very real thing. The national law is supreme and absolute in its domain, and the State law is just as supreme and absolute in its jurisdiction. The notion that the national law is to supersede the State law is false, and I think that you should all take up the matter through the newspapers of your State; and the only course for us is to make the State law absolute in our own jurisdiction, and the national law absolute in interstate commerce. It may not be a legal duty but it certainly is a moral duty for the Commissioner to do all that he can to create public sentiment. The recent disclosures make it possible for the Commissioners to do more than ever before, and these forces should be exercised to the extreme that what is done may be well done and not as the wards of partisan politics. In the past the Commissioners have not been adequately equipped. The work is monumental.

MR. FLANDERS: It seems to me that there is just one way to handle this question, and that is to so amend the Constitution as to give police power jurisdiction and by virtue of the rulings of the Commissioners enact law.

MR. THURBER: We have a legislative body to enact laws and an executive body to carry them out, and I do not see wherein the rulings of the Commissioners would enact law.

MR. BRUNER: According to a recent decision in the Supreme Court of North Carolina the rulings of the Department in matters of this kind have the force and effect of law.

MR. FLANDERS: In New York State we try, according to the law given us, and I do not believe that the rulings of the Commissioners without the force of police power will have the force of law. It is one thing to say that the rulings are to be so and so, and another thing to say that the interpretation of the law is so and so, regardless of what I want it to say.

MR. ALLEN: It seems to me that we are discussing, here, subjects which were settled half a century ago. I have covered a part of it in my paper. The State is supreme in its police power, and it can exercise it as it deems best. The Supreme Court of South Dakota has taken a position which has been maintained for all time and will be for all time to come as to her engineering, railroad, and food interests, but particular knowledge must be had before you can go into the enforcement. Senator Bailey has illumined this situation more than it has ever been illumined.

## CITY MILK INSPECTION.

By J. Q. EMERY, Dairy and Food Commissioner, Wisconsin.

IN presenting this subject, I shall limit myself to a statement of some experiences of the Wisconsin Dairy and Food Commission. I wish particularly to call attention to the Wisconsin curd test as the simplest, quickest, most practicable and effective method known, whereby the imperfections present in milk can be readily and accurately ascertained, not only by the butter-maker and cheese-maker, but by the city milk inspector and the housewife as well. In the foregoing statement and in the statement that in the particulars specified it surpasses the method of the "bacterial count," I am sustained by Dr. H. L. Russell, dairy bacteriologist in the University of Wisconsin. The Wisconsin curd test, as its name indicates, originated in Wisconsin at the Agricultural Experiment Station. By it abnormal conditions may be quickly detected, and thus it helps to trace the source of contamination in milk.

The necessary apparatus used in making the test consists of a sufficient number of glass or tin cans with covers, with a capacity of at least a pint, one for each sample of milk to be tested, and an ordinary wash-tub or a galvanized iron or tin box, of a sufficient depth and size for immersing the cans in warm water. If the tub is used, any clean, sterilized piece of cloth, carpet, or burlap can be used as a cover to retain the necessary heat. The galvanized iron or tin box should have a cover of the same material.

The cans are first thoroughly sterilized before filling with milk by immersing in boiling water for not less than twenty minutes. Merely dipping in hot water is not sufficient. Each bottle should have as nearly as possible the same quantity of milk, that the action of the test may be uniform on all samples. The temperature of the milk should be raised to 98° F. and about ten

drops of standard commercial rennet extract added. A pipette is ordinarily used for this purpose.

After the casein of the samples has coagulated from the action of the rennet, which will take but a few minutes, the curds are cut into fine particles with an ordinary table-knife. The temperature can be raised to 102° F., stirring the curds occasionally in order to firm them until the whey starts to separate, when the curd is allowed to mat. The knife used and also the thermometer should be dipped in boiling water after each time used, that contamination may not be transferred from one sample to another. As soon as the whey separates sufficiently, it should be poured off. This should be repeated at intervals as separation continues, so as to avoid the mushy condition characteristic of a whey-soaked curd. The curds are kept at approximately this temperature, 100° to 105° F., for six to nine hours in order that the bacteria present may have ample time for development, the cans being kept covered meanwhile. The curd is taken out and cut with a sharp, clean knife. If the curd has no undesirable taints and has a close, firm, even texture, with a smooth, velvety appearance where cut, it indicates that the milk was normal and was produced under clean conditions and was suitably cared for. Curds from such milk may have large irregular holes which are purely mechanical, arising from uneven matting of the curd. These are to be distinguished from the round openings produced by gas. Fig. 1 represents such a curd.

Normal milk contains practically no organisms but the straight lactic-acid bacteria. These germs produce no gas and no bad odors, but purely lactic acid and the curd formed therefrom is such as is represented in Fig. 1.

In the presence of gas-producing organisms, which are generally associated with filthy conditions, the gas produced in the development of these organisms will be retained by the curd, and, depending upon its quantity, give to the curd either a pinholey or a spongy texture, as shown in Figs. 2 and 3 respectively.

“Milk contaminated by the introduction of dust, dirt, fecal matter, or kept in imperfectly cleaned cans becomes fouled with gas-producing bacteria that break down the milk-sugar and so

produce gases and usually undesirable odors. . . . Therefore milks showing the presence of gas or bad odors in any consid-



FIG. 1.—Curd from a good milk. Large, irregular holes mechanical.

erable degree are milks that have been more or less polluted with extraneous organisms or carelessly handled, and as a consequence such milks show a type of curd revealed in Figs. 2 and 3." (Dr. H. L. Russell.)

As the gases formed from the decomposition of the constituents of the milk generally have a disagreeable odor, the presence of bacteria, which cause such decomposition, is indicated by a foul odor of the curd. Of course all odors in the curd may not



FIG. 2.—Curd from a tainted milk. Large, irregular holes mechanical; small pinholes due to gas.

be results of bacterial action, but odors may have been absorbed by the milk from the surrounding atmosphere and may to an

expert give indication of the place in which milks have been kept. Furthermore, it must be understood that odors can be produced from the feed of the cow.

It is not claimed that these curds show the presence of typhoid, scarlet fever, diphtheria germs, etc., neither does the bacterial count, but they give the inspector knowledge of what milks are not produced under suitable conditions, and as danger lurks in uncleanness, they give him the cue as to which require special inspection. Where these tests are skilfully made, it will be found



FIG. 3.—Curd from fowl milk.

that the special inspection of premises will confirm the conclusions reached by the curd tests.

Sometimes the curds formed are of a slimy, pasty nature, indicating an abnormal milk, and indicate to the inspector the need of special inspection of the conditions under which that milk has been produced or sold.

Curds from pasteurized milk have invariably been found soft and mushy, due to the elimination of natural calcium salts in the process of pasteurization, which retards to some extent rennet action. This furnishes the inspector a clue to the detection of effectively pasteurized milk. In pasteurized milk the lactic-acid bacteria are destroyed, and therefore the character of the curd will be different from that in a normal run of milk.

In the month of August, 1904, the Wisconsin Dairy and Food Commission made a very thorough inspection of the milk supply in seven Wisconsin cities. The objects sought by this inspection

were to ascertain whether or not any chemical preservatives were being used; second, the butter-fat content of the milk; third, whether or not any milk was below the legal standard in solids not fat; fourth, by the use of the Wisconsin curd test, to ascertain the character of the milk as to cleanliness and the care it had received.

Dr. Fisher, State chemist, improvised a portable laboratory for making the necessary chemical tests. Of the 201 samples of milk and cream gathered and tested, not one showed the presence of a chemical preservative. Only two samples were found to fall below the legal standard of 3 per cent butter-fat, and none fall below the legal standards in solids not fat. The average per cent of butter-fat of all the samples was 3.89, ranging from 2.7 to 7.5 per cent.

Of 133 samples tested by the Wisconsin curd test, 113 showed curds of a close, firm texture and of clean, agreeable odor, having a texture like Fig. 1. This indicates that the milks which produced those curds were produced under clean and suitable conditions and were clean and suitably cared for.

Of the 133 curds, 20 were gassy and had tainted odors. Of this number 8 curds were of the type of Fig. 2, and 12 were of the type of Fig. 3.

The test showed that 85 per cent of the samples taken and tested was excellent and above reasonable criticism as to cleanliness and suitable care.

In the months of January, February, and March of the current year, the Wisconsin Dairy and Food Commission made an inspection of the city milk supply in 44 Wisconsin cities. By this inspection we sought to ascertain, first, the butter-fat content of the milk inspected; second, whether or not any milk was below the legal standard in solids not fat; and, third, by the use of the Wisconsin curd test to ascertain the character of the milk as to cleanliness and the care it had received.

In this inspection 596 samples of milk were taken. Of this number only 5 fell below the legal standard of 3 per cent butter-fat, and only 16 fell below the legal standard of solids not fat. About one third of the 596 samples was tested for chemical pre-



servatives, and none were found. Of this total number 477 samples, or about 80 per cent, gave curds of the character indicated by Fig. 1, showing that nearly 80 per cent of the samples taken was normal milk, of excellent character and above criticism as to cleanliness and the care it had received.

Of the total number of samples taken, 119 yielded gassy curds, characterized as pinholey or spongy curds, which indicated the presence in greater or less degree of gas-producing organisms. The interpretation to be placed upon that condition is that the milk from which those 119 samples were taken was not absolutely normal, was not produced under perfectly clean conditions, or had not been properly cared for, and that some of them were produced under filthy conditions. In many cases barn inspections were made which corroborated the conclusions arrived at by the curd tests.

The various cities showed a wide variation in the qualities of milk. Of the 44 cities, 17 had no gassy curds. The percentage of gassy curds in the remaining cities varied from 50 to 4.1 (50, 50, 50, 48.5, 40, 36.3,  $33\frac{1}{3}$ ,  $33\frac{1}{3}$ , 30.7, 28.5, 25, 22.2, 21.7, 20,  $16\frac{2}{3}$ ,  $16\frac{2}{3}$ , 12.5, 9, 4.1).

The more important work mentioned in this paper has been pioneer work in a field not heretofore cultivated, but which invites cultivation with the promise of profitable returns.

A fair conclusion is that the great majority of the milks was of excellent quality, that the number of samples that fell below the legal standard in butter-fat and in solids not fat was comparatively insignificant. The demonstration that the milk supply of more than 50 cities furnished so large a percentage of excellence should be gratifying, especially at a time when so much has been said and published in disparagement of city milks. It should also be gratifying that means are available for a practicable determination by the inspector of the degree of cleanliness of milk sold.

Although it is doubtless very desirable to make a thorough inspection of all the conditions under which such milks are produced and kept, a sufficient number of inspectors to do this work is unfortunately not often available, and the Wisconsin curd test is of especial advantage in these cases. By it the suspicious

samples may be sorted out and made a subject for special inspection. The Wisconsin curd test gives a knowledge of the character of milk that no inspector could otherwise obtain.

## DISCUSSION.

SECRETARY ALLEN: How many samples have you taken?

MR. EMERY: 596. We have done enough work to satisfy ourselves that the test is reliable. We have worked a revolution in our State, too, among the cheese-factories.

MR. GEISLER: Some of these samples were found to contain gas—what kind?

MR. EMERY: No special investigation was made for that.

MR. GEISLER: What do you do with your tuberculous animals?

MR. EMERY: According to the report of the department, Wisconsin is doing some of the best work in the Union in the testing and disposing of animals affected with tuberculosis.

MR. ANKENY: In case the animal is found to be tuberculous and is destroyed, who bears the loss, the owner or the State?

MR. EMERY: At present the State pays the owner, but I do not think it is right, and I hope it will be changed. If a man has been nursing a sick animal and especially one with a contagious disease I think he is the one to suffer.

DR. SCOVELL: Does the veterinarian charge so much a head for examining?

MR. EMERY: I do not know.

## CHEESE-MAKING IN THE COLORADO CLIMATE.

By MARY WRIGHT, Colorado State Dairy Commissioner.

CHEESE is one of the leading dairy products, but a large part of it is inferior in quality, or not uniform in texture, because of improper methods of manufacture, or imperfect equipment of factories. It is the purpose of this article to give a short description of a good method, and some suggestions about the equipment of a factory.

### CHEDDAR CHEESE.

A Cheddar cheese should be clean, neatly bandaged, and smooth on the ends. It should give slightly to pressure by the fingers, but not show soft spots or holes.

A plug drawn with a tryer should be uniform in color—should not be cut in color by acids, and be translucent when held up to the light. It should show no raggedness or pinholes, bend slightly before breaking, and when it does break, show a fracture like flint.

Cheese should begin to break down at about two weeks old, and mould in the fingers like wax. A cheese that sticks to the fingers is said to be weak-bodied, while one that is rubbery or crumbly is called curdy.

First-class cheese can be made only from first-class milk. Any milk that has a bad flavor should be rejected. In many factories great trouble is experienced from gas in the curd. The gas is produced by bacteria which find their way into the milk from unclean conditions.

The cows should be kept clean and milked in clean places, free from dust; the cans and strainers carefully washed and scalded; old and rusty cans be discarded. Sour whey must not be kept

in the milk-can, for it is a good medium for breeding bad flavors. The whey-tanks should be above ground and cleaned every day.

As it is often impossible for a maker to tell just where the gas or bad flavor comes from, I think it unjust for them to guarantee their cheese.

Milk, as soon as it is in the vat, should be heated to 82° F. While heating, stir in from one and a half to two ounces of cheese-coloring, diluted in a quart of water to the thousand pounds of milk. Use enough rennet to coagulate the milk in twenty minutes, usually from four and a half to six ounces to the thousand pounds.

The curd should be cut first with a horizontal knife and then with a perpendicular one, to insure even cutting. There are a great many different sets of knives used, but I find where the perpendicular is three eighths of an inch and the horizontal one-half inch, the best results are obtained. Take the hand, moving it round the vat to separate the curd from the sides, so it will not stick there when the second heat is put on. After stirring gently for five minutes, the temperature should be raised slowly to 98°—one degree in three to five minutes. In about two and a half hours there should be about one eighth of an inch of fine strings on the iron, and then the whey drawn.

The curd should be placed in the bottom of the vat on racks. A linen cloth strainer is spread over the racks to prevent the curd falling through. It is then stirred until the excess of whey is out, and then allowed to mat. In ten or fifteen minutes it will be firm enough to be cut into blocks and turned.

Some difference of opinion exists as to the best means of testing curd to ascertain when it is ready for salting and pressing. My own idea is that there is no more reliable test than the hot iron, for, although it is not exactly a measure of acidity, it indicates what is the probable effect of acidity, and that is most important. The curd spins out in fine threads when touched to the hot iron, drawing about one inch when it is ready for the mill, and should not be put to press until it draws one to one and a half inches. The old-fashioned test, which takes account of the curd when burned on the iron, is not to be despised. In the early stages of the test the curd resembles burned milk, but usually about the

time it is mature the odor changes to a rich, pleasant creaminess. Then, again, curd which is fit for pressing will mould readily when squeezed in the hand and retain the shape into which it has been pressed.

It is then milled. I prefer either a mill that picks the curd to pieces, or one which cuts it into uniform strips. After milling it should not be matted again, but stirred over with a large curd-fork to air. The salt can either be put on immediately before or after milling, using about two pounds per hundred of curd. The amount of salt must be varied to meet conditions. A moist curd needs more salt than a dry one. The effect of salt on curd is to expel moisture. When the salt has been absorbed by the curd it is ready for the hoops.

Curd should be pressed at 80° to 85° F. If too warm, the fat will run between the particles and prevent proper closing. If the room is cold, the curd must be warmer than otherwise.

#### WASHING OR RINSING CURD.

When there is a decidedly off flavor in a curd, you can take some out by washing the curd quickly. Do not leave the water on too long, or it will soften the curd very much and weaken the body of your cheese. Another time when washing is beneficial is when there is too much acid; you can wash some of it out. Then, again, after milling the curd, if there is a very decidedly strong off flavor, it is sometimes possible to wash it out, although it is questionable just how much it is going to help the curd. Washing the curd is also good to clean the surface of particles of loose fat and white whey. In a good many cheeses you can see the loose fat by breaking a piece in two; this is called "fatty texture," which means that all the fat was not incorporated with the curd. It has no business there and should be rinsed out. I want it to be distinctly understood that I do not believe in washing good curd. In order to wash or rinse it, the curd has to be perfectly loose and in such shape that, by throwing water on, it can run through and out—it must not be obstructed. Have the curd on the bottom of the vat and ditched; then take one or two large pails of water, about 100°, and throw it on from the end of the vat,

with the fork loosen up the curd and throw on the water; go through it very quickly, so the water will all run out before there is any matting. Fill the pails again and repeat the operation, because with one rinsing, where there are two particles of curd lying together, you cannot rinse between them, but by mixing it once more, you change the position of these particles.

When your curd is washed, let it mat, cut and put on the racks, treating in the usual manner.

#### OPEN CHEESE.

Among the defects in the quality of cheese there is probably none more common than what is called "open cheese." It can be avoided by bringing more skill and better judgment to bear on the manufacture. Open, to that extent which constitutes a fault in finest cheese, is due to a lack of sufficient development of acidity in the curd to give it the proper mellowness and plasticity before going to press; also, to some extent, to negligence in pressing. It is well known that some curd will not make close cheese under any amount of pressure, but, on the other hand, no curd is made into close, solid cheese unless pressure has been gradually and persistently applied.

I think the trouble often arises from mistaking the flakiness and softness, due to a little extra moisture or an unusually high temperature, for a sign of proper maturity.

#### ACIDY CHEESE.

Some distinction is generally made between different degrees of sourness. Cheese which is only a little mealy in texture, more or less faded in color, is called "acid," as against that which is distinctly sour. This is caused by the milk getting over-ripe and working too fast; injudicious use of starters is also responsible to some extent.

The development of too much acid, while the curd is still in a soft condition, is the cause of acid-cut cheese.

As it is much harder to get the curd firm in the fall on account of the extra fat in the milk, it should be set sweeter than it is earlier in the season.

Pasty cheese is simply the result of having too much moisture in the curd. We hear more about this in the fall, when the milk is richest in fats, and the surplus moisture more difficult to get rid of.

Some extra means must be employed at this season to get the curd firm. The milk should be set sweeter, the curd kept longer in the whey, and when it tests 4 per cent fat, the so-called "cooking" temperature may be raised to 100° and over as the fat increases. It is better to employ heat than to depend on too much stirring, which is hard on the curd. The only effect of heat is to harden the curd by expelling moisture. There is one thing I would not do, and that is to allow the temperature to run up on a fast-working curd, and then immediately run off all the whey while the curd is still soft. Under the higher temperature and in its soft condition, the curd mats together very quickly, and it is next to impossible to keep it from being lumpy. Much acidy and mottled cheese is made in this way.

It is better to continue stirring the curd in the whey, running off as much as possible, without tipping the vat, until the desired firmness and elasticity has been secured. It is all a question of having the curd firm at the time the acid comes on; that is far more important than getting it out of the whey. That is the crucial point in cheese-making.

Bad-flavored cheese may be made from first-class milk, if the factory and its surroundings are not kept clean and in a sanitary condition, or if rank-flavored starters are used, but, on the other hand, no amount of care or skill will suffice to turn out a good article from tainted milk.

#### OFF-FLAVORED CHEESE.

This class of cheese is commonly known to the trade. This flavor does not usually appear until the cheese begins to "break down," and it is more likely to be developed if there has not been sufficient acid in the curd, or when the cheese is cured at a comparatively high temperature.

One of the most conclusive points brought out by experiments in curing cheese at different temperature is that much of the

cheese cured in rooms where the temperature was uncontrolled went "off" flavor in three or four weeks, while cheese from the same batch, cured at a temperature not exceeding 65°, remained solid and in flavor indefinitely. Of course there are cases where both went wrong, but the one kept at the higher temperature is much the worst.

There is undoubtedly a time in the life of every cheese when bacterial growth ceases, and if the cheese retains the desired flavor until that stage is reached, it will stay good for a very long time.

#### HEATED CHEESE.

If the temperature of the curing-room is allowed to go much above 65°, the flavor and texture are injured accordingly, and we have what is known in the trade as "heated cheese." Such cheese loses the mild, delicate flavor of that cured at suitable heat, and the texture becomes rough and mealy, not unlike an "acidic" one.

At the age of two or three months these heated cheeses have a short, tallowy sort of body, which distinguishes them from the waxiness of those not having been exposed to unduly high temperature. So much of our summer cheese has been of this character that we have looked upon it as something unavoidable, therefore excusable, and for which no one was to blame.

It has been clearly demonstrated that by adopting certain measures we can overcome this serious defect and improve the quality of our hot-weather cheese to a very great extent. Such a result would improve our position in the market by increasing the consumption and enable us to compete with those who do not labor under the same disadvantage of climate as we do when it comes to making cheese. These measures taken would also enable us to meet the demand for a softer, more mealy cheese, without the risk of having them spoil so quickly.

A Department of Agriculture conducted a long series of experiments along this line.

The curing-room was fitted by dividing it into three compartments. No. 1 was insulated and connected with a sub-earth



duct, and provision was also made for using ice to control the temperature. No. 2 was constructed on a par with a first-class ordinary curing-room, with no special means of regulating the temperature. No. 3 was so arranged as to compare with many of the rooms of poor construction throughout the country.

The cheese made every day in each vat was divided among the different rooms, so that for every cheese in No. 1 there was a corresponding one, from the same batch, in each of the other rooms.

As these cheeses were properly ripened they were sent to cold storage. They were accurately weighed at the time they were placed in the curing-rooms, and again at the time they were shipped, so that the figures given are such as will apply to the conditions under which cheese is usually disposed of at the factories.

TABLE OF SHRINKAGE.

|                         | Room 1. | Room 2. | Room 3. |
|-------------------------|---------|---------|---------|
| Highest temperature .   | 65°     | 83°     | 91°     |
| Average shrinkage . . . | 2.53%   | 3.98%   | 4.45%   |

A committee was appointed to examine them, which they did without knowing the particulars concerning the different lots.

The relative values are shown by assuming Lot 1 to be worth 10 cents a pound:

|                     | Lot 1.          | Lot 2.          | Lot 3.         |
|---------------------|-----------------|-----------------|----------------|
| June cheese . . . . | 10 cts. per lb. | 9½ cts. per lb. | 9 cts. per lb. |

The committee also added that Lot 1 had a cleaner, milder flavor and showed a more silky, waxy body.

The curing of cheese is half the making, and I must say there are a great many curing-rooms that are not worthy of the name.

The room should be held at a temperature of 65° F. There might better be two rooms. The first one could be smaller, should be dry and held at about 65° to 70°. In this the cheese should be kept for about ten days, to form a good rind and start the curing process. Next go into a room where the air is fairly moist and the temperature can be held at 60°. I think a base-

ment, with a cement floor properly constructed, is a very suitable curing-room where you are aiming to hold the temperature at 60°. A properly constructed cement floor does not allow the moisture to come through, and helps to keep out vermin, rats, and mice.

Turn the cheese at least once a day, always rubbing the side you turn up to avoid any extra moisture gathering, which will cause mildew.

Because of poor curing-rooms, where the cheese cannot be properly kept on account of the high temperature, it is sold at two weeks old, and in this partially cured, leathery condition goes to market, and the consumer does not like Colorado cheese.

Cheese held at 60° should be six weeks old before being put on the market, but this depends altogether on the size of the cheese.

#### LOCATION AND SITE.

For the erection of a cheese-factory and the establishment of co-operative dairying, a location should be selected which is central and convenient to a section of country adapted for and inclined towards dairying. The site should be:

- (1) Suited for easy and effective dairying.
- (2) Supplied with an abundance of pure cold water.
- (3) Easy of access by good roads.

#### EQUIPMENT.

Apparatus and utensils for a cheese-factory of capacity for five hundred cows:

- 1 steam-boiler, 10 horse-power.
- 1 gang-press.
- 24 cheese-hoops.
- 2 milk-vats of 5000 pounds capacity each.
- 1 curd-sink.
- 1 curd-mill or cutter.
- 1 weighing-can of 500 pounds capacity.
- 1 milk-conductor.
- 1 curd-knife (perpendicular).
- 1 curd-knife (horizontal).

- Weighing-scales: 1 pair for milk, 1 pair for cheese, 1 pair for salt.
- 2 thermometers, 2 floating thermometers.
- 1 Babcock tester.
- Milk-testing instruments.
- 1 graduated measuring-glass, 16 ounces.
- 2 rakes for stirring curd.
- 1 flat-sided curd-pail.
- 1 floor-brush and 1 rubber brush.
- 1 large tin pail, 1 large dipper, 1 small dipper, and 1 strainer.
- Steam-pipes, water-pipes, and hose connections.
- 1 cheese-tryer.
- 1 State brand.
- 1 wash-sink.
- 1 wash-barrel.
- 1 whey-tank of 40-barrel capacity.
- 1 inspirator or pump for elevating whey.

There is a great deal to be done to build up the cheese-producing industry of the State. First of all, you must believe in your business, have faith in it, have unending and tireless ambition and industry. The man who goes to work with a determination to have a clean factory, intelligent patrons, so far as he can instill intelligence into them, to make a good, clean, well-cured cheese, and to get the best market, will do all these things; he will win for himself success; he will bring profit to his patrons and be an honor and credit to the State.

#### DISCUSSION.

MR. FLANDERS: Along this line I want to bring something before the Association which was recently called to my attention. A man in western New York has recently patented a method of cheese-making which has been used in our State, and has been taught by Professor Hall at Cornell University (under our pay) for at least five years. Professor Hall is willing to take oath that he has been teaching this very method in the university for at least five years.

MR. IRION: Well, then, this man cannot get a patent.

MR. FLANDERS: No, I know he can't, but he has. It is like

the man in jail, whose friend came to see him, and when he told the friend of all the facts of the case the friend said, "Why, they can't put you in jail for that," and he said, "I know it, but they have." The man has already gotten his patent, and we are now awaiting the case to come up to see if it will be proclaimed void. If it is not, I cannot see why it will not establish a precedent; any method may be patented.

## COLOR AND ANTISEPTICS IN BUTTER.

By Hon. E. K. SLATER, Dairy and Food Commissioner, Minnesota.

IN view of the fact that the Dairy and Food Department of Minnesota has in years past had perhaps more than its share of trouble about the question of prohibiting the use of aniline colors in the manufacture of butter and cheese, I suppose the Secretary felt it his duty to assign me this particular subject. Without consuming any of your valuable time in again reciting the many nice things which have already been said about the West in general, Washington in particular, and Portland especially, I shall at once delve into my subject and have the job done with. Let me assure you right now that this paper has at least one redeeming feature: it is very brief.

Antiseptics include all substances acting as anti-ferments or destroyers of germs. In a measure vinegar, common salt, wood smoke, cane-sugar, and alcohol are antiseptics. These are the ones of more or less ancient origin, and are very susceptible to the smell and taste. Those in this class are more commonly employed than those which we might put in another class by themselves, viz.: boric acid, borax, benzoate of soda, sulphites, salicylic acid, formaldehyde, silica, etc. These last-named antiseptics have gained favor with the manufacturer who is looking for profit, largely because of their effectiveness, and because it requires a chemical analysis of the food containing them to discover their presence.

The use of formaldehyde in milk or cream has been quite general in some of the larger cities in years past, but the activity of health authorities, backed by stringent dairy laws, has reduced the practice to a minimum.

The use of any preservative or antiseptic in milk or cream should be absolutely prohibited. Cleanliness and cold tempera-

tures are all that is necessary in handling these products, and the use of antiseptics encourages carelessness in handling the products, as well as drugging the stomachs of the consumers.

The use of preservatives in butter or cheese, other than common salt, should also be absolutely prohibited. Common salt is a necessary item of the human diet, and no argument can be raised against its use. In fact its use as a preservative or antiseptic is only a secondary consideration. Its most important mission, as in all food products in which it is used, is to improve the taste and tickle the palate of the consumer.

Butter or cheese manufactured from milk or cream produced under sanitary conditions, ripened along scientific lines and properly manufactured, does not need a preservative, and the use of one only serves to lower the quality of the article, inasmuch as carelessness in producing the article would soon enter into the operation.

What is true with butter, cheese, milk, and cream is true with other food products to a greater or less extent, and I want to go on record here as advocating better methods in manufacturing articles of food products, better raw material, and less preservatives and antiseptics.

The coloring of butter is a practice sanctioned for centuries. In fact, the product obtained by agitating cream until its fat globules adhere and are gathered into a mass, washed, and salted, is not recognized as butter until it has been colored yellow.

Before touching upon the kinds of butter color used, I first wish to call the attention of this gathering to the question of coloring butter in general. Why should the coloring of butter be permitted at all? I hope there is no member of this Association so blinded to the interests of the dairy industry as to maintain that artificial coloring of butter should be prohibited or even discouraged. Coloring of butter should be sanctioned if for no other reason than to insure uniformity in color throughout all the months of the year. It cannot be claimed that coloring-matter in butter covers up inferiority, as it often does in other food products. The quality of the butter does not affect the color, and nothing of an inferior nature is covered up by use of artificial

color. The aim in coloring butter at different seasons of the year is to maintain the natural June shade of the article, and the butter-consuming public would not accept anything else.

There is a greater reason why this Association and each individual member should discourage any agitation which might be directed against the coloring of butter. The greatest foe of the butter industry is oleomargarine, and under the present national law this article has been compelled to sell upon its own merits; it can no longer be palmed off upon an unsuspecting public as genuine butter. And what has made the operation of such a law possible? The yellow coloring of butter, thus distinguishing it from oleomargarine, has made this possible, and any move toward prohibiting coloring of butter would be a move toward removing that barrier which prevents the fraudulent sale of oleomargarine. Already the oleo manufacturers are starting their campaign toward "educating" the butter-consumers of this country regarding the harmful effects of coloring-matter in butter, and it does not require the wisdom of a Solomon to locate their reasons for so doing. I sincerely hope that no member of this Association will ever use the powers of his position to further the interests of the oleo people. Sworn to work for the best interests of the people of his State, shame upon him if he ever disregards those interests to the extent of working against the dairy industry.

I believe that all coal-tar coloring-matter should be prohibited in food products, and butter should not be excepted. Sometime during the year 1903 my predecessor, Mr. McConnell, issued a ruling to the effect that after January 1, 1904, the use of coal-tar colors in coloring butter would be absolutely prohibited. Experience proved that the vegetable colors placed upon the market injuriously affected the quality of the butter, and in view of the magnitude of Minnesota's dairying interests, Mr. McConnell very wisely suspended his ruling, pending such time as might be required to discover a suitable vegetable color. The situation still remains unchanged, and when a vegetable color can be located which will not destroy the quality and reputation of Minnesota butter, this department will take such action as will absolutely prohibit the use of coal-tar colors.

## THE THEORETICAL AND PRACTICAL VALUE OF SO-CALLED HOUSEHOLD TESTS FOR THE DETECTION OF ADULTERATIONS IN FOODS.

By Professor JULIUS HORTVET, Chemist, Dairy and Food Department,  
Minnesota.

I SELDOM read an article dealing with popular science or with some subject or branch of science from a popular standpoint, and when I read such an article it is apt to be with a feeling of partial dissatisfaction. This is especially true in subjects relating to chemistry or physics, the special branches of science with which I am somewhat acquainted, and if I read a popular article on some subject as geology or astronomy or on anything known as natural history, these questions arise in my mind: How many of these statements may not be true? Is the public good really advanced by such statements of partial truths or obvious fictions in order to bring the subject-matter down to the plane of the average reader? Is it not a serious question whether science shall continue to be written down instead of being written up? Not infrequently do I read some protest against misrepresentations of science or nature in the popular magazines and newspapers. During recent months we have noticed an unusual number of articles on volcanoes and earthquakes, and while some of these articles have been written by men of undoubted authority and have borne the mark of the genuine, there have been many of the kind which have shown a too decided tendency to cater to the popular demand for fiction. There has long been a popular interest in science, but there are reasons for raising the question whether such interest often rises much above the plane of mere curiosity. The popular demand has been chiefly for results, not so much for the knowledge of the means by which the results have been achieved. People want the facts, the general



information, as we say, and they want it presented in agreeable form, easily comprehensible, interesting, and sometimes even sensational. The popular conception of science is that of something ready and easy to swallow and easy to digest; something like sugar-coated pills or prepared tablets, so that anybody can take it in doses to suit his fancy or convenience. "Easy," "simple"—these are the agreeable words we often find in the pseudo-science article or treatise. The popular misconception has been fostered by a host of writers and has invaded nearly every branch. We are acquainted with titles like these: "Six Weeks in Botany," "Easy Lessons in Astronomy," "The Romance of Science," "The Calculus Simplified," "Chemistry Learned at Home."

Nearly every department of chemistry has been the subject of these attempts at popularizing. Popular lessons have found their way into our schools and colleges. I have received communications from science teachers reading like these: "I find there is a demand in this community for popular, practical lessons. Can you give me some outlines of practical lessons and experiments, or refer me to some good books along this line?" "Please give me the tests you use in detecting the various forms of adulterations in foods." "I would like especially to know the tests used to distinguish genuine port and sherry wines; also to detect adulteration of olive-oil." These are typical, and to all of them only one answer is possible: that there can be no such thing as simple tests by which to decide infallibly so many questions, that nearly all cases require extended chemical analyses and considerable technical experience before one can safely reach conclusions. And as for practical lessons for beginners, my advice has been to introduce no more of them than will properly belong in a well-planned course of study and to plan a course in chemistry that will inculcate first principles and teach correct habits of observing and reasoning. Home-study clubs, village reading circles, correspondence schools—all of these have fostered the demand for popular lessons and have done not a little to create false impressions regarding the real method and purpose of science. Encouraged by these influences and doubtless greatly stimulated by the growing interest in the campaign against adulteration of foods, the popular writer

has entered extensively into the chemistry of foods. We have been given: "Simple Methods for Detecting Food Adulteration," "Simple Household Tests for the Detection of Adulterations in Foods," "How to Detect Impure Foods—Tests which Every Housewife can Apply in Her Own Kitchen." Note the frequent occurrence of such words as "easy," "simple," and "tests." "Tests," yes, "simple tests"—these words seem to express the popular conception—something ready-made, ready to take or apply. Just do this or that simple act, exactly as the directions say, and you can tell whether the vinegar is made from apple cider or whether the wine is made from grapes, whether your lard contains cottonseed-oil or whether the catsup contains coal-tar dye. We often run across directions like these: "A simple method of determining whether one has purchased butter or oleomargarine is to put a little of each in two small tins and heat over a burner. The oleomargarine will boil, while the butter will bubble up and burn. Good butter has a sweet fresh odor as it burns." "You can easily tell whether the jelly or preserves has the natural color or whether it is colored with coal-tar dye. Boil a piece of wool cloth in a tablespoonful of the sample diluted with a half-teacupful of water. If the color is natural it can be washed out of the wool, but if it is a coal-tar dye it will stick to the wool." "To test the purity of milk, dip a knitting-needle into a deep vessel of milk and withdraw the needle quickly in an upright position. If some of the fluid adheres to the needle, you will know that the milk is pure; should the fluid not adhere to the needle, it shows that water has been added to the milk in greater or less proportion."

Some of these tests sound like the method given by an old lady for detecting a bad egg: "Just put the egg in a basin of water; if the egg is bad it will sink or float, I've forgotten which."

And so on. It is surprising how many such tests one can find by looking over the files of the daily and weekly papers, the popular magazines, and especially those of the class devoted wholly or in part to household economics or food matters. You can fill a good-size scrap-book with these clippings, most of them superficial, many of them wholly in error, written chiefly by laymen or

so-called food experts. You know the trite saying: "A little knowledge is a dangerous thing," and this is especially and emphatically the case when it comes to anything pertaining to real science. It is better to be wholly ignorant than to be satisfied with knowing imperfectly.

You have probably seen a little book entitled "Food Adulteration and its Detection." The book has been published within the past ten years by the Society for Promoting Christian Knowledge, London, and appears to have a wide circulation among patrons of the public libraries. In this book we find this bit of information regarding honey: "The tempting little squares of honey, 'even in the honeycomb,' are unfortunately adulterated, and do not always consist of honey pure and simple, and are frequently such as the 'busy bee' would not own as any of her make. The cell-walls are made of solid paraffin, and the cells themselves often filled with sugar-syrup, glucose, to which a little honey is added to carry out the deceit a little more surely by giving it a flavor."

In discussing methods of detecting adulteration in milk, the book states: "To be perfectly sure of the extent to which milk is adulterated, chemical analysis is necessary, but the following tests are sufficiently trustworthy." Then follows a crude method for determining the specific gravity. No account is taken of temperature, as though it mattered little whether the sample happened to be just out of the refrigerator at 40° F., or whether it had been standing for a time in a warm kitchen at 80°. The lactometer is described as follows: "It sinks to a certain depth in average milk; if the milk is watered, it sinks to a greater depth; and if anything has been added to increase the specific gravity, it does not sink to so great a depth. The instrument can be bought for about a shilling, and it is marked so as to sink to a certain point in good average milk; should the milk be of extra-good quality, it does not sink so far; if of a poorer quality through added water, it sinks to a lower level, and this depth corresponds to the quantity of water added to the milk, provided it has not been robbed of its cream. The scale marked on the stem of the instrument enables you to compare the quality of the milk

with the depth to which the instrument sinks. It happens, however, sometimes, that milk from which cream has been removed is adulterated with milk of a similar quality—that is, skim-milk is added instead of water, that increases the specific gravity, although the milk is poorer, for the skim-milk supplies it with solids, not fat, above the natural quantity.” There is a grain or two of truth concealed in this description, but the whole statement is loose, inexact, and superficial, and is a confession that the lactometer is of little use in determining the character of milk.

The same book makes a special feature of the detection of adulterations by means of the microscope. A 250-diameter instrument is recommended for reliable results. The drawings showing starch grains and vegetable tissues are mostly crude, and the descriptions are inadequate if not inaccurate. Take, for example, the following description of arrowroot starch grains: “They are convex, more or less oval, although somewhat irregular, and they do not differ very greatly in size, and are surrounded with delicate concentric rings.” The description given of the microscopic appearance of wheat flour is worthless, and in speaking of the adulteration with Indian corn, the author says: “If Indian corn be used in adulteration, it is easily detected by the microscope; it is more irregular in shape and is much larger.”

It is stated that in vinegar “the pungency is brought about by the addition of sulphuric acid, by chillies, cayenne, or grains of paradise. The latter substances are rather difficult to detect, but not so the former. Make a solution of half water and half vinegar, of two tablespoonfuls of each; add two or three drops of aniline violet. No change of color will result if no sulphuric or other mineral acid be present. The presence of these acids to the extent of 0.2 per cent will change the liquid to a blue tint. The presence of 0.5 per cent of mineral acids will give a blue-green tint, and 1 per cent of acid will change it to a bright green.” Just what we are to understand by “aniline violet” is not easy to say, but the point is that the test is intended for the layman and is, worst of all, given as an easy test. The specific gravity of olive-oil is given as 0.9176; any oil that falls either below or

above that figure (temperature not considered) is not to be regarded as pure olive-oil. Then follows the statement: "The test that seems easiest for pure olive-oil is to take one part of strong nitric acid and nine parts of oil, put them together in a test-tube, warm them till action is fairly set up, then remove the flame. Intimately mix them, then the pure oil will set in a hard mass of a pale straw color, while all other oils will have a higher tint." And so on, throughout the book are half truths, absurdities, and errors: "The total solids in pure milk vary from 10.33 to 15.83 per cent." "Margarine melts at 88° F., but genuine butter does not melt till 95°." Pure coffee infusion is said to have a specific gravity of 10095, and chicory a specific gravity of 10215. "To take the specific gravity of vinegar is another good test of its quality. Taking water at 1000, vinegar should weigh 1015; anything less than that should be suspected." "Water and sulphuric acid are the principal adulterants for vinegar." "Absolute alcohol has a specific gravity of 0.7398"; and so on almost indefinitely. Such popular writings have been widely circulated; they are available in the public libraries and have been added to the supplementary reading material of the schools.

Food chemists have given us very little of the kind of literature which I have described. There are two alternatives before the experienced chemist—either to write nothing for popular reading, or if such writing seems necessary, to reduce it to the most elementary possible, and at the same time adhere strictly to first principles and the facts of experience.

It is a foregone conclusion that no chemist ought to permit himself to popularize on subjects that can only be studied in a well-equipped laboratory and are impossible of comprehension by the layman. To give the public information regarding matters of food adulteration is desirable, to give them the results of our investigations, but such information must be reliable, free from misleading embellishments and exaggerations, and must be of a kind that can be understood and applied. It is granted that there is much information that should be given to the public, call it popular information if you wish, but it is important to distinguish between fact and fiction, between truth and that which

is only part truth, between that which is really capable of doing good and that which is likely to do harm. We expect all food chemists to have due regard to these distinctions, and we also expect that commissioners and others engaged in the enforcement of our food laws will rely upon the judgment of their chemists regarding the character of the information that is to be given official sanction. There is doubtless a demand for reports, bulletins, and all readable articles on the subject of food adulterations, but it is unjust to the public and unfair to the fraternity of chemists to issue anything not bearing the stamp of the genuine, or anything that in any degree appears to cater to the unwholesome craving for the sensational. The various State food departments have contributed very little of the foregoing class of literature relating to the chemistry of foods and food adulterations.

There are, on the other hand, signs that point to serious attempts being made to furnish the public with reliable means by which to co-operate with their officials in the better enforcement of the food laws. These attempts are commendable because they show the sane motive and, in the main, the judicial method. Yet there are some shortcomings in these attempts to which I wish to call your attention. We have recently received a little pamphlet issued by the Food Commissioner of one of the Western States. In the preface it is stated: "In presenting this little booklet, it is the aim of the Utah Dairy and Food Department to give in brief form a number of simple tests by which the housewife, with the conveniences at hand in the kitchen, can readily and quickly determine the character of a number of the foods that are daily used on our tables. The tests are so simple that any person of average intelligence can carry them out, and the results are absolutely reliable." The redeeming features of the tests are that they are very few in number and that they are in the main physical, depending on the four senses, namely, sight, feeling, taste, and smell. To these might also be added "common sense," in other words, common every-day knowledge about things. Very few of the tests given depend upon chemical reactions, and as the booklet promises that the "results are absolutely reliable," it will be in order to call attention to a couple

of instances. Under the heading "Butter" is given the spoon test. This test is not of a chemical nature, but the point to be noted is that it is not accurately described and no means is afforded by which the housekeeper is to tell whether the sample in hand is really oleomargarine or whether it is only renovated butter. The old Arata method is given for what the writer calls "aniline dyes." The wool is first dyed in acid solution, boiled in weak ammonia-water, then the directions say: "After boiling five minutes or more, remove the wool, and if aniline dye was present, it is now held in solution in the water by the ammonia. To the ammonia solution now add enough vinegar (about a cupful) to give a distinct vinegar odor, and now add a new portion of wool. Boil again, and the second piece of wool will be dyed a brilliant color if an aniline dye was present." That looks easy to the layman, and the layman will be satisfied because an easy test is afforded; but consult any experienced food chemist, or any chemist who has made a specialty of the chemistry of dyestuffs, and he will tell you that the test as given is inadequate, that it will not always decide the question as to the real character of the dye present, and I think he will be likely to express the further opinion that the housewife had better not trifle with the so-called "aniline dyes."

You have all doubtless seen Bulletin No. 100 of the Bureau of Chemistry of the U. S. Department of Agriculture, entitled "Some Forms of Food Adulteration and Simple Methods for their Detection." We expect a publication coming from the Bureau of Chemistry at Washington to show signs of careful preparation, and we do not find in this bulletin those faults which have been so conspicuous in the class of writings to which I referred in the first part of this paper. This publication is intended for the layman, but it is an attempt to set the layman right in his conceptions of facts regarding adulterations of foods and to lead him to correct conclusions after performing the tests described. Here again the tests are chiefly physical, or depend in the main on the application of the senses. To be especially commended are the sections relating to the detection of the artificial colors, the examination of coffee, eggs, flavoring extracts, fruit products, and

vinegar. In the introduction to the section on household tests it is stated: "In applying these tests, one general rule must always be kept in mind. Every one, whether layman or chemist, must familiarize himself with a reaction before drawing any conclusions from it. For instance, before testing a sample of supposed coffee for starch, the method should be applied to a sample of pure coffee (which can always be procured unground) and to a mixture of pure coffee and starch prepared by the operator." This precaution should appear at least once on every page; and, referring to the "careful housewife," I should like to know how many housewives realize what it means to be careful in operations of this kind; and I have serious doubts whether most of the tests, simple as they seem to be, are adapted to the conditions as they exist even in the best-equipped kitchens. Then, further, imagine your wife running out to obtain a "funnel about 3 inches in diameter," test-tubes of "from one-half to five-eighths inch in diameter and length of from 5 to 6 inches," alcohol, chloroform, and Halphen's reagent! The point is not so much whether she can get the utensils and will intelligently apply them, but whether she *will*. These are relative questions and quite practical: Does the average housewife care to consume her valuable time with things of this kind when there are chemists to whom suspicious cases can be referred? Will she feel that the results are a fair compensation for the trouble?

The bulletin is cautious in the handling of the test for artificial coloring. It is stated at the conclusion of the directions for the wool-dyeing test: "If this piece of cloth has a distinct color, the food under examination is artificially colored. The color used may have been a coal-tar derivative, commonly called an aniline dye, or an artificial color chemically prepared from some vegetable color. . . . Of course a dull, faint tint must be disregarded." These statements are sound, and conform fully with the common experience of all food chemists who have done considerable work on the natural and artificial coloring-matters.

The Halphen test for cottonseed-oil is restricted to the detection of adulteration in the edible oils. But imagine that the housekeeper should reason that if the test is satisfactory when



applied to the edible oils it ought to be equally applicable to such a product as lard. Here again she would approach the danger-line, for she cannot be expected to be acquainted with the limitations recently imposed upon this test.

I am not satisfied with the method given for the detection of formaldehyde in milk. The directions say: "To detect formaldehyde in milk 3 or 4 tablespoonfuls of the sample are placed in a teacup with at least an equal amount of strong hydrochloric acid and a piece of ferric alum about as large as a pin-head, the liquids being mixed by a gentle rotary motion. The cup is then placed in a vessel of boiling water, no further heat being applied, and left for five minutes. At the end of this time, if formaldehyde be present, the mixture will be distinctly purple. If too much heat is applied, a muddy appearance is imparted to the contents of the cup." Now, there are several facts to be considered in connection with this test. Equal portions of pure milk and concentrated hydrochloric acid give, when poured into a test-tube, a surface layer of the curd and fat and a lower layer of acid whey, which upon slow cautious heating develops a beautiful pink, then a deep violet. This appears in from two to three minutes. Pure milk heated with concentrated hydrochloric acid alone or with the addition of ferric alum will at the end of five minutes' heating sometimes develop a distinct purple color, especially noticeable at the edge of the solution. I am confident that the housewife will in many cases mistake this appearance as an indication of the presence of formaldehyde. Formaldehyde when present in milk in amount as low as one part in 100,000 develops under the foregoing test a marked violet color which appears in about a minute or less after the beginning of heating. This reaction should not be confused with the other changes described. I am convinced that the directions for this test should be changed so as to conform with the method described by Leach and now incorporated in the official methods of the A. O. A. C.

The Waterhouse test is given as a means of distinguishing between oleomargarine and either fresh butter or renovated butter. Numerous trials of this test have convinced me that the test will sometimes fail to detect oleomargarine. It is possible by

variations in stirring and rate of cooling to make the test yield opposite results on a given sample. The test may be profitably employed by an experienced chemist, but I have my doubts regarding its reliability in the hands of the average layman.

There are several minor criticisms that can be made on the methods given in Bulletin 100, most of which are of a kind that may be overlooked so far as concerns the purpose of this paper. In recommending the lactometer for detection of added water to milk it seems to me of some importance to say something about the temperature conditions; in recommending the use of fullers' earth in the detection of caramel, it should be borne in mind that fullers' earth may not be of good quality, for unless the quality be good the test is of little value; in speaking of the detection of foreign seeds in fruit products, it would be best to give further descriptions of the various seeds that are most apt to be found. I doubt whether the layman can detect benzoic acid by the method given or by any other method. I have found the method as described in the bulletin to fail in several instances. Also, in the detection of starch in such spices as cloves, mustard, and cayenne, it is quite certain that the prescribed method will fail in the case of a sample of cloves that does not contain a very large percentage of the adulterant.

There is a place for publications like the last two which I have discussed, but I should prefer keeping chemical methods at a minimum. It is well enough to give out information that will be of service to the public and that the layman can safely apply, but when one attempts to introduce chemistry into the kitchen there is cause for great anxiety. Physical methods, methods depending on the use of the senses alone, any reliable methods that do not require technical training and experience, should be commended. I do not believe it best to try to popularize these things. The best way to popularize any department of science is to dig deeper into science, to work out results, to give the people the benefits of laboratory investigations—in short, to do all the good possible with the knowledge and experience we have acquired. It is not necessary to admit the layman to the secrets of the chemical laboratory. He is more likely to misunderstand, or at

least to become confused regarding vital matters. Let the public have results, not methods, and there is no doubt that the money invested in chemical laboratories will be many times returned.

#### DISCUSSION.

DR. BIGELOW: I agree with Professor Hortvet that there is a liability, in giving chemical and scientific methods into the hands of the public, that misconceptions may arise; however, I think that a great deal of good has been accomplished and can still be done by giving information in such forms as are available to the people in general.

I would like to give an example of something which came under my notice which shows how tests may disagree. We had a sample of olive-oil which upon analysis we found to contain peanut-oil. A sample of the same oil was examined in New York, and the chemist reported "no foreign oil." The importer was not fully satisfied with this diversity of findings, so we asked that we be allowed to watch the New York chemist make another test and see how he arrived at his result; but the importer thought best to engage another chemist, who watched us make the test in our laboratory. I found that the first chemist used the nitric-acid test, which was published in a bulletin issued by one of the State laboratories; and when I say bulletin I do not mean a publication to be scattered broadcast, but one which was purely scientific and came only to the hands of chemists.

## THE FOOD LAW AND THE EXPERTS.

By H. W. WILEY, M.D., Chief U. S. Bureau of Chemistry.

SINCE the last meeting of your Association at Portland, Oregon, a good many changes have been made in the laws of the various States relating to foods and drugs, and some new laws have been enacted in the various States, with the result that at the present time there is scarcely a State in the Union that does not have already enacted or before its legislature a law relating to the inspection of foods and drugs. In addition to the improvements in the State laws two very important laws of a national character have been enacted. The extension of the Meat Inspection Bill is one of great importance to the pure food cause and to the protection of the consumer. The enactment also of the bill relating to interstate and foreign commerce in foods, which has been pending so long in the national legislature, has at last been happily accomplished. The success of this measure has been largely due to the unanimous support accorded to the measure by the food authorities of the various States. They have, in season and out of season, put their shoulders to the wheel of progress, and by their efforts, individually and collectively, and the influence which they have exerted upon their friends and Representatives in Congress, done heroic work in favor of this great measure.

The people of this country, it seems to me, are to be congratulated upon the splendid work which has been accomplished by the national legislature. While no one claims that the law which has been enacted is a perfect one, yet every one will admit that it is based on sound principles of ethics and justice. If experience shall show that it is weak in any of its provisions, the attitude of the national Congress is such to this great question that any needed amendments can be easily secured. This meet-

ing therefore takes place under what may be considered most favorable auspices respecting the legislative aspects of the pure food question.

While congratulating ourselves upon the progress which has been made during the past year, I cannot forbear calling attention to the irreparable loss which the pure food cause in the United States has suffered in the death of Hon. H. C. Adams of Wisconsin. Mr. Adams was a man of rare ability, of rare tact and indomitable energy. In the ten years that I have known him he has always been an invalid and yet has done an amount of work which would shame many a man of strong and perfect physique. His lamented death was doubtless accelerated by his heroic exertions in the late session to secure the passage of a satisfactory meat inspection act and of a food bill which would meet the just requirements of the people. Many a time during the past year, on his way to the House, has he stopped in my office to discuss the possibilities of food legislation and the proper steps to secure as strong a measure as possible. A man of high courage, of noble principles and inflexible industry, he supported the Food Bill with all that enthusiasm and energy which were characteristic of his nature. It was a measure of which he did not wholly approve, as you all know. Could he have had his own way, he would have had a much more drastic and perhaps efficient measure. He realized, however, the necessity of yielding in some points for the sake of securing the great principles involved. The Food Bill had no more able supporter on the floor of the House and out of Congress than H. C. Adams. For many years he was a member of this Association, and I need not recall to your memory his high personal qualities, his geniality, his good-fellowship. I am glad that he lived to see, to a certain extent, the fulfilment of his hopes and to have the satisfaction of seeing upon the statute-books of the United States the national law for which he so long and so earnestly labored.

The enactment of these great measures brings more prominently into view than heretofore the functions of the expert in connection with the execution of the food laws where the determination of wholesomeness or unwholesomeness is left to the

courts. The ideal food law, in respect of its execution, would be one which would specifically forbid the admixture with foods of certain named substances. In this case all that is necessary to secure the proper execution of the law is a careful chemical examination to ascertain whether or not the forbidden substances have been added to food products. The framers of the national law and those of most of the State laws have been of the opinion that it is better to base a food bill upon broad general principles than to have it simply a prohibitory measure. Hence a very common expression both in the national and in the State laws is a prohibition from food products of added substances injurious to health or of colors which are used to imitate or deceive. This leaves open to the decision of the courts the determination as to what is injurious and what is deceptive. In the same manner, though to a less extent, the question of misbranding is one which is also left open to the decision of the courts. It is true that both State and national acts define in general language what is adulteration and what is misbranding, but in any particular case the question is still an open one. There will be afforded therefore in the future to a much larger extent than in the past an opportunity for the expert to go upon the witness-stand and testify respecting these important matters. First of all, let us consider for a moment the meaning of the word "expert" in these cases. I think there is little difference of opinion on this point. An expert witness is one who has special or superior knowledge acquired by study and experiment, and who has exercised this knowledge in some special or important manner. In other words, a mere theoretical knowledge would not constitute a man an expert. I might illustrate by saying that a man might theoretically know the name and description and location of every nerve, artery, vein, muscle, and bone in the human body; this man, however, could not qualify as an expert surgeon because he has not the practical knowledge, that is, the art of technique, which the surgeon possesses.

Under our present system of jurisprudence experts appear for or against the defendant or for or against the State. This, it seems to me, is rather an unfortunate condition of affairs. It would be far better if experts could be called upon simply to

testify without reference to any fee or influence one way or the other. But inasmuch as experts cannot be expected to give their services free of charge, provision must be made for payment. This is either done by the State on the one hand, which brings the prosecution, or by the defendant on the other. We therefore have this curious spectacle, that is, curious in one respect, present in every trial in which experts appear: the evidence which they give is contradictory in many ways. Only the expert who appears without a fee or without being in the interest of one party or the other can be said to be wholly unbiassed, and if he have equal qualifications with others his testimony is entitled to more consideration. Because, however, an expert is paid is no reason for discrediting the character of his testimony. We must admit that, as a rule, experts are conscientious and sincere, and if they have a bias it is not one of a character which vitiates their evidence. Nevertheless, it is a principle of the courts that the jury should consider who the expert is and who employs him and for what purpose he comes. This is well set forth in a recent charge of Judge William W. Carr, of Philadelphia, in a jury case, where the Commonwealth of Pennsylvania appeared against Spencer for selling meat preserved with sulphite of soda:

“There have been thirteen witnesses in all called as experts, and there is, as in many cases at law, a difference of opinion, and in this case an extremely distinct and marked difference of opinion. In fact, the one class says one thing, and the other class of witnesses say the opposite. That, of course, gives you embarrassment when you come to search out and find the truth, but that is your duty. It is no unusual thing to find a difference in the matter of expert testimony. But you also find it in cases which describe the occurrence of a fact or of an incident on the street, and if ten men happen to see an incident, oftentimes, you will not find two or three who agree in describing it in the same way. And why?

“It is because of the difference in their powers of observation, in the strength or the weakness of their senses, of their sight and of their hearing, and also in the facility with which they can narrate or describe an incident they have seen.

“Although this is a difficulty in this case, you must bear in mind that it is no greater than so often happens when you come to decide questions of fact and to find out where the truth in trials of this character is. Therefore it is worth while to consider for a moment just what an expert is. An expert or experienced person is one instructed by experience: one who has skill, experience, or extensive knowledge in his calling or in any special branch of learning. He is a specialist in a particular profession or department of science requiring for its mastery peculiar culture and erudition. Again, what is experience? And this is a necessary thing for you to consider, for you will have to sift out and find where the truth is of these expert opinions. Experience is one or more acts of knowledge by which single facts or general truths are ascertained. It implies skill, facility, or practical wisdom gained by personal knowledge or action. And it is acquired in two different ways. One is by noticing facts without any attempt to influence the frequency of their occurrence or to vary the circumstances under which they occur. That is observation. Then, again, the other way is by putting in action causes or agents over which we have control, and purposely varying their combinations, and noticing what effects take place. That is experiment. I have referred here to these definitions both as to what an expert is and what experience is, because the way for you to sift out and to find the truth as lying between these two classes of witnesses is to consider their experience, the experiments of which you have heard them speak, their age, the kind of work in which they are engaged, their professional records, their professional rewards, their opportunities for observation, their professional standing, and, above all, their manner of testifying, and again, superlatively so, the cross-examination to which they were subjected.”

It seems to me, in view of the important services which experts are certain to render in the near future in connection with the cases under the national and State food laws, a brief review of the duties and limitations of the expert and the character of expert testimony may be very properly discussed here to-day. I take first all cases where injury to the public health is involved.



Here the expert should be particularly careful in respect of the character of his testimony. I speak to you first of all of those experts who appear upon the witness-stand to testify that certain substances added to food, such as preservatives and coloring-matters, are not injurious to health. In a case of this kind it is not sufficient for the expert to state that in so far as he has observed and in his own experiments no injurious effects have been produced by the addition of these substances. The law does not require nor expect that an added preservative or other substance added to a food shall injure every one or even the majority of people who may consume it in such a way that injury is patent to the ordinary observer. If, however, the substance itself is an injurious one and if it acts unfavorably upon the weakest of those who are called upon to eat the foods in which it is contained, it must be condemned. The object of legislation in such cases is not particularly to protect the strong and those who are able to take care of themselves. The principal object, on the other hand, is to protect the weak, the invalid, and the infant, and those who are not able to exercise due care on their own account. It does not free a man from guilt, if he should be tried for theft, to bring a thousand men on the witness-stand to swear that he never stole anything from them. If it be proved that he stole from one individual, he is guilty and must suffer the consequences. The same is true of a substance added to a food product, as a chemical preservative or otherwise. You may call a thousand expert witnesses who will testify that in their experience they have never known of an injury to health caused by such added substances. If a single expert witness establishes the fact, however, that injury to health has resulted by use of this body, the case is lost. In other words, negative proof is no proof at all in a case of this kind, and it is contrary to the principles of logic anyway to prove a negative. The thing that is to be proved is that a substance is injurious to health. The case is not decided when the expert swears that it was not injurious to health in such and such a case. The expert must take the facts presented in the evidence of actual injury and show that these facts are fallacious and their conclusions wrong. Nor does the law imply that the particular

food product which is under examination and which may be said to represent the *corpus delicti* in court has injured anybody. It is only sufficient to prove that the material which has been placed in that food is of a character which renders a food product of that kind injurious to health. The expert therefore undertakes a very grave responsibility who proclaims under oath that these added substances which act as chemical preservatives and coloring-matters are harmless.

To show the incongruity of expert testimony of this kind I may quote further from the same trial in which the charge of Judge Carr, above quoted, was given. A distinguished expert from Germany testified in that trial that the use of sulphite of soda in meats or other food products was wholly innocuous. He testified that he had worked for many years in the study of food preservatives and especially the study of the effects of sulphurous acid and sulphites. He criticised the results of other investigators which had shown this substance to be of an injurious character, and testified that it was of the greatest interest to the people who buy meats for consumption that the use of sulphite of soda should be generally practiced. He testified that he had looked over all the literature available and could find no poisonous effects produced, and challenged any physician in the world to bring up any instance of any injury being done by sulphite of soda in the food. He testified that sulphite of soda was much less harmful than ordinary table-salt. Finally, he was asked on cross-examination—after having testified that the use of sodium sulphite was of the greatest possible benefit to all the people and that it should be unrestricted—the following question: “Have you ever used this sodium sulphite on meat and eaten it yourself?” Answer: “No. I have tasted it.” Asked again, “Would you eat sodium sulphite yourself?” he replied, “Why not?” Then, when the question was repeated, “Would you?” he answered, “Yes, sir. But I must say I do not buy my meat. If you buy meat and say to me, ‘I have a Hamburg steak preserved,’ I say, ‘Thanks, I will eat it.’ Why not?” And yet he testified that he never did eat it, and I doubt if even the

famous Dr. Liebreich himself would be willing to eat meat every day to which sulphite of soda had been added.

In this same case there was another distinguished specialist who appeared for the State. Now this last expert and Dr. Liebreich agree perfectly in their opinions of boron preservatives that they are not harmful and should be allowed free use. But they differ very seriously on the question of sodium sulphite. He testified as follows:

“Sulphites, when administered by the stomach, affect, in the first place, the stomach itself locally. They are irritating to the stomach, to the mucous membrane of the stomach. The exact degree of irritation caused by a sulphite will depend, of course, upon the quantity administered and the concentration in which it is administered. A more concentrated solution will, of course, irritate the stomach more than a dilute solution, and a larger quantity more than a smaller quantity. To some extent sulphites are decomposed in the stomach, depending upon the action of the hydrochloric acid upon the sulphites in setting free sulphurous-acid gas. However, whether sulphurous-acid gas is set free or not, the sulphites locally irritate the stomach. They would do so, whether given on an empty stomach, free from hydrochloric acid, or whether given upon a full stomach; and the sulphites, when absorbed from the stomach,—and they are rapidly absorbed from the stomach,—act as poisons by ridding the blood of its oxygen and destroying the red blood-corpuscles. The poisonous action, of course, will depend on the amount of the sulphite that is given, the way in which it is given; if it is given by the stomach or in large amount and in a highly concentrated condition it will in lower animals give results in a very few minutes.”

I quote these two experts simply for the sake of illustration, showing how many men absolutely disagree in regard to matters of this kind. I have selected these two men because they agree upon another substance, namely, borax or boric acid, in believing that it is perfectly innocuous. The first-named expert, who is the protagonist of sulphite of soda, has for many years been the ablest and most enthusiastic advocate of the use of borax in foods. He has criticised without stint the conclusions of the

imperial board of health of Germany forbidding the use of borax, and also all other expert testimony which has shown, or tended to show, injurious effects produced from the administration of borax or boric acid. He has sought in every possible way to explain the ill effects which attended the administration of borax in the experiments conducted by the Department of Agriculture, attributing these ill effects to the unsanitary conditions surrounding the young men who devoted themselves to the experimental work. He has stated: "The premises used were not very suitable, being near kitchens and store-rooms containing malodorous oils, and possibly continuous eating in such rooms would tend to diminish the appetites of young men, especially those who are used to something better, and would lead to the changes in metabolism attendant upon this decrease." The fact that the borax was given partly in capsules, according to the opinion of this expert, renders the whole results unreliable, forgetting, as he does, that medicines, both for remedial purposes and in pharmacological experiments, are almost universally administered in the same way by the most eminent hygienists, physicians, and pharmacologists of the world. Every possible method of discrediting the persistent, unfavorable, and well-marked effects of the administration of the borax he has used, although the work of the Department showed unmistakably that the borax was far more injurious than the sulphites which were administered in subsequent experiments. Now, with the same evidence before these two experts, the second one entirely disagrees with the first respecting the influence of sulphites, calling sulphites a violent poison, while he entirely agrees with him in regard to the borax. This very fact shows that there is some very grave error of judgment on the part of the one or the other. As they disagree among themselves on the same evidence in respect of the sulphites and agree among themselves on the same evidence in respect of borax or boric acid, it is probably that their evidence and opinions are not to be taken with the full degree of confidence that should be accorded to opinions coming from such eminent sources. In other words, it seems unreasonable to suppose, on the evidence which is now before the expert world, that sulphite of soda can

be a harmless substance if borax be a harmful one, or *vice versa*. On the other hand, the evidence which condemns borax is just as conclusive, if not more so, as that which condemns sulphite of soda. Hence, if these experts disagree at all it should be in the case of borax, the more harmful of the two bodies.

That some of our own experts are on the wrong track in regard to this matter is the opinion of *The British Food Journal*, which, in its issue of June, 1906, makes the following comments:

“The American Pure Food Act is ‘an act for preventing the adulteration or misbranding of foods or drugs, and for regulating traffic therein, and for other purposes,’ and is the latest important measure that has been passed with the idea of limiting, as far as possible, in extent, and modifying in character, the adulteration of food products and drugs. The prevalence of food adulteration in the United States is very considerable. To superficial observation it might seem that a country with the great natural resources of the United States, thinly populated on the whole, largely given to agriculture—which is second in importance only to its manufactures—and capable of growing almost anything from temperate to semi-tropical products, and with ample means for the rapid internal distribution of these, would be one of the countries least likely to be troubled with the practice of systematic and extensive adulteration of its foods and drugs. This, however, is by no means the case. Competition is extremely keen in the United States—in no country more so. Certain manufacturing concerns, as a result of this, use every means in their power to undersell their trade rivals. With ample capital at their backs, they use to the best advantage—from their point of view—highly trained chemists and lawyers. The great development of chemical manufacture which has followed from an extensive and excellent system of technical training has resulted in many products of chemical synthesis, such as artificial flavorings and coloring-matters, being readily and cheaply obtainable. Under these circumstances the scruples which we may charitably suppose to have existed in the minds of the directors of many large manufacturing concerns have rapidly disappeared, and such ‘foods’ as golden syrup consisting of starch-glucose, fruit jelly containing

anything but fruit juice and colored with coal-tar dyes, lard consisting of beef stearin and cottonseed-oil, 'filled' cheeses, and so forth, have been put upon the market."

"A perusal of the reports of the Debates in the United States Senate on the Pure Food Bill, of the latest report of the Committee on Interstate and Foreign Commerce, and of the periodical reports issued by the Food Commissioners, Health Boards, and Dairy Commissioners of the different States makes it abundantly clear that many of the various trading corporations and individuals in the States are in the front rank as regards these illegal practices, and do not scruple to avail themselves of every means that a highly developed chemical industry, expert legal aid, and financial co-operation afford to fill their pockets and increase their dividends."

The next most important point to which the attention of the expert will be drawn in the near future is the question of admitting a harmful substance and limiting the amount which is admitted. It is evident that whenever a limitation is placed upon a body added to a substance, it is either for the purpose of preserving its palatability or preventing it from being injurious. It is further self-evident that it is quite impossible to fix any limit at which an injurious substance ceases to be injurious or at which a harmless substance becomes injurious. Hence, any attempt on the part of an expert to fix a hard-and-fast limit for the use of an objectionable body must result in confusion and disaster. This is particularly true in the light of the testimony lately given before the Interstate and Foreign Commerce Committee of the House of Representatives respecting the quantities of boracic acid and benzoic acid which should be admitted to foods. Experts of high character testified that one half of 1 per cent of boric acid would not be harmful in foods. If one half of 1 per cent of boric acid is not harmful in butter, it is also not harmful in meat, nor in milk, nor in cream, nor in bread, nor in water, nor in any other thing which may enter the human stomach. The carefully measured quantities of food fed to young men in the Department of Agriculture for four years show that about five or six pounds of moist food, including water, enters the stomach of a healthy young man

weighing 150 pounds every day. If one half of 1 per cent be allowed in foods and this allowance is extended to its legitimate conclusion, there would be three hundredths of a pound of borax in the food eaten every day. It is wholly illogical and unscientific and without any possible conclusive evidence to set a limit of this kind to an objectionable substance added to foods. If a thing is bad it should be kept out in any quantity. If it is good, its amount should not be limited except by the exigencies of the case. What expert could possibly say that five tenths of 1 per cent of borax is harmless and fifty one-hundredths is harmful? And yet, if there is no limit to be set, how can the expert testify to a limit? Many attempts were made in the Committee and on the floor of the House and of the Senate to introduce into the Pure Food Bill an amendment limiting the use of such preservatives as benzoic acid and boric acid to a certain definite amount. The most elaborate arguments were listened to in support of these propositions, and yet neither on the floor of the House nor of the Senate did the proposed amendment meet with one approving vote other than that of the gentleman offering it. This shows how futile the arguments are which seek to justify a certain maximum limit for substances added to foods. This maximum limit would certainly prove highly injurious to delicate stomachs, to children, invalids, and convalescents, and therefore the preparation of foods even with the limits fixed would be open to the most serious objections on the point of health. Often it is said that the exigencies of commerce and the distances to which foods are exported require the use of preservatives. A perfect answer to this is shown in the fact that even the most distant countries to which foods are sent and where a certain amount of preservatives is tolerated do not by any means receive foods which are wholly preserved. The meats which are sent from this country to Germany contain no trace of borax, and yet they go in perfect condition. The meats which are sent to our soldiers in Manila, the most difficult geographical position which can well be imagined and one which, if there be any in the world which would justify the use of preservatives, would pre-eminently occupy that position, contain not a grain of borax. In the case of the butters imported

into England, where a certain degree of borax is tolerated, it is found that the percentage containing borax varies in different years from 35 per cent to 57 per cent.

Thresh and Porter, in their new book on the subject of preservatives in foods, have this to say in regard to the occurrence of boron in butter:

“Boron preparations appear to be especially well adapted for preserving butter, and if any antiseptic is needed at all, they will probably be less harmful than formaldehyde, salicylic acid, or saltpetre. One half per cent is, as has already been mentioned, sufficient for all practical purposes, and with this amount there is little likelihood of evil consequences, especially as the consideration with regard to infants and invalids mentioned under the sections on milk and cream hardly applies to butter, so long as the other articles of food consumed are free or almost free from the same chemical; but if this is also present in milk, cream, ham, bacon, fresh meat, and various other articles of common consumption for which boron compounds are used, even a healthy adult may obtain an overdose. It is therefore of importance that if the addition of preservatives is to be allowed, the quantity should be strictly limited even in butter.

“With the danger referred to above, it is desirable that the use of preservatives should be reserved chiefly for those foods for which they are practically indispensable, and in spite of the opinions of many, it is doubtful if butter comes under this category, since none of the butter from Denmark contains any preservative (beyond common salt); and in reply to circulars sent out to a number of large butter establishments in New Zealand, 60 per cent stated that they had found preservatives unnecessary, 20 per cent were undecided or declined to express an opinion, whilst the remainder, including, it is true, some of the largest exporters, considered that they were necessary. Moreover, formerly, at all events, two thirds of the samples which left New Zealand were free from preservatives.

“Preservatives are rare in Canadian butter, whilst at one of the Cork creameries it has been found that butter made from pasteurized cream, with the aid of a starter, will keep two or



three weeks with one half per cent, and two or three months with 3 per cent of salt.

“To ensure a supply of butter free from preservatives several things are essential. The manufacture must be conducted with care and cleanliness, the use of pasteurized cream and a starter is advisable, the process must be carried on throughout the greater part of the year, or failing this cold storage must be provided, and better means must be adopted for the carriage of the butter on railways than at present exists.

“Looking at the whole question from the point of view of the sanitarian, one cannot but express a wish that the use of preservatives in butter should be declared illegal, since there is no evidence to show that the trade could not be conducted without this addition if the precautions already mentioned were adopted, as the unnecessary and repeated introduction of a substance normally foreign to the body cannot be deemed desirable from a physiological point of view.

“If prohibition were to entail pasteurization of the cream, there would be a further gain in the interests of the public health in the diminished risk of the transmission of infectious diseases, to say nothing of the poisons such as tyrotoxicon and allied products of decomposition, which dangers undoubtedly exist at present.”

These data appear to be a complete answer to the claim which is often made for the necessity of boron in some form in meats and dairy products and butter shipped to a great distance.

I do not wish to detain you too long on this interesting subject. I think I have made it plain that the experts will not agree in any case that any of the proposed chemical preservatives or coloring-matters are harmless. There will be always abundant and well-founded testimony, as well as expert opinion, to show that these bodies exert injurious effects upon the health. In this case it seems to me that the verdict of the jury can never be other than that of guilty. It would be beyond the bounds of reason to set aside the positive, convincing proofs of harmfulness as against the mere opinions in regard to wholesomeness. The English experts themselves whom I have just quoted and who are regarded as looking with considerable favor upon the use of

preservatives, frankly confess, after a thorough study of the boron question at least, that it would be a happy thing for England if the use of this preservative in dairy products were declared illegal. What then can we say of experts in this country, where we are near our sources of butter supply, who maintain that it should be used indiscriminately in products of various kinds? Further than this, late investigations carried on at the Department of Agriculture have shown that foods containing borax, when eaten by the mother, impart to her milk a considerable quantity of borax which enters the stomach of the young infant.

I have mentioned borax more prominently than other preservatives because just now there is more effort made to legalize its use than that of any other of the well-known preservatives that have been used in foods. I hope that the experts in this country, for whom I have the greatest possible respect, will consider very carefully the ethical side of this problem and not be misled by their convictions that it is harmless in some cases to decide in its favor for all cases. Let them consider with great care the infant, the invalid, the convalescent, and the idiosyncratic, and remember that while it may be true that in many instances of robust health the preservatives which they advocate might be used, if they are allowed in general in foods the weak and the invalid must suffer and great damage be done. Furthermore, when they remember that the use of preservatives in foods is a premium upon carelessness in preparation, upon immature or over-ripe products, upon dirt and filth, the argument seems to be convincing which would lead them to withhold their approval of the use of bodies which are certainly capable of doing great damage and working great injury. Let us hope therefore that the expert in our food law will lay aside his bias, will forget the fee which accompanies his services, and will loyally and logically tell the truth, let it hurt whom it may.

## FOOD FROM THE CONSUMER'S POINT OF VIEW.

By ALICE LAKEY, Chairman, Food Investigation Committee, National Consumers' League.

THE busy man at this time of the year is supposed to be living the simple life to fortify him for the storm and stress period of the coming winter. A shining example to the contrary is the food official. While others rest he must work. The food worker knows no rest.

Man is so constituted that he must literally eat his daily bread if he would keep himself in the body. Unlike the bear, he does not hibernate, hence cannot consume enough fruits and vegetables in their season to last him through the winter.

To provide himself with these products when the season is over he has duly invented the tin can, and to-day the march of civilization is marked by the trail of tin cans.

My summer home is on a farm on the shore of beautiful Lake Winnepesaukee in New Hampshire. We glory in the fact that life in our nearest village is very much as it was one hundred years ago. No railroad, nor trolley, nor telegraph has yet invaded its quiet.

But the tin can is there. The village store is library, post-office, and general store. You can buy there a mackerel or a mackintosh. On its shelves are canned goods of every description: salmon from Oregon, sardines from Maine, potted chicken from Chicago. When the tin cans are empty one again sees them masquerading in the village windows as flower-pots and in the boats of the fishermen as bait-cans.

Even a new use has been found for them. Seeing a shining row of tin cans in a village garden the summer visitor said: "What have you under the cans?"

"Celery plants," replied the native.

Here one has the tin can in a new rôle: protector of the future canning product even as is the tariff of our infant industries.

It yet remains for a mathematician to tell us how many miles of the earth's surface could be covered by the yearly output of tin cans.

One Chicago firm reports a weekly output of 5,000,000 cans of meat products or 260,000,000 a year. Another report shows that 264,000,000 cans of corn and 235,000,000 cans of tomatoes were canned last year. The total output in 1904 was 700,000,000.

Advance sheets of the census for 1905 received last week from the Department of Commerce and Labor give figures that are amazing to one not familiar with the canning industry. These are the figures:

|                             | Pounds.       |
|-----------------------------|---------------|
| Canned vegetables . . . . . | 1,672,759,438 |
| "    fruits . . . . .       | 295,760,355   |
| "    fish . . . . .         | 259,469,861   |
| Condensed milk . . . . .    | 308,485,182   |
|                             | <hr/>         |
| Total . . . . .             | 2,536,474,836 |
|                             | <hr/>         |

|                           | Value.        |
|---------------------------|---------------|
| Canned beef . . . . .     | \$7,697,815   |
| "    vegetables . . . . . | 45,262,148    |
| "    fruits . . . . .     | 15,664,784    |
| "    fish . . . . .       | 15,966,513    |
| Condensed milk . . . . .  | 20,149,382    |
|                           | <hr/>         |
| Total . . . . .           | \$104,740,642 |

It is just about one hundred years ago since the first patent was taken out for the tin can, and the business has grown to these enormous proportions since 1850, when the making of cans by machinery was begun. Practically, all the industries have now been taken from the home; the brewing, the baking, the canning, the preserving are now done outside.

With the withdrawal of these industries from the home, woman has become more or less indifferent to them, and not until the

agitation began for pure food did she realize what her indifference meant. A rude awakening has come. The fight for pure food has done more than help the passage of the bill. It has recalled to the woman her right to know what she is feeding her family.

In addressing the women's clubs during the past year on the subject of food adulterations, the first question always asked was, "How can *I* secure pure food for my family?" In all the public discussions that have gone on relative to this bill the voice of the consumer has not yet been heard.

Senators, congressmen, food manufacturers, packers, and food officials have all spoken, but not the consumer, and yet it was the consumer who forced Congress to pass the bill, because the consumer represented public opinion. And how was public opinion roused? Through the splendid work done by Dr. Wiley and the Bureau of Chemistry, the State Food Commissioners and Chemists, and State Boards of Health all over the country.

*You* supplied the consumer with facts. The fight of fifteen years has been won through a campaign of facts.

The work of food officials has only begun. One may confidently predict that the day will come when the entire food supply of this country will be produced under sanitary conditions, stored and sold with every regard for sanitary laws. When that day comes we shall realize the debt we owe to you, the pioneers in this fight for pure food.

This day can be hastened if the consumer is kept continually awake to food conditions.

The consumer must be educated until he knows what he wants.

Let any one who doubts the future of this movement compare surgical work to-day with that thirty years ago. To-day "Keep clean" is the surgeon's command. "Keep clean" should be the command to every food manufacturer.

Clean milk means a lowered death rate.

Clean meat means the same.

Clean methods in handling all other food products mean the same.

Cleanliness is the watchword. If food officials would insist on having food factories inspected by sanitary experts, consumers

would soon demand that all canned foods bear a label stating that the factory was clean where they were produced. A simple process of refusing to buy goods not labelled in this way, and also refusing to buy all canned goods not dated, would compel manufacturers to so label cans.

Again the consumer can win a victory. All places where food is prepared, stored, and sold need sanitary inspection. If the packing-houses need rigid inspection to ensure clean meat products, the wharves where fish are handled and the establishments where they are cured need the same. Over 100,000 tons of fish are annually handled at Boston and Gloucester.

If dairies need inspection, so do bakeries, candy manufactories, jam factories,—in brief, so do all food factories.

Give us this sanitary inspection and then see how quickly women will refuse to buy food produced in any but clean factories. The great sale of certain foods has been brought about largely through the assurance that they were made in factories scrupulously clean, and not touched by the human hand.

A friend has told me that near her home in a small town in Western New York there stands an old tumble-down house open to the winds of heaven and the rats from out-of-doors. In this old place is stored at times quantities of apple waste from a cider-mill. Over it the rats and mice play at leisure until it is carted off to a neighboring jam factory. If necessary to inspect meat "from hoof to can," it may be necessary to inspect jam from berry-patch to can.

With the single exception of Indiana, no State has specific laws governing the sanitation of all food-producing establishments.

Many States have laws for dairies, bakeries, and slaughter-houses, but Indiana seems to be the only one with a general law.

Minnesota has a specific law forbidding the sale of undressed poultry and wild fowls. Massachusetts has a law somewhat similar. I am told that New York has recently passed such a law since Bulletin 69 was issued. Will not the Food Commissioners secure us a similar law in every State?

Who that has visited Washington Market in New York City can ever forget the piles of gray-green chickens exposed for sale

outside the market? They look as if they had been in cold storage from time immemorial.

Commissioner Whalen of Chicago recently reported that putrid chickens are preserved and kept in cold storage for ten or twelve years and then sold.

Will not the Food Commissioners secure us laws governing the time that food shall be kept in cold storage?

The Consumers' League and the General Federation of Women's Clubs, with a combined membership of over 800,000 women, have been working for a year and a half for the Heyburn Pure Food Bill. The bill is passed. To-day they stand ready to help in every way the movement to better the nation's food supply. Woman is the guardian of the home; this bill affected the home, and they worked to secure its passage, because its ethical side appealed to them and because it meant protection to the home. The bill meant honest food, honest drugs, so they battled for it.

They stand ready to-day to help in its enforcement and to raise the standard not only for unadulterated food, but for clean food. They wish to hold up the hands of the honest manufacturer and the clean manufacturer. Our organizations are pledged to support such men; only tell us who they are. Give us women information.

And now a word as to what the Consumers' League, with its sixty-three Leagues in twenty States, has done for pure food.

The League voted in March, 1905, to take up the subject of food investigation. A committee was formed with an advisory board of men composed chiefly of food officials. The object in having an advisory board of food experts connected with the committee was to enable members of the Consumers' League to have official information on all subjects connected with the examination of food as carried on in their respective States by these food officials.

This board comprises:

R. M. Allen, Secretary Interstate Pure Food Commission of Kentucky;

Hon. Horace Ankeney, Food Commissioner, Ohio;

H. E. Barnard, B.S., State Chemist, Indiana;

H. Holbrook Curtis, M.D., New York;  
Richard Fischer, Ph.D., State Chemist, Wisconsin;  
Elton Fulmer, M.A., State Chemist, Washington;  
George W. Goler, M.D., Rochester, N. Y.;  
Julius Hortvet, Ph.D., State Chemist, Minnesota;  
B. W. Kilgore, B.S., State Chemist, North Carolina;  
F. J. H. Kracke, Assistant Food Commissioner, New York;  
E. F. Ladd, Ph.D., Food Commissioner, North Dakota;  
Chas. D. Lakey, Cranford, N. J.;  
Albert E. Leach, Ph.D., State Chemist, Massachusetts;  
Ernst J. Lederle, Ph.D., New York;  
James L. Perkins, M.D., Cranford;  
Charles A. L. Reed, M.D., Legislative Committee, American  
Medical Association, Cincinnati, Ohio;  
Major Louis L. Seaman, M.D., New York;  
James T. Shepard, B.S., State Chemist, South Dakota;  
H. V. Tartar, B.S., State Chemist, Oregon;  
Hon. B. H. Warren, Food Commissioner, Pennsylvania;  
Irving A. Watson, M.D., Director Laboratory of Hygiene,  
New Hampshire;  
A. L. Winton, Ph.D., State Chemist, Connecticut; and  
Edward D. Voorhees, Ph.D., Director A. E. S., New Jersey.

It was hoped that members of the League could have, if they wished, copies of the food reports and bulletins mailed to them, and in this way ascertain what brand of goods is adulterated, and therefore illegal.

In brief, the whole effort of the committee was to be directed toward bringing food officials and consumers in direct touch with each other, thus by a process of education to hasten the day when honest food, honestly labelled and produced and sold under perfect sanitary conditions, will be within the reach of every housekeeper.

The first work done by the League was on behalf of the Heyburn Pure Food Bill, and the value of this work may be gauged by the letters received after the Senate passed the bill last February.

Already has the New York City League begun its work of in-



vestigating the tenement-house food factories, where ice-cream, ices, candy, confectionery, pickles, maccaroni, spaghetti, cracked nuts, and preserves were being manufactured under the most unsanitary and shocking conditions. As a result of Miss Sherman's investigations these articles of food are now included among those which cannot be manufactured in tenement-houses without a license, Governor Higgins having signed amendment to the law.

The New York City League may hold an Exhibit November 21, 22, and 23 of adulterated foods, pure milk, and pure water. Several food officials have already promised to give us their help, and I ask you all to-day to render us every assistance possible in this Exhibit. We wish to rouse the women to the importance of the pure food movement and the clean food movement. The League has worked for the Pure Food Bill because its ethical side appealed to them. It meant honest foods, honest drugs. We now wish to hasten the day when the dweller in the tenement-house can have not only pure food but clean food.

We look to you to tell us who will give us pure, clean foods.

The League asks you for information, for bulletins.

The League asks you for sanitary inspection of food factories, for dated cans, and for a time limit for cold storage. Tell the packers and canners to so label their goods that the League can tell which are pure and clean from those that are not.

Gentlemen, give us all these improvements, and see how quickly the League will help the work of the Interstate Pure Food Commission.

#### DISCUSSION.

MR. FLANDERS: If I understood the lady correctly, she said she was going to wake us up in New York State; and I wish to assure her and you all that we are not asleep, nor have we been during the past twenty-three years that I have been connected with the department and in a position to see whether the work was going on or standing still. The four hundred samples to which she refers as examined by the State Board of Health are all right so far as they go; but some time ago the food work of the State was turned over to the Department of Agriculture, and in the past year we have prosecuted something like five or six hundred cases.

MISS LAKEY: The only report I have been able to locate was

that of the State Department of Agriculture, and I based my argument on that.

MR. FLANDERS: Well, we will lay the allegation merely to ignorance on her part, but permit me to say that I consider her authority an extremely poor one. Outside of the food work in our State, the department deals with the diseases of domestic animals and also with the question of bob veal and fruit-trees in the State. We have an appropriation of a quarter of a million, \$30,000 of which comes directly to the call of the Department of Agriculture. We have taken in between six and seven hundred calves which were to have been sold and which would have been bob veal. We do not go and seize one calf and then have a half a column in the daily paper over it; but we seize whole car-loads and then are content if we get one line in the paper about it.

MR. EMERY: I wish to express the appreciation of the Association for this paper showing the rights of the consumer. I remember very distinctly, as doubtless many of you here do, of a paper which was once read on the floor of this Association, "The Rights of the Manufacturer," and how the matter was elaborated upon and explained in the most flowery and glowing style and I am most glad to have some one come and tell us the rights of the consumer. A Chicago manufacturer tells us how he can take these tainted chickens and place them in a solution which he prepares and allow them to stand there for one hour, and when taken out they will be as pure and sweet as in the first place. I think the consumer has a right to know the date when these chickens were placed in cold storage and the privilege of discriminating between the old and the new ones.

## PURE FOOD WORK IN INDIANA: CONDITIONS PAST AND PRESENT.

By Dr. H. E. BARNARD, Chemist, State Board of Health, Indiana.

Mr. President and Gentlemen: To those of you who have had any knowledge of food conditions in Indiana there comes doubtless the query, "Can any good thing come out of Nazareth?" My paper is intended to show you how in the space of one year the markets of our State have been cleaned out and the morals of manufacturers, wholesalers, and retailers so elevated that they are now wondering how they so long suffered themselves to believe that while "honesty is the best policy" might have been a true maxim for "Poor Richard," it had no place in modern commercialism.

Indiana from its central location between the great States of Ohio, Michigan, Illinois, and Kentucky, all of whom have had in more or less successful operation for years some form of food inspection, has been living on the refuse from these States, on the cheap, adulterated products unsalable over her border. Wilful disregard of honest principles, sacrificed in a struggle to produce goods more cheaply than their business competitor, had become an established practice of the manufacturers. Profitable traffic had dulled the conscience of the wholesalers. The retailers had followed the wholesalers in their race after cheapness and were content only to supply goods at the lowest price and cared nothing for purity or quality.

Out of all this struggle between manufacturers, wholesalers, and the corner grocer, the poor consumer had emerged a sorry spectacle, robbed in purse, and with little regard for what he ate or drank, the inevitable results of long indulgence in adulterated food. But in some way or another, and largely because of a protracted fight by the State Board of Health, in 1905 the legislature authorized the establishment of a food and drug labor-

atory, and, departing from the custom of surrounding States and following the New England idea that pure food legislation could best be enforced through the Health Boards, created the laboratory as a branch of the State Board of Health. Such a measure did not suit the politicians, of course, for they were not given the opportunity to fill the new offices created and thereby to put another cog in the machine. But in spite of opposition the bill passed, was signed, and with \$5000 a year the State Board was authorized to purify the markets and keep them purified. It is needless to say that \$5000 will not go very far if a corps of food inspectors or commissioners has to be paid, and so we have proceeded on the theory that they are not an absolute essential to pure food. In reaching this decision we have been guided by the results obtained in Massachusetts, New Hampshire, Vermont, and the District of Columbia, and have also, I confess, gone ahead, for a part of the way, at least, altogether in the dark. Under a law of Indiana all local health officials are agents of the State Board of Health, and may be called upon to do whatever is desired of them. We have used these local officials to a considerable extent as our inspectors. They have made collections of milk and many other classes of foods for us and have without cost performed an inspector's work efficiently and effectively.

In many of the States there has been a growing feeling that mere prosecution does not protect: that the manufacturer or distributor of illegal foods does not mind occasional fines as long as his practices are not broken up,—in fact, that the fine system is simply another method of licensing illegal acts.

It is also well recognized that in many cases, at least, the retailer is wholly innocent of wrong-doing, as when he sells to his customers a "pure cider vinegar" that is entirely artificial; the goods are so branded, he holds the manufacturer's guarantee of purity and, best proof of all, he has paid the price that entitles him to pure goods.

At the beginning of our work we adopted the plan of publicity as the best check for illegal manufacture and sale of food products: publicity through the press and by monthly bulletins. We are indeed fortunate in having in Indiana a fearless, unsubsidized

press, that believes in telling the truth, and has recognized the fact that the people and not their advertisers are their strongest supporters. With this knowledge the leading papers of the State have constantly kept the issue, pure foods versus adulterations, before their readers, both by daily comments and editorials, and by publishing in full each month a complete list of all adulterated goods, giving with entire impartiality brands and manufacturers, and, where that information was not obtainable, the name of the retailer.

At the opening of the laboratory last fall we sent two of our men, trained, one in food chemistry and the other a graduate pharmacist of much experience in the wholesale and retail drug business, through the State. In one month they visited all of the larger cities and towns and sent back to the laboratory over 4000 samples of foods and drugs. You say such an inspection must have been very hasty, incomplete, and productive of little results. I grant the first accusation, but not the second. Their march around the State, rapid and spectacular though it was, caused more sleeplessness on the part of the retailers and furnished more copy for the press than a year's work in this town and that, and a fine here and a fine there. We desired a more complete knowledge of the quality of the goods sold in Indiana than we could get by local inspection. That we have obtained by the study of these more than 4000 samples, hardly any two of which were duplicate samples. Since the time our collectors came in we have been doing laboratory work, and our pure food law has been administered from the laboratory by the light gained by analytical results. Here are some of those results: We analyzed 145 samples of vinegar—we found 12 pure vinegars and 133 or 91.7 per cent adulterated, imitations shipped to our markets from the protected States of Michigan, Ohio, and Kentucky.

We published these lists far and wide, and manufacturers and salesmen came scurrying to Indianapolis to save their business. We told them how to save it—and we kept on publishing names. At the present time there is not a large vinegar buyer in Indiana who does not buy his goods on analysis instead of guarantees and salesmen's statements.

We found 214 out of 229 samples of lemon extract and 121 out of 132 samples of vanilla extract to be illegal. We published names and the press took as much pleasure as we did in reporting them, and there was an influx of extract manufacturers from the protected States on our every side. They, too, learned how to save their business, and in a few months a remarkable change took place in the character of the extracts sold throughout the State. At present, while there are still many cheap goods on the market, they are properly labelled, and the purchaser need no longer be deceived as to their quality.

We found 49 out of 54 samples of maple syrup to be wholly or very largely cane-sugar syrup. Wide-spread publicity destroyed the market for all improperly labelled goods and opened the way for a profitable trade for the local producers of pure syrups.

A year ago I was told by one of the most prominent wholesale grocers in Indiana that 75 per cent of the spices consumed in the State were adulterated, and that the people had been using weak, worthless goods so long that they would be afraid of pure, full-strength spices. Our results, while hardly bearing out the wholesaler's assertion, did show a deplorable state of affairs. Forty-eight of the 121 samples of cloves were largely ground cocoanut-shells, and 44 of the 81 samples of pepper were ground olive-stones. We condemned many of the best brands of spices that were handled by prominent houses of wide reputation, and, in the inevitable discussion, had the satisfaction of proving to the firms that they themselves had been victimized even as they had held up their customers. During the last eight months we have advertised widely the character of 3000 samples of food products and of drugs. We have found 55 per cent of the samples to be either below standard or adulterated in violation of the law. Such figures as these show well the conditions that prevail in the State which has had no food laws. The hearty sympathy of the consumers, the retailers, wholesalers, and manufacturers is sufficient indication that there has been a change in their perspective, and the fact that many of the best houses in the State are constantly submitting samples for analysis before buying new lines of goods is proof that whole-

some agitation, or education if you will, for publicity of food data is really education, is quickly conducive of good results.

In our work in Indiana we have found little adulteration that was injurious to health. We have occasionally detected preservatives in meats, and we have in a few instances found formaldehyde in milk samples. Our results do not bear out in any particular the cry of the sensationalist whose only idea of food adulteration is poison. The residents of Indiana, though forced to consume millions of dollars' worth of adulterated foods each year, have not suffered greatly in bodily health. They have been defrauded and deceived, but rarely poisoned. Food adulteration is an economic question, and in my belief can best be checked by an appeal to the inherent dislike of every man to be cheated and imposed upon. In proof of this I may cite one of many instances that have come to my notice. One of the most successful grocers of Indianapolis, a man who ran several cut-rate stores, depended for his business upon the good will of a large class of purchasers who came to him because they could buy cheaply, and they did, for his stock was full of fraudulent goods. We visited him, took many samples, analyzed them, and published our findings in the daily papers. Less than a month after our successful grocer came quietly to the laboratory in a most downcast spirit. He told me with tears in his eyes that that morning he had mortgaged all his property holdings to pay his debts. He said his business had been ruined by the publicity his stock of goods had received. He acknowledged he had been in error in thinking that anything so long as it was cheap would suit his trade, and he begged for advice as how he could best begin over. He followed our suggestion that he clean out the adulterated goods, and now his slogan, widely advertised and displayed in front of his store in letters a foot high, is "All of our goods comply with the Pure Food Laws."

We do not claim that a compound maple and cane syrup is any less wholesome than the pure product of the maple grove. We do not even believe that cider vinegar is to be preferred in point of healthfulness over the distilled article colored with caramel. We do not take the ground that there is anything harmful

in spices made from ground olive-stones, cocoanut-shells, and roasted cereals. We do not wish to deprive the poor of an occasional taste of artificial jelly, made of apple stock and rendered attractive to the eye by the judicious use of coal-tar dyes. We would not deny any one the right to eat oleomargarine or compound lard or glucose syrups or cottonseed-oil; we only insist that all of these things be sold for what they are, not that they are poisonous or in most cases of lessened food value, but because they are a deception, and by that reason command a price above their true value.

In closing I can only say that a year's enforcement of pure food laws in a State heretofore a wide-open market for all the cheap stuff that could find no resting-place elsewhere has demonstrated, I believe, that pure food work can be carried on with a moderate degree of success without great expense, if publicity instead of prosecution is made the weapon of warfare.



## CANNED GOODS AND THEIR ADULTERATION.

By HON. E. F. LADD, Food Commissioner, North Dakota.

THERE is no problem of greater importance to the household at the present time than that of the character of canned goods, and, lest I be misunderstood at the outset and be again charged with being an enemy of all classes of canned goods, let me set myself right by stating that at the present time there is no family in Fargo who are more general users of the best grades of canned corn, peas, string beans, and tomatoes than is my own. This statement would not have been true, however, before the enforcement of the present food law of the State, for there was scarcely to be found on the market a can of corn or of tomatoes which was entitled to be properly called food products for man. The corn was heavily bleached with sulphites and sweetened with saccharin; the tomatoes were often slops and waste products of the cannery together with green and knotty tomatoes, all made presentable with aniline dye. This is now a thing of the past, and there was never a time in the history of the State when corn, tomatoes, string beans, and peas could be had of so good a quality as at the present time, providing, of course, that recognized brands of good standing are selected, and practically all are free from foreign matter.

With regard to many other canned goods I am not yet prepared to make the same acknowledgment concerning their food value. Not by any means that all of them are bad, or even indifferent, but it is difficult to say when one may expect to find with certainty the product for which he is looking, although there are brands of more than average good quality.

### NET WEIGHT.

There is one feature in the food law of North Dakota recently put into force which has caused considerable criticism not only from

packers of canned goods, but from manufacturers of various other food products, and that is with regard to requiring the net weight of the contents to be put upon each and every package offered for sale in the State. The clause reads as follows: "If every package, bottle, or container does not bear the true net weight, the name of the real manufacturer or jobber, the true grade or class of the product, the same to be expressed in clear and distinct English words in black type on a white background . . ." From every quarter there has gone up a cry that this provision provides no protection to any one, and above all the packer of canned goods should not be required to show the net weight.

The packers of canned goods have not only protested against the enforcement of this clause, but have passed resolutions at their various meetings calling upon their fellow packers to refuse to fill orders in States where this requirement is in force. What can be the reason for this? Are the cans always uniform in weight, and, if so, why does the canner object to incorporating in the label the actual net weight and *the true grade or class* of the product? It would seem as though there must be some good reason on the part of the packers for opposing such a provision, and that good reason must be that not always have they packed goods of full net weight or measure, and they have not always shown on their labels the true grade or class of the product.

With regard to net weight there has been a marked improvement, at least in the goods that have been shipped into North Dakota since agitation began in favor of a true net weight proposition.

I quote from data found in Bulletin 69 of the North Dakota Agricultural Experiment Station, as follows:

TABLE SHOWING CONTENTS OF CANS FOR 1902-5.

|                    | Corn.<br>Grams. | Peas.<br>Grams. | Tomatoes.<br>Grains. |
|--------------------|-----------------|-----------------|----------------------|
| 1902 . . . . .     | 482             | 589             | 832                  |
| 1905 . . . . .     | 588             | 802             | 960                  |
| Increase . . . . . | 106             | 213             | 128                  |

It will thus be observed that there has been a very marked increase in the contents of the can in these three staple products.

This is not all: there has been also a marked improvement in the quality of the goods which has been put into the cans.

In a similar manner I might show other improvements in this direction in various other food products where the range of shortage in weight has been from five to twenty per cent, which means a large profit in many instances to the packer, but a heavy loss to the consumer.

A pail of lard supposed to weigh three pounds and sold as such, in reality has weighed two and one half pounds; this is retailed at forty cents per pail, which means that it has actually cost the purchaser sixteen cents per pound. With the enforcement of this provision of the law in North Dakota some of the producers have provided a full three-pound net pail of lard, which is sold to the retailer for two and one third cents above the cost of the short-weight pail, who in turn has been in the habit of retailing this in competition with the short-weight pail at the rate of forty cents per pail, or at thirteen and one third cents per pound as against sixteen cents formerly.

I have found also a notable shortage in weight in many packages of butter. Prints of butter usually sent out by some renovating concern, or by creameries of questionable methods of procedure, and even that handled by the large packing-houses, instead of weighing a full pound for each print were found to weigh from twelve to thirteen ounces, and such butter usually carries all the water that the law will permit. Who can say that such a procedure is fair or just?

Bread supposed to be one-pound loaves often weighs from eleven to thirteen ounces, and thus with the very "staff of life" the poor are being robbed of from three to five ounces per pound.

Spices put up in four-ounce cartons have been found to contain approximately three and three quarter ounces.

Vanilla extract has been found on the market assumed to be two ounces when in reality the panels of the bottles were so closely pressed together that they were found to actually contain less than one ounce.

The majority of the canned meats on the market supposed to contain one pound are from two to four ounces short in weight.

Package goods, like breakfast foods, labelled as containing one pound seldom contain to exceed thirteen ounces. Packages sold for five pounds have been found to be from fifteen to twenty ounces short or, at times, more than one pound in five. And so we might go through the list of various food products—crackers, cheese, even flour and other products—and find that they are from five to twenty per cent short.

Is this discrimination fair or just even to the producer who is willing to give full measure or weight, but cannot compete with the unscrupulous man who is willing to profit by cutting short the contents of his can or package?

In the case of bottled goods the condition is perhaps even worse. Let us take whiskey retailing at seventy-five cents to one dollar a pint. In North Dakota, at least in the past, in the majority of cases neutral spirits has formed the basis or bulk for most of this preparation, sweetened, flavored, and colored to represent genuine whiskey. This product has been sold by the jobber for thirty-five cents and, as I have stated, retailed from seventy-five cents to one dollar. Nor is this all: bottles containing one fourth of a quart or one fifth gallon instead of the full measure are the rule; thus on every four bottles sold the retailer gains one bottle. Such a condition, however, is no longer permitted in North Dakota; full measure must be had, and in order to be labelled whiskey the requirement must be met as laid down in the U. S. Pharmacopœia, or the product must be labelled "Artificial Whiskey," and further labelled to show the composition.

#### FALSE LABELLING.

Probably there is no commissioner present who is not frequently beseeched by food manufacturers who desire his endorsement or sanction for a label which is entirely misleading and even false in the claims set up. Let me cite an instance: Just recently there was submitted a label for "Combless Honey." It might better have been labelled "Honeyless Glucose," for this would have described its composition quite as accurately, and yet the producer could see no harm or injustice in the use of the label which he proposed to place upon such a product.

If left to the manufacturers how much pure currant jelly, strawberry preserves, etc., would the consumer be able to purchase in the average market? Judging from my observations in the Northwest it would be practically impossible to find a manufacturer whose strawberry preserves, jellies, and jams were wholly as represented were it not for our food law. The majority of these products, although bearing the label of strawberry or currant, would be found to be composed largely of other fruit juices. In fact, in the majority of cases refuse apples constitute the bulk and the strawberry or currant but a minor portion. The jams are all too frequently in large proportion the residue of the manufacture of jellies, and it is not a rare thing by any means to find canned or preserved raspberries and even strawberry preserves made from the dried or desiccated fruits which have been soaked and converted by proper treatment into the desired product and then canned.

A label recently examined of "Wisconsin Green Peas" was found to cover not green peas but nearly ripe and soaked peas put up and sold for fresh goods. So far as North Dakota is concerned the majority of the preserves, especially in the light syrups which come from Maryland and Delaware, are far from being desirable products; too often they contain grit and dirt, strawberries only half-capped, large and small, partially decayed, over-ripe and underripe, all combined in the same can.

Some of these packers are also using coloring-matter, although they strenuously maintain that no color has been added and, in some instances, it is to be questioned whether the color employed is truly a vegetable product. To permit these products to be labelled as standard, fancy or first quality, and to be sold in competition with products prepared with greater care in selecting the fruit and in their preparation for the market, is to work an injustice in favor of inferior goods. If this practice is to be permitted in the future the high-class product, which is the only one that should be tolerated as an article of food, would soon be driven from the market. To permit the preparation of unwholesome or partially decayed and underripe fruit as articles of food is in most cases to tolerate in factories and their surroundings

unsanitary conditions such as would not be permitted in the homes of those who are expected to consume the food products.

With regard to canned meats and products of this class enough publicity has already been given to this subject to correct any existing evil, although it may be said that in North Dakota two years ago the packers were all forced to discontinue the use of sulphites, boracic acid, and aniline colors in the canned meats or prepared products to be shipped into the State. That the labels do not always truthfully describe the goods found in the can may be seen from the following statement taken from my annual report for 1905, where, in speaking of a sample of "Boned Chicken," it was stated: "The can containing this sample, labelled 'Boned Chicken,' was found to be almost filled with a single chunk of meat, the size and grain of which at once precluded any possibility of its having been obtained from any chicken of modern times."

In conclusion I wish to emphasize the fact that in my judgment we, as food commissioners, have been altogether too lenient with regard to the character of the label which has been permitted to be used on food products. That every food product should be truthfully labelled, and that the product should not be permitted to carry a two-faced label or one which shall describe the constituents entering into the preparation of the product after the product has been labelled with the name of any particular ingredient, I maintain that some standard should be established, especially for canned products, recognizing certain grades, and holding the manufacturers to a strict account for any failure to furnish a product such as they describe, and that each and every package should show the true net weight and the name of the real manufacturer or jobber. The fact that a label bears the name of a firm unknown in the community should, in my judgment, be deemed sufficient reason for declaring the goods illegal. In every such instance I have found that these goods are questionable in character, else the producer would have been glad to have his name appear upon the same. Frequently the worst sinners in this respect are the large and presumably reputable establishments which send out these goods under fictitious names.

Through some channels the goods should be traced back to their original sources and the guilty party made known to the public. If this be done they would soon discontinue a practice which brings them into ill repute before the consumers, and packers whose goods have not met the requirements in one year would not be able the following season to adopt some new name and thus again deceive the public.

It may also be said in passing that certain jobbers and brokers who have thus far escaped publicity in food matters are the ones whose names should, in this connection, be placed before the public, for they have created a demand for such cheap and inferior slop-like canned goods in place of lending their influence for educating the trade to call for better-grade products.

## THE PURE FOOD ISSUE—SOME OF ITS PROBLEMS.

By ROBERT McDOWELL ALLEN, Head, Division of State Food Inspection,  
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THE passage of a national pure food law, as the secretary of one of the large manufacturing organizations puts it, "places the agitation upon a safe and sound basis." It is now the time for State and federal officials and manufacturing interests to get together in honest conference, for it is only through frank co-operation that the legal and scientific questions, and the practical business problems involved in the pure food issue, can be successfully dealt with.

It is easy to criticise and difficult to do things; and no reform is successful until a practical remedy is suggested in place of the conditions objected to. Yet, public criticism is always necessary before you can break down the opposition which some interests put forth against the passage of laws to prevent fraud or discrimination against the people. The recent crusade against food and drug adulteration has necessarily been a charge against the whole of the industry, except in the enforcement of some of the State laws, and in one or two courageous instances where writers have given names with their facts. But now, with the full warrant of State and federal law, it can be reported to the courts that *Brown & Company's* soup contains aniline dye; that *Smith's* meat is preserved with boracic acid; that *Jones'* plant is too filthy for wholesome food to be produced in it, and that *D.'s* drugs cannot be relied upon for filling prescriptions. This will help instead of hurting the manufacture and sale of wholesome and honestly labelled products, while any person or firm found guilty under the law will deserve all of the loss of trade reputation.

The two dominant reasons for a national pure food law were,



first, a necessity for uniform co-operation in order that industries doing an interstate commerce business could have a common standard and a common label for their products, and, second, to establish authority under which to follow a fraud across State lines to its source, and then to prosecute in the federal courts the person or firm responsible for shipping the objectionable product from one State into another. There will be no question about the second reason as far as the States and the federal officials are concerned. This authority will, however, be brought before the United States Supreme Court as unconstitutional, and there are those who contend that the act is too much an infringement on the police powers of the State to be upheld by that court. Unless, however, the court changes its position expressed in the past, the act will be declared constitutional. The question of uniform legislation is still the big problem notwithstanding the passage of the national law. It has never been contended that the uniformity hoped for in the enactment of this law would be brought about by compelling States to adopt its provisions, or in compelling State officials to adopt the federal rules and regulations, in the enforcement of the State laws. The most that was hoped for was that the national law would be so comprehensive and complete and the policy of its enforcement so intelligent and fair that States would be influenced to change their statutes to conform to it.

The national law does not take the place of State laws and State work. In fact, that State which does not maintain equal inspection over its own commerce will derive little or no protection, for the national law will not apply to adulteration practiced wholly within the State. The necessity for State laws will continue. In fact, they are more necessary than the federal law, but both are absolutely necessary to successfully control the evils of food and drug adulteration.

In matters of its internal police the authority of each of the States is supreme and exclusive. The Supreme Court has stated as an "impregnable position" that the State is sovereign over its own internal affairs, and is, therefore, exempt from all interference on the part of the national government. And as to the

necessity or expediency of the legislation the court has also held time and time again that the legislature has a discretion which will not be reviewed by the courts. Therefore that uniformity in pure food legislation which was sought in the passage of a national pure food law must be brought about by a close confidence and co-operation between the officials of the States and the officials of the national government. It cannot be compelled. The trade recognizes this, and a member of one of Chicago's leading wholesale firms in writing about this meeting says:

"We trust that the State Food and Dairy Commissioners will be prepared to rule that goods that have passed the custom house and are labelled to comply with the new federal law will not be interfered with in the States."

The federal law contains a provision which will strongly tend towards this uniformity, and that is the provision requiring district attorneys to prosecute upon information furnished by a State official. This gives the State officials a direct co-operative interest in the work of enforcing the law and will cause them to harmonize his State work with the policy necessary under the federal law.

There is little disagreement over the general principles of pure food legislation, but there is much technical difference as these principles are expressed in the verbiage of State laws. But if State and federal officials will unite to enforce the spirit of the laws and not the technical differences, there is occasion for lack of harmony.

The enforcement of food laws depends upon the question of labelling and the question of standards, and uniform action necessarily depends upon uniform standards and uniform labelling. The activities of the Association have in the past been given up to the fight for a national law. During that time co-operative spirit has been established, but in no single instance have the States decided on a label which will meet the requirements of the several State laws. While the necessity for a different label on the same article of food for different States has been largely due to attempts on the part of the manufacturer not to tell the consumer the full truth about the nature and substance of a

product, it is not due wholly to this cause. Some months ago a representative of a Louisville firm called at the Kentucky office for our opinion as to how a jelly made of glucose and apple-juice should be labelled under the law. After some discussion and correspondence the firm and the Food Department agreed upon a label which reads "Compound Glucose-Fruit Jelly," and giving further in the label the percentages of other ingredients contained. This label was submitted to the Commissioner of another State, and that Commissioner passed the label as complying with the law. It was submitted to a third State, and that State passed it. The fourth State required the word "imitation" in addition to the statements already in the label. The fifth State wanted the word "adulterated" added. The sixth State ruled that its laws prohibited altogether the sale of adulterated food, and that the word "adulterated" in the label would prohibit the sale of the product in that State. The manufacturer claims that glucose and fruit is a wholesome mixture which has the right to go on the market when correctly labelled. If this contention is correct, it certainly seems that the States and the federal officials should find it possible to agree upon a label which would tell the consumer the exact character and substance of the jelly wherever sold, whether in Kentucky, Michigan, Connecticut, or California.

It is a question whether or not the National Pure Food Law will permit the sale of a food containing an antiseptic provided the label plainly shows the presence of the antiseptic used. Under the provisions relating to the misbranding of foods the law requires the food to be branded to show if it contains opium and similar poisons. Now, if the law will permit the sale of a catsup containing opium and so labelled, it will be inconsistent in prohibiting the sale of a catsup containing benzoate of soda and so labelled. The provision which requires labelling to show the presence of opium is out of harmony with other provisions of the bill which prohibit in general terms the addition to foods of substances injurious to health.

Regarding the provisions relating to adulteration separate and distinct from the provision requiring the addition of opium to be so labelled, the clause which the friends of the codfish industry

successfully incorporated in the national law is one of its strongest provisions. The codfish exception permits the use of preservatives for exterior preservation if the preservative used can be removed before consumption, and if the package containing the food is labelled telling consumers how to remove it. Had this provision not been incorporated the law would have remained silent as to antiseptics, prohibiting injurious ingredients in general terms. The qualifying codfish amendment shows, however, that Congress considered preservatives to be such injurious ingredients as can only be used for preserving foods in a way to be removed before consumption.

This preservative question involves the most important problem in the pure food issue. From results accomplished in Kentucky there is much evidence to back a belief that the best solution of this question lies in requiring manufacturers to label so as to show the presence of any antiseptic used, and then leave the problem, at least for the present, to work itself out under this label. As an instance, the Kentucky law concerning preservatives is as follows: An article of food is deemed adulterated "if it contains poisonous ingredients which may render such article injurious to the health of the party consuming it, or if it contains any antiseptic or preservative not evident or not known to the purchaser or consumer." Under this provision the use of any antiseptic can be prohibited if it can be proved to the court that its use makes the food injurious to health; but it is under the last part of the provision that the law has been enforced: "if it contains any antiseptic or preservative not evident or not known to the purchaser or consumer." And under the labelling which this requires antiseptics have almost disappeared from fruit products; under it the packers found it necessary more than a year ago to install a separate department in their plant in order to grind the sausage intended for the Kentucky market, and under it one of the largest firms was enabled to make a practical success with a catsup containing no benzoic acid or other preservative. But most of the catsup still contains the benzoic acid, and such catsup is allowed sale if the label plainly states, "Preserved with Benzoic Acid." We had some correspondence with

a number of firms regarding this labelling because of attempts to evade the law in printing the label in type too small to be noticed by the average purchaser, or by incorporating the term "Benzoic Acid" in a long statement which began, "This catsup is made from fresh, ripe tomatoes, pure spices, benzoic acid, and other pure ingredients." The firms finally adopted our suggestion. The proprietor of a firm whose catsup contains benzoic acid now writes:

"We have been anticipating putting on a label reading as follows on our catsup: 'Our goods have been prepared according to the Pure Food Law rulings.' What do you think of it?"

Misbranded, of course. The catsup is not put up according to the Pure Food Law rulings, but according to the firm's own formula. It is labelled to show that it contains benzoic acid because the legislature believed that antiseptics were substances which the people should know about whenever used in foods. In helping the manufacturer to comply with the law, we suggested our opinion as to what constitutes a plain label. And now the catsup firm wishes to construe this suggestion as an endorsement of benzoic acid. The manufacturer fears that a catsup containing an antiseptic and so labelled will be at a disadvantage in the markets during the coming year, and this proprietor contends that the food official should prove the benzoic acid, in the quantities used, positively injurious to health before subjecting his product to the suspicion which the label gives it, a contention, however, which he will never win in law, for if there is one indisputably fair proposition, it is that consumers shall know the true nature and substance of the products offered to them for consumption. It may be possible to confuse the courts regarding the effect of antiseptics upon the human system, but in no instance will the trade find the court hesitating over the proposition that foods containing an antiseptic shall be so labelled.

The second provision under the head of Foods, section 7 of the national law, will be most called into question in the enforcement of the act, and this is the provision which will come frequently into conflict with State laws unless the Department of

Agriculture stands out for strict labelling under this provision and the courts require it to be so plain that the average consumer will understand it. This provision represents the influence of the interests engaged in the mixture and sale of whiskey and neutral spirits with the hope that under it the only labelling required on their mixtures will be the term "blend." The provision applies to all foods. If it is construed as the interests responsible for it hoped it would be, a combination of harmless ingredients mixed together can be sold as a "compound," "mixture," or "blend," without being required to disclose the ingredients used in the mixture. The purposes of the law will not be materially hampered under such a construction; but if attempt is made to name the ingredients, then the other admirable labelling provision of the bill will require such naming to be true in every respect. Under this provision and the interpretation hoped for it a firm would be allowed to offer for interstate shipment a product labelled, for example, "Compound Jelly." But if the label goes further and states that the jelly is "Currant Jelly" when it is not, or "does not contain glucose" when it does, or "is made wholly from fruit and sugar" when such is not the case, such misstatements will be in conflict with paragraphs 1, 2, and 4 under the head of Foods. And should the courts give such construction to this provision, it will be found in the end that a food law is not so much needed to compel the disclosure of ingredients as it is to compel the truth when attempt is made to disclose ingredients or attribute qualities. For consumers constantly demand to know the whole truth about the food supplied them, and when a manufacturer offers them a compound, imitation, or blend and refuses to give further information, the product will stand little show for sale unless it possesses exceptional merit. It is my opinion, however, that this provision of the law will not be construed separately by the courts, but in harmony with the other provisions, and under such a construction the manufacturers of compounds, imitations, and blends will have to make such disclosures of ingredients contained as will secure freedom from adulteration or imposition by imitation upon consumers. Under this provision the question of "like substances" will involve much dispute. But the question will be

very easily settled if those who are charged with the enforcement of the law will stop to consider the indisputably fair proposition that as to whether or not one substance is like or unlike another substance is a question which consumers should be given the right to determine for themselves under plain labelling.

The whole pure food issue is a matter of correct identification, identification regarding every fact as to *where* a product was made, *when* it was made, *who* made it, its true *nature and substance*, if the true nature and substance are represented or demanded, and statements regarding the presence of ingredients the wholesomeness of which is questioned. If foods are thus fully identified, there need be no concern on the part of either manufacturers or officials about the ability of consumers to protect themselves. Many manufacturers contend against having to thus fully identify their product. But it can always be depended upon that if the facts about where a product was made, when it was made, who made it, and its true nature and substance are to the advantage of the product, these facts will not be reserved for fear of disclosing "superior formulas."

Under the national law a product will have to be truthfully labelled as to the geographical place of its production, and the law will require truthful representation as to the nature and substance of the product if these facts are represented by the dealer or demanded by the consumer. Trade-mark law requires correct labelling as to *who* made an article and established the principle that one man is not to sell his goods under the pretence that they are the goods of another man, nor can he use any means which will contribute to this end. This principle has been upheld in courts as not only necessary to secure to each man the fruits of his own toil, but also as a protection to the public against fraud. Only the one, however, whose trade-mark is infringed has a cause of action before the courts, and where there is a business arrangement, or where monopoly operates to put the combined products of many factories into the market under that trade-mark which is most in favor with consumers, the public has no remedy at trade-mark law.

The food interests are divided as to whether or not this principle of identification should be compelled. The large wholesalers oppose the proposition to have the label tell under all circumstance

the name of the real manufacturer. The independent manufacturing firms strongly favor it. It will be found that a large part of the manufacturers put up products for wholesalers and for some of the retailers under the private label of the firm giving the order. Many of the manufacturers who do this have told me personally that while they comply with their contracts in the packing of such goods, they do not put up such goods according to the high standard which they come up to when packing under their own label. I believe that the national law can be construed to require correct labelling as to the person or firm who really made the food. I believe that this can be required under the second paragraph of the sub-section relating to the misbranding of foods, for it has been proven beyond successful dispute that the name of the man or firm who mixed, canned, packed, or prepared a food product and in whose factory the food might have been of better quality by reason of superior methods, or might have been unwholesome by reason of unwholesome conditions, is information of such importance as to work an imposition upon consumers if they are misled or deceived concerning it. In the same way correct labelling in this respect can be compelled under the majority of the State laws. The chemist cannot find without great trouble the filth which is at once apparent to the eye when the dairy is inspected, filth of the nature which it has been proven beyond doubt contaminates milk. For this reason the milk should be identified in the market with its filthy source. Examination of meats hundreds of miles away from their place of production did not discover the unhygienic conditions in the packing-houses, and for this reason meats should be identified with the class of animals from which they were slaughtered and the condition of the plant in which the meat is packed and cured. The same applies to the cereal, fruit, and all other food industries. Compelling the truth about who made the food and where it was made is the safest, in fact the only, protection against unhygienic food factories and dairies as well as a stimulation to the highest merit in production.

The wholesaler who purchases products put up under his private label presents a well-pleaded allegation that such requirements will disarrange business methods throughout, and, further, that the



firm whose name appears as the manufacturer stands back of such products. In defending the right to put private labels on products manufactured by another this willingness to guarantee is strongly represented; but when such a product has been found to be adulterated, the leniency of the law is always asked, or is always asked in Kentucky at least, because they say "the food was packed for us by another and adulterated without our knowledge."

*When* a food was made is an important bit of knowledge, both in regard to curing and freshness. Telling the date of packing is optional under the law; but it must be stated truthfully if stated at all. Some of the Western States require the date of manufacture of production to be stamped on the can or bottle of prepared food. It is a wise provision. Such a requirement works no discrimination except where products should be discriminated against, because of excessive age in freshness or lack of age in curing. If canned products are as wholesome after being from five to ten years on a grocery shelf, the public should be assured of this, because of experience in eating foods from tin, which the label shows to have been in the tin five or ten years, and not because Congress is so sure of the wholesomeness of such products that it is afraid to risk the opinions of those who must eat the product for fear that they will disagree with its misdirected zeal for the canning industry. Consumers, however, can demand the date of the packing to be placed on the prepared food offered them, and if the date is given it must be correct. In fact while the national law and some of the State laws do not arbitrarily require the exact nature and substance of foods to be stated in the label, so long as the foods are free from injurious ingredients, consumers, nevertheless, can demand any information they wish, and if the dealer complies with their demands the statements made must be the truth.

A serious form of misbranding came to the attention of the Kentucky department during the trial of a case in Lexington in 1903. The dealer pleaded in his defence that the product objected to was labelled to have been awarded fifteen world's fair medals. This was again strikingly shown at St. Louis when the Food Commissioners exhibited as adulterated in one space of the agricultural

department products which were awarded medals for excellence and purity in another part of the same building.

This practice has been partly due to the fact that medals have been awarded to products specially prepared for the expositions—but not always. Saccharin is a substance condemned as a food fraud, and by some as a substance injurious to health. The Kentucky department has recently prosecuted some firms for selling corn sweetened with saccharin as “sweet” or “sugar” corn. One of the firms thus complained against has engraved in large letters in the texture of its stationery, “Gold Medal Awarded St. Louis, 1904.” We asked them in one of our letters if the sweet corn which received the gold medal contained saccharin. They replied:

“Concerning your question as to whether the packages of corn exhibited at St. Louis were sweetened with saccharin, will state we presume they were; as we do not know that we packed goods especially for this exposition—so far as the ingredients entering into composition of the same are concerned.”

Among the great events which the public gets fixed in its mind is a world's fair. Congress makes generous appropriations of the people's money for it, the press advertises and features it, its architecture is all that bold genius and generous appropriations can produce, its displays are marvels, and its prizes and medals are regarded by the great common people as honor from the highest source to the best that art and industry can produce. These medals mean excellence and purity to the consumers, else manufacturing firms would not erect and maintain expensive exhibits in order to receive them. This is a problem of misbranding in the pure food issue which can and should be corrected.

Another problem in the issue is that of standards. It is because we do not seem to understand the purpose of standards. Some of the officials think that the compilation of standards is an opportunity for individual credit and authorship, when the fact is the first need for standards is to have a compilation of the honest experiences of all in order to protect against the findings or opinions of only one man. Some of the manufacturing firms look on standards as an attempt to say what people shall or shall not eat, when the truth is, standards being for the purpose of applying in the

fairest manner the principles of identification in a food law, their formation will prevent the very imposition which some interests believe that standards will cause. Where profits will be affected by honest labelling, standards are, of course, denounced as a scheme for discrimination.

There can be two classes for standards: standards to determine quality and substance and standards for wholesomeness. No one disputes the fact that the chemist should be guided by a recognized standard in the analysis of foods, and no one disputes that he should come to conclusions, not by what he himself believes the true qualities of a food to be, but by what the collaborated evidence of all the chemists have found these qualities to be. But there are honest differences regarding the wholesomeness of this product or this method of preparation *versus* that product or that method of preparation, and if the standard is confined to the identification of products the question of wholesomeness under dispute can be well left to the consumer.

The legal status of commissions appointed by the State and federal governments to determine certain facts in order to intelligently enforce laws is one of the important and interesting questions in law which has come up, both in the consideration of the powers which can be vested in a railroad-rate commission and a food-standard commission.

In the enforcement of police regulations against ignorant offenders, and in matters of undisputed public importance or danger, the rulings of executives and the findings of government scientists have been given the warrant of law without dispute. But in settling a question which concerns established business the authority for the appointment and the powers of the commission to investigate such questions becomes a matter of great importance. Such a commission exercises, in the consideration and determination of technical matters, the combined functions of the legislative, executive, and judiciary up to the point of putting its findings into effect. Its findings may go into effect by the mutual assent of the interests affected, as is, with but few exceptions, the case where the finding is correct. But if disputed, the finding cannot go into

effect with the warrant of law, except under the rules and as the weight of evidence.

It is told that a master painter once took the brush from one of his pupils and, with a few touches, changed the poor, dead painting into a picture of life. "Why, you only touched it a wee bit," the pupil exclaimed, "but you have changed it into a beautiful painting." The master replied, "Art begins where the wee bit begins."

Part of the problem of food adulteration has arisen because men try too much to imitate artificially that which is produced in nature's laboratory. The amounts of fat and protein are placed together in the same proportions as nature puts them, ethers are combined to give nature's flavor, and colors are found to make the imitation appear more tempting to the eye than the product imitated. But the imitation is minus the *wee bit* necessary to make it perfect, that wee bit of life which nature will only permit us to produce according to her own immutable methods. The artificial color may be more beautiful than that put into genuine food by sun and soil and rain, but in comparison the artificial is dead paint, while the color of nature is, and is an emblem of nourishing life.

Count Tolstoi in his life's masterwork, "What is Art?" illustrates this error of science as applied to food. He says:

"The deviation of the science of our time from its true purpose is strikingly illustrated by those ideals which are put forward by some scientists, and are not denied but admitted by the majority of scientific men. . . .

"Man will not, as now, eat an egg laid by a hen he has kept, or bread grown on his field, or an apple from a tree he has reared, and which has blossomed and matured in his sight; but he will eat tasty, nutritious food which will be prepared in laboratories by the conjoint labor of many people in which he will take a small part. . . .

"Nothing shows more plainly than these ideals to what a degree the science of our times has deviated from the true path. . . .

"In the vegetable and animal kingdoms a laboratory for the production of food has been arranged, such as can be surpassed by professors, and to enjoy the fruits of this laboratory, and to participate in it, man has only to yield to that ever-joyful impulse to labor, without which man's life is a torment. And lo and behold!

the scientists of our times, instead of employing all of their strength to abolish whatever hinders man from utilizing the good things prepared for him, acknowledge the conditions under which man is deprived of these blessings to be unalterable, and instead of arranging the life of man so that he might work joyfully and be fed from the soil, they devise methods which will cause him to become an artificial abortion. It is like not helping a man out of confinement into the fresh air, but devising means instead to pump into him the necessary quantity of oxygen, and arranging so that he may live in a stifling cellar instead of living at home."

One side of the pure food force is working to demonstrate the wholesomeness and to justify the use of artificial colors. Another side works to detect the color and to prove that it deceives the people or is injurious to health. One side manufactures antiseptics and spends its time to prove that the minimum amount of a poison does not make the food unwholesome, while the other works to detect it and to show that the long-continued use of even a minimum quantity of a poison has a harmful effect upon the human system.

Think of the wonderful good that would result if that zealous energy, misdirected on one side and consequently necessary on the other, could be united to study and overcome the problems in the way of producing and preparing food with its own natural, delicious color, and the problems in the way of preserving it without the risk of both the harm of antiseptics and the discouragement which their use brings to those methods of production which we all admit to be more wholesome.

With the passage of the national law the practical pure food work but begins. The evil of adulteration and misbranding has been shown, but it must be remedied. It will only be remedied when pure food principles are put into profitable practice in the dairy and factory.

The States have been trying to deal with an interstate problem under the indirect influence of State laws. The passage of the national pure food law will exercise such a direct influence against the interstate shipment of adulterated and misbranded products that the State departments can devote more of their time and

appropriation to the city milk supply, factory and grocery store sanitation, the sanitation and purity of the products of the small or local slaughtering houses, and similar work which vitally concerns the wholesomeness of food.

In the consideration of our industrial problems the American people and the American industries need to understand each other better. The people need to know more about the trade problems and the trade laws under which the industries operate. And the industries must be taught to respect the rights of all of the people while performing with their organized and economical systems the several lines of public service. Those who would correct the evils which business practices against the people should begin with the proposition that all business is not bad, and that much of the bad is due to systems which the majority of the industries would gladly free themselves from. Those who manage the industries need to learn that the laws of the State and the nation are to be obeyed, and that graft or power or the more stable public pay which comes to the man who only does the necessary routine work of a public office are not the purposes which all of the officials have in the enforcement of laws. It is time for that which is good in government and that which is good in business to unite against their common enemy—the rascal in politics and the rascal in the industrial organizations.

With the final passage of a national pure food law the time has come in the pure food issue for such an understanding between manufacturers and officials as will enable a correct determination of which is the problem and which is the fraud, in order that the problem can be considered with common-sense from both sides, and in order that the frauds in the food and drug business can have evoked against it all of the power of municipal, state, and federal laws.

## AMERICAN MILK AND MILK STANDARDS.

By Dr. WILLIAM FREAR, Vice Director, Pennsylvania Agricultural Experiment Station.

THE purpose of this paper is to present a few facts concerning the composition of American milk in its relation to the chemical limits fixed in American legal standards, and especially those of the United States standard.

A clear perception of the purpose of the legal food standard and of the principles of its formulation is necessary to a satisfactory understanding of the bearing of these facts. Let us, therefore, by way of introduction, consider this purpose and, as briefly as may be, a few of the more important principles of standardization.

The purpose of the legal standard is to facilitate trade in the commodity concerned by a definition, more or less complete, of the terms commonly employed between buyer and seller. The method of expression adopted for the purpose usually involves the description or indication of some minimum grade of quality, below which an article should not fall, if it be sold under the defined designation without a sufficient declaration of its abnormal quality. The usefulness, under existing conditions, of reasonably formulated standards of this kind, when properly applied, is admitted by most thoughtful students of this subject.

In fixing upon the minimum of quality to be established in the standard for any commodity, the following principles should be considered:

(a) The standard must have reference to the purposes for which the commodity is used, and to the existing conditions of commerce therein.

(b) The standard must be properly adapted to the conditions of production at the time of its establishment in the territory in which it is to be used.

(c) The average quality of the unadulterated, sound article must not be adopted as the minimum for the standard, but some grade considerably below the average must be accepted.

(d) The degree in which the standard quality should be set below the existing average must be determined with due regard to the variability of the commodity, the practicability of controlling its composition and physical characters, or of readily detecting its abnormality, the proportion of the product commonly falling below the standard fixed, and the severity of the penalty for the production or sale, without proper declaration of its abnormality, of a commodity not conforming to the standard.

(e) Since control officials do not feel justified in condemning a product unless it fall considerably below the adopted standard, the latter may be set slightly higher than if the custom were the opposite.

Among the foods for which legal definitions or specifications have been given, milk was one of the first for which chemical limits were set, and to-day is subject to such regulations by more legislative bodies than is any other food. Its importance as an article of diet, especially as the almost exclusive food of many infants and invalids, the ease and extent of its adulteration, and the difficulty of detecting such adulteration by means at the command of the ordinary consumer, all have been influential in evolving such wide-spread regulative action.

Milk as an article of commerce has two classes of uses: the direct use in the household, and that as a raw material for the wholesale preparation of secondary products, such as cream, butter, cheese, ice-cream, condensed milk, etc. The purchase of milk for factory use in present American practice is governed almost entirely by special contracts providing for a valuation based upon actual analysis. For the protection of this trade the official application of a standard of composition is scarcely necessary. As a matter of fact, while the laws of a number of our States require the milk sold to creameries and cheese factories to be of standard composition, there has been, under present conditions, little or no demand for their application as



a protection to the purchaser, and the writer knows of no prosecutions brought for offences of this character, despite the fact that some of the milk purchased by factories is not up to the standards of their respective States. It is true that to produce cheese and condensed milk of normal excellence, milk of standard composition is requisite; the manufacturer is, however, protected by his own tests, and the consumer of the secondary product is sufficiently protected by the standard for that article.

The principal use, therefore, of a legal standard of composition for milk is in its application to the sales of the household supply. For this supply a milk comparatively rich in fat is preferred, both because of its superior nutritive value and because of its more agreeable physical qualities.

Certain conditions of this trade must be kept in mind in determining upon the standard of composition. Milk for such use is sold by the quart, almost never as to quality. It is commonly the mixed product from a considerable herd, or, in larger cities, even from a number of herds. The conditions of its transportation and delivery do not, as thorough investigations have shown, result in its separation into non-homogeneous portions, if certain simple precautions are used. The point at which the standard should be set below the average should not, therefore, be determined with reference to the relatively great variations of composition exhibited by the lacteal secretions of single cows and between those of different individuals, but with regard to the much narrower range of variation exhibited by the mixed milk of the herd and between those of different herds. Furthermore, the customer expects, and has a right to expect, the delivery of whole milk, and not of an article robbed of its fat by partial milking or by the removal of the cream from the evening's milk before it is mixed with that obtained on the following morning.

Dr. Vieth, the well-known dairy chemist, once remarked concerning the milk standard of the Society of Public Analysts of England, that while he did not think it too high, it was nevertheless true that the cow had not been consulted when the

standard was fixed, and that she would not always produce milk corresponding to it.

It is fair, on the other hand, to question how far the cow should be consulted. One herd may produce milk containing no more than 2.5 per cent of fat, another maintain an average of 5 per cent. The owner of the herd producing the poorer milk knows that the milk is poor, even though he may not, without the aid of a chemical test, be able to measure the daily variations in its composition. He has either knowingly failed to exercise care in the selection, feeding, and keeping of his herd, or, in the majority of such cases, has deliberately selected his herd from breeds and strains of cattle that give poor milk, but much of it. Thus Voorhees,\* in a study of the milk of several New Jersey cities, found that the milk containing less than 3 per cent of fat was yielded by herds of "scrub" cows, and, in half of the cases, by herds poorly nourished; that milk containing from 3 to 3.5 per cent of fat came also, with rare exceptions, from scrub or grade stock that had in most instances been fed poor rations. Leach † reports that the average quality of the milk produced in Massachusetts deteriorated somewhat during the decade preceding 1899, owing to the increase in the number of Holstein cows, which, he states, is by far the most common cow to be found in the producer's herd.

In the present state of the dairy business it is entirely practicable for the herd owner to acquaint himself exactly with the quality of the milk his herd is producing, and by proper feeding and judicious selection of the individual cows to regulate the quality of the milk produced.

Professor Voorhees ‡ urges that the cost of maintaining a cow is practically identical, whether her flow is large or small, and that, in general, cows of the Ayrshire, Holstein, and Shorthorn breeds tend to give larger yields of milk, that is, to produce a quart at lower cost than Jerseys and Guernseys. He claims that the average composition of the milk of the former breeds

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\* Report New Jersey Agr. Exp. Station, 1896, pp. 134-157.

† Report Mass. State Board of Health, 1899, p. 607.

‡ 31st Report State Board of Agric., New Jersey, 1903, pp. 265-287.

is 12.5 per cent solids and 3.5 per cent fat; while that of the latter breeds is 14.5 per cent solids and 5 per cent fat. "Hence," he says, "where no distinction is made between the quality of the milk on the part of the consumer, and the quart basis serves as a method of sale, then it is evident that those dairymen who produce milk from animals of the first class do produce it much cheaper than those from the second class, and from a business standpoint it would be unwise to include animals of the second class in a dairy."

Professor Voorhees is undoubtedly right in urging the desirability of selling milk on the basis of quality as well as quantity. The producer should be repaid for his service, but the principle must not be carried to extremes; whatever breed of cows the owner prefers, the individuals should collectively yield a milk of fair quality. The consumer is injured when he receives, at the average price, a milk much inferior to the average in quality, and so long as the wholesomeness of the milk is not involved, but only its nutritive value and physical acceptability, his injury is no greater when wrought by the aid of pump and skimmer than when it is accomplished by the shrewd selection of the cow. This principle has frequently been enunciated by the courts of England, Germany, and America.

Thus, in England, when there was no legal standard, but when the analysts commonly referred to the standard proposed by the Society of Public Analysts, 3 per cent, or that adopted by the chemists of the Board of Inland Revenue, 2.75 per cent, the Mr. Justice Charles and Mr. Justice Wright of the Queen's Bench,\* in an appeal case where the defendant had been convicted for selling a milk containing 2.69 per cent of fat, although he produced evidence that the milk had not been skimmed and that its poverty was probably due to the deficient nutrition of the herd, held that the proportion of cream or fat in the milk was less than natural or usual, and that its sale as "pure milk" was an offence under the statute, since it was not of the substance, nature, and quality demanded by the purchaser.

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\* Blyth: *Foods, Their Composition and Analysis*, 4th ed., pp. 336, 337.

The Court of Appeals of New York overruled the decision of the Supreme Court of that State in the case of *People v. Ceperly*,\* that the statute which provides that milk containing less than 3 per cent of fat shall be declared adulterated is unconstitutional. The Supreme Court decision, which was not unanimous, was based upon the ground that the statute deprived the defendant of his liberty and property without due process of law, in that it barred him of the right to have the issue determined according to what might be the proof and compelled him to submit to the statutory declaration thereof. The Court of Appeals revised this decision on grounds given by the dissenting judge of the Supreme Court.

In *State v. Campbell*,† in which the constitutionality of the law fixing standards was attacked, the court said: "Practically it makes no difference whether milk is diluted after it is drawn from the cow, or whether it is made watery by giving her such food as will produce milk of an inferior quality, or whether the dilution regarded by the legislature as excessive arises from the nature of a particular animal or a particular breed of cattle. The sale of such milk to unsuspecting customers, for a price in excess of its value, is a fraud which the statute was designed to suppress. It is a valid exercise by the legislature of the police power for the prevention of fraud, and of public health, and as such is constitutional."

The argument that the profit to the producer is increased by the adoption of a low standard is not sufficient to warrant such action. Those charged with the responsibility of fixing the standard must consider the interests of both producer and consumer. A number of correspondents have urged that a low standard means a lower cost to the consumer; but in practice this theory does not hold true. Furthermore, there are serious indirect disadvantages in fixing the standards too low. Producers whose herds give rich milk are tempted to skim and water it, contrary to law. The gain from these operations may be considerable, without their being carried so far as to be readily detectable.

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\* 37 Hun. 317; 101 N. Y. 634.

† 64 N. H. 402.

Thus, A. Hilger,\* President of the Bavarian Association of Applied Chemistry, and editor of the food code compiled by that organization, noted the unfavorable results that must follow the general adoption of a fat standard of 2.5 per cent proposed by the Prussian ministry. He stated that, according to that standard, the per cent of milk adulteration in the city of Memmingen was about 10 per cent, whereas, by actual stable tests which he had conducted in that city, he found that 50 per cent of the milk had been skimmed or watered. Even when the chemical evidence proves that milk has been watered and skimmed, if the solids and fat have not been depressed thereby to a point below the low standard, convictions for these offences, distinctly prohibited by law, are almost impossible to secure. Thus, Whitaker,† referring to the Rhode Island fat standard of 2.5 per cent, says: "In Providence a lower standard exists than in Massachusetts, which causes the milk inspector some trouble. Most natural milk has over 12 per cent of solids. A small amount of water can be added to 13 or 14 per cent milk without changing the proportion of fat and solids-not-fat sufficiently to warrant a verdict against the adulterator. Most judges will convict only when the milk is below the statute standard, and do not feel convinced of the guilt of the defendant on the simple assertion of a chemist that the relation of fat and solids-not-fat is such as to create a certainty that the milk is adulterated."

If, on the other hand, the standard be set too high, it may under existing laws result in the infliction of great hardship upon innocent men who have been guilty of no attempt to defraud and who have been neither grossly negligent nor inexcusably ignorant in the management of their business. Strohmer ‡ cites as instances of this character the 3 per cent fat standards of Leipsic and Dresden, since the lowland breeds of cattle in these neighborhoods furnish milk of only 2.7 to 2.8 per cent of fat, so that only

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\* Vereinbarungen betreffs der Untersuchung und Beurtheilung von Nahrungs- und Genussmitteln, Berlin, 1885, p. 100.

† The Milk Supply of Boston and other New England Cities, Bulletin No. 20, Bureau of Animal Industry, U. S. Dept. Agric., p. 33.

‡ Die Milch und Molkereiprodukte, Braunschweig, 1899, p. 484.

the milk from upland breeds is safely above the limit. If Strohmer is correct in his statement of the quality of the product from the lowland herds of these neighborhoods, and if such cattle contribute a large fraction of the milk supply of these cities, his criticism is just; but also the milk consumers of these cities are unfortunate in the low quality of the supply available for their use.

Upon the foregoing considerations, we may conclude that it is fair to fix the standards of composition not at the lowest point exhibited by herd's milk of known purity produced in the territory concerned, but at a higher point, so fixed as not to exclude from the domestic milk trade a large fraction of the herds used for such supply, due allowance being made for the variations experienced by herds of fair quality.

Concerning these variations, the limits of this paper permit the statement of only a few generalizations. The variations may be classed as *normal*, including those of long and short period, and *abnormal*. The normal long-period variations requiring especial notice are those due to the advance in the period of lactation and to change in season with the corresponding changes in the conditions of herd life. The changes due to advance in lactation probably average, in the case of the individual cow, about 1.3 per cent of solids and 0.7 per cent of fat. Herds kept for the purpose of supplying milk for household purposes, are, however, usually so managed that the individual cows become fresh at different times. For this reason this factor requires less attention than it should receive under other conditions.

The influence of change of season, or of change from winter barn-feeding to spring pasturing, upon milk quality has received much attention in American milk standard legislation, Massachusetts leading the way with a law which reduced the requirements in the spring months by 1 per cent of solids, 0.7 per cent of fat, and 0.3 per cent of solids-not-fat. Richmond\* gives on the seasonal average for the cows of the Aylesbury Dairy Co., Ltd., for sixteen years, data which I have condensed as follows:

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\* Dairy Chemistry, pp. 126, 127.

|                            | Solids,<br>Per Cent. | Fat,<br>Per Cent. | Solids-not-fat,<br>Per Cent. |
|----------------------------|----------------------|-------------------|------------------------------|
| November-January . . . . . | 13.04                | 4.11              | 8.93                         |
| February-April . . . . .   | 12.72                | 3.88              | 8.84                         |
| May-August . . . . .       | 12.66                | 3.89              | 8.77                         |
| October-November . . . . . | 13.03                | 4.25              | 8.78                         |

The extremes in monthly averages for solids were 13.19 and 12.59 per cent, amounts which were respectively 0.36 per cent above and 0.24 per cent below the average; for fat, 4.30 and 3.79 per cent, which were respectively 0.30 per cent above and 0.21 per cent below the average. He does not state whether these data relate to the milk of single animals or to the mixed milk from herds.

Leach\* compared the general quality of milk sold during December and June in the various cities and towns of Massachusetts with the following results:

|                          | December,<br>Per Cent. | June,<br>Per Cent. | Difference,<br>Per Cent. |
|--------------------------|------------------------|--------------------|--------------------------|
| Total solids . . . . .   | 13.32                  | 12.65              | 0.67                     |
| Fat . . . . .            | 4.42                   | 4.06               | 0.36                     |
| Solids-not-fat . . . . . | 8.85                   | 8.54               | 0.31                     |

In a later report,† he expressed the judgment that a uniform standard of 12.5 per cent of solids would be more equitable than the present standard above mentioned.

Haecker's ‡ observations on the quality of the milk taken from a mixed herd before and after its change from dry feed, including silage, to pasture, cover a period of four years, and serve well to illustrate the variation in question. The average results for the four years, stated in terms of the average fat richness of the milk during each of four two-week periods preceding and as many following the change into pasture, were:

| On Dry Feed (Per Cent).                             |      |      |      | On Pasture (Per Cent). |      |               |      |
|---|------|------|------|------------------------|------|---------------|------|
| I.  | II.  | III. | IV.  | I.                     | II.  | III.          | IV.  |
| 4.11  | 4.23 | 4.29 | 4.15 | 4.27                   | 4.06 | 3.96          | 4.11 |
| Average for eight weeks before the change . . . . . |      |      |      |                        |      | 4.19 per cent |      |
| " " " " after " "                                   |      |      |      |                        |      | 4.10 "        |      |

\* Report Mass. State Board of Health, 1899, p. 615.

† Report Mass. State Board of Health, 1901, pp. 439, 440.

‡ Minn. Agr. Exp. Station Bul. No. 67, pp. 499-516.

On the basis of Richmond's data, which exhibit a greater tendency to variation above the average than below it, the allowance to be made for these several variations is not large.

Of the short-period variations it will suffice to consider their combined net effect as exhibited in the daily variations of herd's milk. The extent of the fat variation from day to day is, according to Cooke and Hills\* and others, not more than 0.3 to 0.4 per cent. Linfield † found that the daily variations in the other milk constituents were inconsiderable.

For certain classes of abnormal variations due to causes, such as extreme drought, that affect the entire region of production, it is not practicable to make allowance in the standard. When the conditions causing such variations arise, the experts applying the standards should make the requisite allowance.

Let us now consider the practicability of adopting a general standard of composition for American milk. In Germany, Austria, and Switzerland there has been a general tendency to adopt standards of purely local application or to resort instead to the stall test. The localization of particular breeds of cattle producing milk of different composition appears much more markedly in those countries than in the United States. In America the conditions of transportation have enabled our larger cities to go out for several hundred miles over the boundaries of neighboring States to obtain their milk supplies. These conditions, coupled with the practice adopted by many milk dealers of our larger cities of mixing the milk of many herds, make the use of the stall test impracticable for districts occupied by a very large fraction of the population for whose protection milk controls are provided. Experience with standards applicable to entire States does not indicate that the inequalities of condition between different districts are so great as to make impracticable standards common to large regions of the country.

Are there such differences in the breeds of cattle, conditions of feeding and management, or of climate as to cause important differences in the composition of the milk produced in different

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\* Report Vermont Agr. Exp. Station, 1891, p. 61.

† Utah Exp. Station Bulletin No. 68.



sections of the country? The answer most suitable for the present purpose can be obtained by determining whether the milks produced in different parts of the country exhibit characteristic differences.

The datum most perfect for the purpose, namely, the average composition and variability of the milk product of large sections of American territory, based upon the examination of authentic representative samples, is, of course, not available. In lieu of this, we have authentic records for experiment station and other herds of typical make-up. These records may be useful for certain comparisons, but are too few to be broadly representative.

Another source of evidence, of which there is considerable volume, is that based on the records of creameries and cheese-factories. For while the milk delivered to these factories is not free from modification, having been subject to occasional skimming of the evening's milk before delivery, it is doubtless not greatly affected by the slight skimming it suffers in the average case.

A third source of less value is the composition of market milk, as shown by the reports of various food controls.

In the fourth place, the local standards of composition adopted by various States and municipalities afford some idea of the local opinion respecting the quality of milk that may reasonably be expected in various parts of the country.

It will be convenient as a basis of reference to know the average composition of American milk.

The following averages represent the largest compilations extant of analyses of authentic samples of American milk, the data being gathered largely from experiment-station records. The samples represented all the principal breeds. Many of the herds are doubtless of superior quality; but few of them are superlative in character and many are purposely selected to demonstrate the possibilities of production by aid of animals of mediocre quality.

|                  | No. of<br>Samples<br>Represented. | Total<br>Solids,<br>Per Cent. | Fat,<br>Per<br>Cent. | Solids-<br>not-fat,<br>Per Cent. |
|------------------|-----------------------------------|-------------------------------|----------------------|----------------------------------|
| Cooke and Hills* | 2000                              | 13.00                         | 4.00                 | 9.08                             |
| Van Slyke † (a)  | 8527                              | 13.40                         | 4.34                 | 9.06                             |
| “ “ (b)          | 5552                              | 12.92                         | 3.92                 | 9.00                             |
| “ “ (c)          | 917                               | 13.40                         | 4.30                 | 9.10                             |

\* Report Vermont Agr. Exp. Station, 1890, p. 97.

† Prepared for use of Committee on Food Standards, A. O. A. C.

The data compiled by Cooke and Hills, and by Van Slyke in average (a), represent milks from herds and from single cows indiscriminately, and without selection as to richness of the milk given. The average (b) of the latter compiler represents only milks having a fat content between 3 and 5 per cent; average (c) only mixed milks from herds of five or more cows. Dr. Van Slyke regards average (b) as more closely representative of the common product than is average (a).

The experiment-station herd records available for a comparison of the composition of milk as influenced by climatic differences, with their complex effect upon food supply and management, have been carefully compared by the writer. The individual data are too fragmentary to warrant their presentation in detail. Taking the records for the Jersey breed, for example, the records of six northern stations situated in States extending from Maine to Wisconsin show, for herd's milk, fat averages that range from 4.72 to 5.85 per cent; while those from two Southern States, Alabama and Georgia, show averages ranging from 4.70 to 5.69 per cent. Similar conditions appear with reference to the character of milk from Holstein herds in the North and South respectively.

Lane \* has compiled a highly valuable series of herd records from which certain interesting data have been drawn with respect to the average fat richness of the herds belonging to stations in different sections of the country. In a single station only does the herd represent but one breed, and that is represented largely by grade animals:

| Region.                    | States Represented.                          | Fat,<br>Per Cent. |
|----------------------------|--|-------------------|
| New England. . . . .       | Vermont, Connecticut . . . . .               | 5.08              |
| Middle . . . . .           | New York, New Jersey, Pennsylvania . . . . . | 4.42              |
| Northern Central . . . . . | Indiana, Michigan, Wisconsin . . . . .       | 4.12              |
| Southern . . . . .         | North Carolina, Tennessee, Alabama. . . . .  | 4.93              |
| Western Central. . . . .   | Missouri, Minnesota . . . . .                | 4.90              |
| Arid area . . . . .        | Nebraska, Utah, Kansas, Arizona . . . . .    | 4.50              |
| Pacific . . . . .          | Oregon. . . . .                              | 4.47              |

From the same compilation the following comparison of the richness of the milk of pure-blood Holstein and Jersey herds for

\* Records of Dairy Cows in the United States, Bulletin No. 75, Bureau of Animal Industry, U. S. Department of Agriculture, 1905.

which long-time official records are available has been prepared, classed by geographical divisions:

|  | Holstein. |       |                   | Jersey. |       |                   |
|--|-----------|-------|-------------------|---------|-------|-------------------|
|  | Herds.    | Cows. | Fat,<br>Per Cent. | Herds.  | Cows. | Fat,<br>Per Cent. |
| New England and<br>Middle States . . . . . | 8         | 260   | 3.66              | 19      | 771   | 5.26              |
| Middle West . . . . .                      | 11        | 230   | 3.68              | 19      | 642   | 5.22              |
| South . . . . .                            | ..        | ...   | ....              | 5       | 157   | 5.02              |
| Pacific Coast . . . . .                    | 1         | 150   | 3.70              | ..      | ...   | ....              |

These data confirm the judgment that when animals of similar breeding and careful management are considered in equal number in the several geographical divisions their milk is similar in quality.

The character of the milk supplied to creameries and cheese-factories, though less faithfully exhibiting the original character of the milk, is nevertheless more broadly representative of the average product of large areas.

Alvord,\* in a study of the richness of milk, or butter ratio, shown by the creamery records of different States, calculates that the creameries of the United States require, on the average, 22½ pounds of milk to make a pound of butter. The ratios of ten States are given for illustration: New York stands first, with a ratio of 21 pounds; New Hampshire second, 21¼; California third, 21½; Minnesota, Pennsylvania, and Wisconsin, 22 pounds; Illinois, 22¼ pounds; Kansas and Vermont, 23¼ pounds; Iowa, 24 pounds. "These ten States," Alvord says, "suffice for illustration." The figures given are regarded as below the truth. These quantities correspond, under present conditions of creamery practice, to an average fat content of 3.8 per cent for the milk received by the average creamery of the country or of 4.1 per cent by those of New York. I have, for further illustration, computed on the basis of the same census tables an average ratio of 23.6 pounds for Virginia, West Virginia, Georgia, and Alabama combined, and a ratio of 26.5 pounds for Arizona.

In addition to these data we have the more direct evidence, presented in various reports by creameries and cheese-factories,

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\* Cheese, Butter, and Condensed Milk, Factory Product: XII Census, Vol. IX, p. 441.

of the average composition of the milk supplied by patrons. The available data will be given by States:

*New York.*—Van Slyke,\* studying the milk supplied to New York cheese-factories in 1892–93, representing 5,000,000 pounds from more than 15,000 cows, found the solids to range from 11.47 to 13.91 per cent, average 12.17 per cent; the fat from 3.04 to 4.60, average 3.75 per cent. Hoard's *Dairyman* † reports that one hundred dairies of Delaware and Otsego Counties, New York, supplied to their creameries milk at the average rate of 3624 pounds per cow, yielding 187.58 pounds of butter. With an over-run of one sixth this would correspond to 4.43 per cent in the milk.

*Michigan.*—McCall ‡ reported the current composition of the milk received by a number of Michigan creameries and milk factories. Summarizing these reports, I find that 59 creameries received milk containing an average of 4.24 per cent of fat, 23 cheese-factories an average of 3.55 per cent. That for the creameries ranged from 3.4 to 4.8 per cent; that for the cheese-factories from 3.3 to 4.2 per cent.

*Wisconsin.*—Babcock,§ presenting reports from creamery managers, states that 5 creameries reported an average of 3.82 per cent of fat for the milk received in 1891; 19 creameries an average of 3.70 per cent in 1892; 169 cheese-factory reports for 1891 and 1892 give an average of 3.66 per cent of fat. Adams || states that the samples of milk taken by the commission from the supplies delivered by patrons to creameries and cheese-factories of the State show a fat content of 3.8 per cent. Later data are given in Hoard's *Dairyman* showing the quality of milk supplied by 100 creamery patrons of Jefferson County, Wis. ¶ The result stated in this case, as in that for Otsego and Hudson Counties, New York, is an average of the averages for

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\* N. Y. Agr. Exp. Station Bulletin No. 65, pp. 25–158; E. S. R., 5, 893.

† Cf. Lane, *op. cit.*, pp. 37, 38.

‡ Report Dairy and Food Commissioner, Michigan, 1903, pp. 101–125.

§ Report Wis. Agr. Exp. Station, 1892, pp. 258–263; E. S. R., 5, 506–7.

|| Report Dairy and Food Commissioner, Wisconsin, 1895–6, p. 91.

¶ Cf. Lane, *op. cit.*, pp. 31–33.

individual herds; since the number of cows in the latter differs somewhat, the result is not a true average for the total milk supplied by these herds. It is believed, however, to be close to the true average. Allowing an over-run of one sixth, the average fat content of the milk was 4.08 per cent. Similar data by Goodrich,\* for 48 herds supplying creameries and 12 supplying cheese-factories in Fond du Lac County, show respectively 3.77 and 3.76 per cent of fat.

*Minnesota.*—McConnell † gives the average composition of the milk received by the creameries in the several counties of Minnesota in 1903. The county averages ranged from 3.53 to 4.20 per cent of fat; the average of these averages was 3.87 per cent. The total number of creameries represented was 527; of cows, 382,356. A like report by Slater ‡ for the year 1903 shows county averages ranging from 3.65 to 4.21 per cent fat; average 3.87 per cent. The number of creameries represented was 572; of cows, 435,740.

*Iowa.*—Boardman § states that the average fat in the milk received by 191 creameries in 1896 was 3.84 per cent; by 130 creameries in 1897, 3.80 per cent. The range of county averages was, in 1896, 3.46 to 4.06 per cent; in 1897, 3.60 to 4.03 per cent.

*South Dakota.*—Monrad || quotes certain data published in the *Dakota Farmer* representing long-time records of creamery herds in a number of counties of that State. The herd averages range from 3.7 to 4.4 per cent, and the average of these averages is 4.03 per cent.

*Illinois.*—The same writer ¶ states, on the basis of reports from 112 Illinois creameries in 1899, that on the average 100 pounds of milk yielded 4.28 pounds of butter; allowing one sixth over-run, this would correspond to 3.67 per cent of fat

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\* Hoard's *Dairyman*, February 13, 1903.

† Report State Dairy and Food Commissioner, Minn., 1903, pp. 14, 15.

‡ *Ib.*, 1905, pp. 30, 31.

§ Report Dairy and Food Commissioner, Iowa, 1896, p. 153; 1897, p. 60

|| Bulletin No. 16, Bureau of Animal Industry, U. S. D. A., p. 12.

¶ Report State Dairy and Food Commissioner, Ill., 1899-1900, p. 19.

in the milk. Patterson \* reports figures averaging 3.95 for 1901; Tragerath † of 3.89 for 1904.

*Arizona.*—True ‡ gives a table showing the average yields of milk and of butter-fat from 58 Arizona herds for the year ending October, 1900, a year of severe drought. The average of these yields I find equivalent to milk of 4.01 per cent fat.

The data thus given show State averages ranging from 3.80 per cent in Wisconsin to 4.09 per cent in New York. If the figures thus obtained for the several States be averaged, the result is 3.82 per cent, a figure agreeing almost exactly with Alvord's estimate for the United States, based on creamery statistics of milk received and butter made.

Let us consider next the ascertained composition of the milk actually offered for household use in different sections of the United States. This, it is well known, differs more or less from the fluid fresh from the cow. How much it may differ is well illustrated by results obtained in 1897 by Dr. M. E. McDonnell, § then assistant in the writer's laboratory, in the course of an investigation of the milk supplies of the principal cities of Pennsylvania. The average composition of the samples drawn from different classes of storage points and shops have been summarized as follows:

|                             | Specific Gravity. | Total Solids, Per Cent. | Fat, Per Cent. | No. of Samples Represented. |
|-----------------------------|-------------------|-------------------------|----------------|-----------------------------|
| Railroad stations . . . . . | 1.034             | 12.87                   | 4.13           | 27                          |
| Milk depots . . . . .       | 1.0315            | 12.02                   | 3.53           | 108                         |
| Milk wagons . . . . .       | 1.0312            | 12.32                   | 3.57           | 123                         |
| Variety stores . . . . .    | 1.0317            | 12.55                   | 3.62           | 50                          |
| Restaurants . . . . .       | 1.0307            | 11.33                   | 3.09           | 31                          |
| All sources . . . . .       | 1.0312            | 12.29                   | 3.62           | 338                         |

These figures tell us that the further the milk goes away from the railroad terminus the more water and the less fat it contains.

*Massachusetts.*—Leach || reports that the composition of the

\* Report State Dairy and Food Commissioner, Ill., 1901, pp. 19-90.

† *Ib.*, 1904, pp. 73-164.

‡ Arizona Exp. Station Bull. No. 39, p. 302.

§ Report Pa. Dept. of Agriculture, 1897, Part I, pp. 561-597.

|| Report State Board of Health, Mass., 1897, p. 615.

market milk of Massachusetts in December, 1898, and June, 1899, was as follows:

|                             | December, 1898,<br>Per Cent. | June, 1899,<br>Per Cent. |
|-----------------------------|------------------------------|--------------------------|
| Total solids:               |                              |                          |
| Range of averages . . . . . | 12.73-13.45                  | 12.22-13.08              |
| Grand average . . . . .     | 13.32                        | 12.65                    |
| Fat:                        |                              |                          |
| Range of averages . . . . . | 4.07-4.76                    | 3.73-4.44                |
| Grand average . . . . .     | 4.42                         | 4.06                     |
| Solids-not-fat:             |                              |                          |
| Range of averages . . . . . | 8.41-9.27                    | 8.39-8.85                |
| Grand average . . . . .     | 8.85                         | 8.54                     |

*Rhode Island.*—The milk inspector \* of Providence reports that on two days in July, 1897, the averages of composition for the samples analyzed were:

|                          | First Day,<br>Per Cent. | Second Day,<br>Per Cent. |
|--------------------------|-------------------------|--------------------------|
| Total solids . . . . .   | 12.60                   | 12.21                    |
| Fat . . . . .            | 3.81                    | 3.59                     |
| Solids-not-fat . . . . . | 8.80                    | 8.63                     |

*Connecticut.*—Winton † reports that, after excluding samples which had certainly been watered and skimmed, the composition of the market milks sampled in August, 1900-1902, was as follows:

| Year.          | Total Solids,<br>Per Cent. | Fat,<br>Per Cent. | Solids-not-fat,<br>Per Cent. |
|----------------|----------------------------|-------------------|------------------------------|
| 1900 . . . . . | 12.53                      | 3.99              | 8.54                         |
| 1901 . . . . . | 12.50                      | 4.00              | 8.50                         |
| 1902 . . . . . | 12.63                      | 4.13              | 8.50                         |

The low averages for solids-not-fat clearly show that many samples retained in the averages had been watered, even though conclusive proof might not have been found in the individual cases.

*New York.*—Dyer ‡ reports that 204 samples taken in Auburn during 1899 contained an average of 4.2 per cent of fat. Marshall § reports that the inspection of the milk supply of Rochester in 1900 gave an average of 3.91 per cent butter-fat.

\* Bul. No. 20, Bureau of Animal Industry, U. S. D. A., p. 34.

† Report Conn. Agr. Exp. Station, 1902, p. 186.

‡ Bul. No. 46, Bureau of Animal Industry, p. 133.

§ *Ib.*, p. 129.

*New Jersey.*—Voorhees \* reports the averages resulting from an examination of the market milks of Newark, New Brunswick, Trenton, and Camden, as: Total solids, 12.97; fat, 4.13; solids-not-fat, 8.84 per cent.

*Pennsylvania.*—Byrnes † claims that on the basis of many analyses of the Philadelphia milk supply its composition will average over 13 per cent of solids and over 4 per cent of fat.

Cochran, ‡ from an examination of 2841 samples taken from the railroad stations of that city, found an average of 12.76 per cent solids, 3.96 per cent fat, and 8.80 per cent solids-not-fat.

McDonnell § obtained from 35 samples taken from various sources of supply in that city an average of 12.45 per cent total solids, 3.91 per cent fat, and 8.54 per cent solids-not-fat. In ten cities of Pennsylvania he obtained averages ranging, for total solids, from 11.31 to 13.16, grand average 12.29 per cent; for fat, from 2.77 to 4.32, grand average 3.62 per cent; for solids-not-fat, from 7.90 to 9.13, grand average 8.67 per cent.

*Ohio.*—Ankeney || reports as the result of examination of 1027 samples of Ohio market milk that an average of 12.51 per cent of solids and 3.83 per cent of fat was found; that the averages for the samples not found to be adulterated were: Solids, 12.98 per cent; fat, 4.01 per cent.

*Wisconsin.*—Adams ¶ reports that the average fat content of the market milks of ten Wisconsin cities ranged from 3.2 to 4.22 per cent, grand average 3.83 per cent.

*Minnesota.*—Eaton \*\* has arranged the results of analysis of more than 600 market-milk samples taken in St. Paul according to the months of their production. He reports monthly averages ranging as follows: Total solids, 12.37 to 13.21 per cent; fat, 3.74 to 4.25 per cent; solids-not-fat, 8.70 to 9.03 per cent; averages

\* Report N. J. Agr. Exp. Station, 1896, p. 138.

† Bul. No. 46, Bureau of Animal Industry, p. 145.

‡ Agriculture of Pennsylvania, 1890, pp. 89-94.

§ *Op. cit. supra*, pp. 596, 597.

|| Report Ohio Dairy and Food Commission, 1905, p. 11.

¶ Report Dairy and Food Commissioner, Wis., 1895-96, pp. 91, 92.

\*\* Report Dairy and Food Commissioner, Minn., 1896, p. 69.



for nine months: Total solids, 12.77 per cent; fat, 3.93 per cent; solids-not-fat, 8.84 per cent.

*Iowa.*—Boardman \* states that the analysis of 25,318 samples representing the market milks of twelve Iowa cities during the period 1893–1897 gave 3.94 per cent of fat; the annual average in 1893 being only 3.59 per cent, but increasing to 3.79 per cent in 1894, and to 4.00 and 3.99 per cent in the last two years of the period.

*California.*—Gould † reported the average fat in 157 market samples taken in San Francisco as 3.48 per cent. Many of them had been extensively skimmed.

*Hawaii.*—Shorey ‡ states that analyses of herd's milk known to be pure, sampled at Honolulu, showed on the average 12 per cent of solids and 3.5 per cent of fat. A large number of samples of herd's milk analyzed for a special comparison contained, on the average, 12.8 per cent of solids and 4 per cent of fat.

Summing up these statements respecting the composition of market milk: The percentages of total solids and solids-not-fat obtained by combining the averages for the seven States for which data in these constituents were given were, respectively, 12.64 per cent and 8.71 per cent, giving 3.93 per cent of fat by difference. The result of combination of the fat averages obtained from eleven States is 3.89 per cent. If we drop the less widely representative data obtained from Rhode Island, New York, Minnesota, and California, the averages obtained from the remaining States are: Total solids, 12.66 per cent, and solids-not-fat, 8.68 per cent, each from five States; fat, 3.95 per cent from seven States.

Considering now the data obtained both with respect to creamery and cheese-factory milk and with respect to urban milk supplies: The data from New York and Michigan indicate a difference between creamery and cheese-factory milk, the former being distinctly richer in fat, a difference which does not appear in the data for Wisconsin. The urban supply, depressed in quality by

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\* Report Iowa State Dairy Commissioner, 1897, p. 144.

† Report Health Department, San Francisco, Cal., 1897–98, pp. 107 *seq.*

‡ Bulletin No. 46, Bureau of Animal Industry, p. 61.

adulteration though it is, is superior to the average for the combined creamery and cheese-factory supply, to a degree that is considerable in view of the large number of samples and the large areas represented by the averages compared. It is evident that the producers have, with respect both to creameries *versus* cheese-factories and to urban *versus* factory supplies, regulated the richness of the milk to meet the exactions of each class of demands. Had it been possible, in the time at command, to have sorted the market samples so as to separate those not conspicuously adulterated, as was done by Ankeney for the Ohio samples, the average quality of the municipal supplies would undoubtedly have appeared very considerably higher. The average solids-not-fat should be not less than 9 per cent, and the total solids and fat correspondingly elevated.

The fourth comparison, that of the milk standards of the various States and municipalities, remains for brief presentation. Grouping by geographical divisions the standards as they were in 1903: In the New England States: *Total solids*: State standards for total solids range from 11.5 (Connecticut) to 13 per cent (Massachusetts); average, 12.2 per cent. *Fat*: State standards for fat range from 2.5 (Rhode Island) to 3.7 per cent (Massachusetts); average, 3.16 per cent. The tendency here is to decrease the portion of the year during which the higher standards of Massachusetts and New Hampshire apply. Leach, as already mentioned, has suggested that 12.5 per cent as a standard for total solids throughout the year would be preferable to the present standard, while Scott \* urges the need for an increase of the Rhode Island fat standard to 3.5 per cent.

In the Middle States, including the District of Columbia: *Total solids*: State standards, 12 to 12.5 per cent; average, 12.25 per cent. Municipal standards, 12 per cent in New York, New Jersey, and Delaware, and in Philadelphia; 12.5 in many smaller cities of Pennsylvania and Maryland. *Fat*: State standards, 3.5 per cent in Maryland and the District of Columbia, but 3 per cent in New York. In the municipalities of

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\* Bulletin No. 46, Bureau of Animal Industry, p. 153.

New Jersey and Delaware 3 per cent, but 3.5 per cent in Philadelphia and Pennsylvania cities of the second class. Dr. Lehman \* suggests that 13 per cent of solids and 4 per cent of fat would be better standards for Baltimore.

*Middle West.*—*Total solids:* Michigan, 12.5 per cent; other States and their municipalities, 12 per cent. *Fat:* 3 per cent, except Fort Wayne, Ind., 3.5 per cent. But Ankeney † notes that the Ohio standard is not a high one, and Adams ‡ states that the Wisconsin fat standard might justly be made 3.5 per cent.

*Northwestern Mississippi Valley.*—*Total solids:* State standards range from 12 per cent in North Dakota to 13 per cent in Minnesota; average, 12.5 per cent. Municipal standards in Missouri: St. Joseph, 12 per cent; St. Louis, 11.5 per cent. *Fat:* State standards, 3 per cent, except Minnesota, 3.5 per cent. Missouri municipalities, 3 per cent.

*South Atlantic States.*—*Total solids:* North Carolina, 12 per cent; *Solids-not-fat,* South Carolina and Georgia, 8.5 per cent. *Municipal:* Florida, 12 per cent. *Fat,* 3.5 per cent in Georgia, in the other States 3 per cent.

*Gulf States.*—*Municipal:* Alabama cities, 12.5 solids and 3 per cent fat; New Orleans, 13 per cent and 3.5; Houston, Tex., 12 and 3.2 per cent.

*Middle South.*—Standards are 12 per cent solids and 3 per cent fat, except the solids standard of Nashville, 12.5 per cent.

*Arid Belt.*—*Total solids:* 12 per cent State and municipal, except that Wyoming has adopted 11.5 for April and June. *Fat:* 3 per cent State and municipal, except Wyoming, which requires that at least *one fifth* of the solids shall be fat, making the fat standard as low as 2.3 per cent.

*Pacific Coast.*—Washington: Fat 3 per cent, solids-not-fat 8 per cent. Oregon: Solids 12 per cent, fat 3 per cent. California municipalities, usually 12 and 3, but as high as 13 per cent of solids and 3.4 per cent of fat, though these higher requirements are not both made by the same city.

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\* Bulletin No. 46, Bureau of Animal Industry, p. 84.

† *Op. cit.*, p. 11.

‡ *Op. cit.*, 1891-92, p. 22.

*Porto Rico.*—Solids 12 per cent, fat 3 per cent.

These data with respect to legal standards show that those longer established are commonly set at 12 per cent of solids and 3 per cent of fat. A lower figure for solids appears in extremely rare cases, while 12.5 per cent is quite common and 13 not rare. The localities where these exceptions occur are found in almost every geographical division of the country.

With respect to the fat standards, percentages less than 3 per cent are very unusual, while 3.5 per cent is more and more frequently recommended. The tendencies toward higher standards for fat are, like those for solids, not confined to any particular region.

From all these facts it appears that in the United States the general supply of milk for household use has an average fat content of from 3.8 to 4 per cent; that when the herds are turned to pasture a reduction to the average extent of .2 or .3 per cent occurs in the fat, and that the daily variations of herd's milk below the average do not usually exceed .15 to .20 per cent. It furthermore appears that, while the lowland breeds are being more largely used in certain communities, thus reducing the average richness of the milk there produced, with proper care in the feeding and in the selection of the family strain of these breeds, the tendency toward such reduction can be kept from going to an extreme. Finally, a wide-spread movement toward higher fat standards is apparent in communities where the 3 per cent standard now appears.

With respect to the solids, on the other hand, the tendency is to swing back from the higher standards of 13 per cent to a position of 12 or 12.5 per cent.

In view of the data at hand and of the tendencies above mentioned, the fat minimum of 3.25 per cent was recommended for the national standard. Van Slyke reports that six samples of milk from herds of five cows or more, out of 917 authentic experiment-station samples, representing all the dairy breeds, that is to say, little more than one-half per cent, fell below this minimum. The data collected by Van Slyke from analyses of authentic herd's milk show cases where the solids-not-fat fell

below 8.5 per cent, even when the fat was as high as 4.6 per cent. The quantity was less than 8.4 per cent in very few instances, and then only for a very brief period and commonly under defective conditions of nutrition; 8.5 per cent was therefore set as the minimum for solids-not-fat, although the average quantity for milk containing 3.25 per cent of fat would be about 8.75 to 8.80 per cent.

Van Slyke found that the average percentage of total solids in herd's milks having 3 to 3.25 per cent of fat was 11.96 per cent; for those having 3.25 to 3.50 per cent of fat 12.12 per cent. The attempt to preserve arithmetical harmony between standards for fat, total solids, and solids-not-fat generally results in forcing the standard for the last-named group of constituents too high, or in too greatly depressing the standard for total solids.

The effect of the adoption of the national standard in communities whose present supplies are governed by lower standards will, it is believed, tend toward an improvement of quality without any considerable contraction of supply or increase of retail cost. In communities having higher standards it can scarcely result in lowering the quality of milk sold at retail, because over the retail trade wholly within the single States the local authorities retain full sway.

#### DISCUSSION.

MR. ANKENNEY: It seems to me that a few words might be spoken here regarding these standards. I think it is wrong in principle that we should fix a standard which should not encourage higher things. The tendency is to get something that you can sell cheap and which will pass as a pure article. It is not our practice, in Ohio, to prosecute a man when the article first falls below the standard; but he is advised by the Commissioner that he must weed out his herd and get better results.

DR. SCOVELL: There is really no use in standards if they are based on either the minimum or the maximum. There are abnormal cattle, both way above and way below the standard, and these abnormal cattle must be taken out in determining a standard. 3.25 per cent is our standard by law.

## HARMONY OF STANDARDS.

By Dr. RICHARD FISCHER, State Chemist, Wisconsin.

THE subject of Harmony of Standards, which has been assigned to me by the Executive Committee, I have interpreted to mean the harmony of the national and the various State standards for the purity and strength of food products.

With the possible exception of a few natural food products, such as milk, which are apt to vary considerably in composition in different parts of the country and are largely consumed in the States in which they are produced, the desirability and almost absolute necessity for uniformity in State and national standards seem to my mind scarcely a debatable question. To the food manufacturer and jobber doing an interstate business this matter is of special importance and will be even more so when the national food law shall have gone into effect. For while practically no standards have been incorporated into this law, some standards will undoubtedly be fixed in the regulations of the departments who are entrusted with the enforcement of this law, as a basis for a working theory, and these will in all probability be the standards proclaimed by the U. S. Secretary of Agriculture. Such standards have already been proclaimed by the Secretary of Agriculture by authority given him by an act of Congress approved June 3, 1902, which gave an appropriation "To enable the Secretary of Agriculture in collaboration with the Association of Official Agricultural Chemists and such other experts as he may deem necessary to establish standards of purity for food products and to determine what are regarded as adulterations therein."

The continuation of this work of determining standards has been provided by for an appropriation for this purpose by the last Congress. In a few States the standards proclaimed by the

Secretary of Agriculture have been made the official State standards, but in the great majority of States the only legal standards that exist are the few which are incorporated in specific laws and these vary considerably in different States of the Union.

For a number of years the National Association of State Dairy and Food Departments has had a Committee on Food Standards, and considerable work has been done on this subject by various members of this committee. But although a tentative draft was once ordered printed in the proceedings of the Association no specific recommendations were ever presented to the Association by any of these committees.

Last year at the Portland meeting of our Association another Committee on Food Standards was appointed with instructions "To use due diligence in the preparation of a set of standards and definitions for the use of this Association," but for reasons which will be fully explained in the report of this committee it was found impossible to come to any definite conclusions.

Whatever steps shall be taken in the future by this Association in the matter of food standards, it seems to me that a strong attempt should be made at this time to secure harmony of action between the national and States' standards committees so as to secure, if possible, a single set of standards suitable both for the administration of State and federal laws; thus avoiding endless trouble and confusion, which are bound to occur through the existence of two separate sets of standards not only to the manufacturers of foods, but to the administrators of food laws as well. The only way, however, that I see that such a single set of standards can ever be evolved is by joint meetings of both committees. This has been found impossible in the past for various reasons, not the least of which was the lack of funds with which to pay the expenses of our committee. It is impossible to accomplish much work of this kind by correspondence. Personal discussions are essential; hearings should be arranged to receive the views of manufacturers and others interested, without which, in most cases, fair standards cannot be obtained. It seems to me that a possible solution of this problem has been found in a plan which I wish to present to you for your earnest consideration.

As you may all know, the A. O. A. C. Committee on Standards is composed of five members, who for several years worked under the same financial difficulties as our own, but of later years has received financial aid from the national government as before explained. At each of the last two meetings of this committee one representative of our committee was present by special appointment of the Secretary of Agriculture, and I am informed on good authority that the Secretary is willing to increase this number to three or four, the number having to be limited because of the limitations of the appropriations for that purpose. Based on the assumption that this information is correct, my plan briefly outlined is as follows:

To reduce our Standing Committee on Standards to five, to be appointed by the President of this Association after decision has been reached by the Secretary of Agriculture as to the exact number of "expert agents" that he is willing to appoint; to add to this number of "expert agents," who shall be selected from the chemists of the various State departments who are not members of the A. O. A. C. Committee, one or two others (as the case may be) who are already members of the other committee to make the total number five. Practically this would amount to our giving representation to the A. O. A. C. Committee on our committee, while in return we are given representation on the Secretary's committee. In this way both committees will be together when the Secretary's committee meets and it should be possible to decide on a single set of standards equally adapted to State and federal needs.



## EXTRACTS AND BEVERAGES.

### TYPES USED AS EXAMPLES TO ILLUSTRATE A PROPOSED CLASSIFICATION OF FOOD PRODUCTS IN GENERAL.

By O. S. MARCKWORTH, Chemist, Ohio Dairy and Food Commission.

I REALIZE perfectly that what I shall say in the next few moments will hardly be new in substance. I shall merely endeavor to illustrate one more chemist's point of view in this important matter of pure food. I have attempted to simplify—and in my opinion this word represents the heart of the subject, which is certainly, even after being relieved of all legal trimmings, a vastly complex one. I cannot force myself to comprehend the "logic" of permitting any adulterant, whether on account of harmfulness or used to defraud, to be used in one food and not in another. As I take it, a substance which is to be sold and consumed as a food for the human system must be absolutely wholesome, not merely "harmless," and should be as close to the perfection of purity as possible. Added substances, concerning which some doubt as to *wholesomeness* exists, should not be countenanced.

My classification would be somewhat as follows, viz.:

Class 1. Perfectly pure natural foods, properly prepared and made from or composed of best obtainable substances. Permitted to be entitled "Pure,—Made from finest materials" (or "first-class" materials).

Class 2. Perfectly pure natural foods, properly prepared and made from or composed of an inferior quality of substances. Permitted to be entitled "Pure,—Made from wholesome materials."

Class 3. Mixtures of perfectly pure natural foods of like character, properly prepared, the mixture being made to bring out specific flavors or aromas. These to be designated as "Blends."

Class 4. Every product, perfectly wholesome and nutritious, which is made *in imitation* of the same article as described in the foregoing three classes.

Class 5. Preparations of various kinds, not made in imitation of standard food articles and having distinctive names. To be made from perfectly pure, natural, nutritive materials and contain no added inert ones.

Class 6. Any product not belonging to one of the above classes shall be unsalable.

To describe these somewhat more fully:

Class 1. Perfectly pure natural foods, properly prepared, and made from or composed of the best obtainable substances. We all know that, were it not a question of economy both in the family and in the country at large, none of us would consider the purchase of any but this class of food products. No one doubts its value as judged from any given standpoint. This class then is one whose only drawback is of a financial nature. It sets the price and determines a standard of quality. Right here, however, enters the germ of trouble, which is seen on consideration of

Class 2. Perfectly pure natural foods, properly prepared, made from or composed of an inferior quality of substances. A limit of inferiority must be at once established for this class. Such a process need not be either difficult or complicated, but cannot be discussed in the present paper. Consider for a moment these two classes (1 and 2) from the "ground up," so to speak. A shiftless farmer buys a poor farm, plants second-quality seed in poorly prepared soil. His crops are second class. His labor is second class, and so is everything else in which he deals. The first-class farmer does the opposite, and his crop is first class. Second-class men usually have third or fourth class morals; in other words, this second-class man is probably "smooth" enough to be able to imitate a first-class product by various means well known to us all, and receive a first-class price. He receives this illegitimate gain principally by *imitations*. The first-class man gets nothing for his honesty and industry, and at present we, as inspectors of foods, are power-

less to help him. What I wish to emphasize is that we need *quality* distinctions. Passing now to

Class 3. Mixtures of pure natural foods of like character, properly prepared, the mixture being made to bring out specific flavors or aromas. On first thought blends might be considered the avenue of escape for excessively poor products mixed with a small proportion of good ones. Detection of such mixtures would be generally easily made in the laboratory. We must in this case take the place of a housewife, who, going to market to buy berries, for example, does not buy on assurance or on appearance of top layers. She almost invariably has the vendor turn the contents over for close examination, and so judges the quality. If suitable she pays the price, if inferior she takes "two for a nickel," and if unsatisfactory she refuses them altogether. This seems to me to be a good example for us to follow on a large scale. We as chemists should do the "turning over" for our family—the consumers, and judge for them what price shall be paid or whether to permit the sale at any price. How shall this be done? "Make the label tell" is the answer, and see that the label tells it all, too. This applies to all classes. We should not have to buy a sample of every price of goods in a grocery, for example, in order to procure a certain grade of coffee. We should be able to read on the label that this blend, e.g., is composed of 55 per cent Mocha (first quality) and 45 per cent Java (second quality). If we fancied the particular flavor which such a blend almost invariably carries with it, we would need to go no further; we would order that blend by its proper name and pay a given price for it. We would not timidly say, "I want a pound of your best coffee," and receive for our good money, amounting to say thirty-eight cents, a 95 per cent Rio-5 per cent Mocha mixture. Why shouldn't this grocer be offered and practically forced to take about twenty-five cents in lead nickels? There is a convenient illustration here. Uncle Sam insists that money—part of the deal—shall be unquestionably pure, applying that term to its value in a trade. We give this good money made and guaranteed by Uncle Sam for a can of stuff which we cannot even see or know the contents

of, and not guaranteed by any responsible party. The label tells nothing; we can't open the can and test the contents. Even if we can see it, in many cases all we can inspect is the color—and what does that mean nowadays? But the grocer can bite his nickels if he wants to, and can get you into mighty serious difficulty if his teeth make an impression. There's *real* protection on his side.

Class 4. Every product perfectly wholesome and nutritious which is made in imitation of a given article as described in the foregoing three classes. This is the "imitation class." It should be made to include every single article not included in the above descriptions. Coloring-matter of any description added to any product whatsoever, whether of first quality or otherwise, would throw that product into this class. Added antiseptics of any description would do the same. Compounds of substances, whether they be, for example, alcohol, essences, and caramel to make "whiskey," or starch paste, cider, glucose, color, and flavor to make "raspberry jelly," should be distinctly labelled and sold as imitations. Logically they are nothing else. Especially are they not *adulterated* foods in the true sense of that word. Imitation products should only be salable when they take the place of pure natural foods at a much lower price.

Class 5. Preparations of various kinds not made in imitation of standard food products and having distinctive names.

This class would include such products as patent foods, a notable example being breakfast foods, food tablets, etc. These as indicated in the description may contain no added inert materials, and must be properly prepared from pure, natural, nutritive products. They should have the full food value of the materials composing them, statement of these materials to be made upon the label—which as seen later should be the case with every package of food sold.

Class 6. Any product not belonging to one of the above classes should be deemed unsalable. If, now, for example, the above imitation "whiskey" had had "soap" (beading-oil in other words) added to it, sale should be prohibited. Soap is neither wholesome (in the "department of the interior") nor nutritious.

The same view should be held in the second case if, say, grass or other seed were added to change that jelly to "preserves." The same with such appetizing mixtures as cocoanut-shells, wheat-starch, and pepper-hulls compounded to make "Singapore pepper." Such foreign, *unnatural* products as these would come under my idea of an adulterant. It is not for a moment claimed that these things are necessarily harmful. No argument there. They are nothing less than an abomination. There is absolutely not one valid excuse for their presence, and any one placing them in a food product should be placed in jail, without any alternatives of fines or bail. He is a robber pure and simple,—certainly there can be no better example of the crime of obtaining money under false pretences. Why do we hesitate? Is it insincerity? Again, do we eat a given food simply because certain of our facial muscles need exercise, or perhaps because we feel that this one coloring-matter will not seriously affect our digestion? Or do we eat to nourish our bodies? Are there not enough opportunities for entirely accidental gastric disturbances even in the best of our foods?

I wish to say my "say" in regard to added coloring-matters, antiseptics, and similar substances. In the first place I would not permit a trace of antiseptics of any kind in food of any kind for several years to come at least. I mean by this that at present we know far too little concerning antiseptics other than salt, smoke, pickle, etc. I am of exactly the same opinion on the subject of coloring-matters and flavoring ethers. Further, I hold the view, and believe it is perfectly logical, that no substances, until proven absolutely harmless to the perfect satisfaction of experts, or the people at large, should be for one moment permitted in any class of food, except Class 6 (unsalable). Are we not often enough subjected to the inconveniences of impaired digestion, to say the least, without permitting manufacturers or any one else to add even a trace of color or preservative or flavor or other confounding and contaminating product of uncertain physiological action to the food we eat or the liquids we drink?

Isn't the whole subject of colors and preservatives a farce taken in almost every light? Isn't it true that in reality in ninety-

nine cases out of a hundred they are found in the "fake" goods? Are we not here to protect those people who, like the Indians, pick out for purchase the brightest-colored article, whether it has any food value or not? "What good can come of permitting these substances?" and not, "How much can be used without cheating you first and killing you afterwards?" is the question. Get out your pocket microscope and examine the old, old saying: "An ounce of prevention is worth a pound of cure."

As I said, I am not unqualifiedly opposed to colors and preservatives. But under no circumstances should a trace of unclassified ones be permitted now; and under no circumstances should a trace be ever permitted in goods of standard quality. Put those which have been proven to be entirely harmless (and you can count them easily) in foods of the imitation class. If there is one iota of doubt, however, out with them until the doubt has been removed absolutely. Why should not the person who introduces these materials in the market be held responsible for them? Why shouldn't the manufacturer who buys them prove by direct and comprehensive experiment, enough to satisfy a national committee of experts, that what he puts into a food which he markets and from which he derives his income is absolutely harmless? Think of the situation a moment. A salesman comes to a creamery, for example, and shows the manager a substance for coloring butter. It is so much yellower than that which the manager has been using, and the first cost is so much less, that Mr. Salesman has no trouble in getting the order for a season. Did Mr. Manager even ask what it is? Would he know if he had asked? No; he doesn't care, the butter is a beautiful yellow, the buttermilk remains pure white, and the profit is increased. What more is desired? In a month a child's death is traced to the butter color. In a year perhaps six deaths are directly traceable to the color taken in teaspoonful doses. Does the manager stop using it? No. Has that particular butter color been taken off of the market? We must hang our heads in shame and say "no." Now here is a case where we are nearly as criminal as the maker—is there any way out of it? Can we excuse ourselves? Why is color used in butter? To imitate, isn't it? Then it should be

placed in Class 4. Are we not polluting a splendid natural product with a needless proven poison? Think of the folly of it all.

Now I wish to add a few words about labels. When we have reached an honest basis for food products there can be no argument against the exact description of them on the label, together with their amounts. The greater value of one product over another depends, first, upon its superior quality; secondly, upon the care and skill used in its preparation; and, thirdly, upon its attractiveness in the package. Two manufacturers using exactly the same ingredients may produce articles of entirely different selling qualities. The careless manufacturer does not deserve to sell his product as readily as the one whose product is the result of much pains and forethought. There will be no point in the argument that any man may read a given label and make and sell the same product and thereby reap the rewards of another's energy. For unless the second manufacturer produces an article equally good and worth just as much as the first he cannot sell it in competition, and if it is just as good a product and represents the same cost of production, he ought to be entitled to an equal reward with the first—provided no imitation of labels or trademarks, etc., is attempted. Nor does the lack of a formula on the label prevent the second man from producing the first man's goods—he simply has it analyzed and makes it if he wishes, unless it is patented. There is no law against such a procedure. Further, the label does not tell how a given substance is prepared. That is entirely a different matter.

To arrange our ordinary food products into the six classes as indicated is comparatively a simple matter, assuming that standards have been prepared. The following questions will decide the standing of a given product in nearly every case:

(1) Are the analytical constants in agreement with those of first-quality goods?

(2) Does the microscope indicate damage, inferiority, or foreign substances?

(3) Does it show different products of like nature?

(4) Have special tests shown the presence of foreign coloring-matters, preservatives, flavors, artificial sweeteners, body-makers, etc.?

(5) Does the product compare favorably with products of known quality and price in color, odor, taste, flavor, and appearance? If not, what differences exist?

(6) Does the formula as determined by analysis correspond with that upon the label?

The vital points in favor of such a classification are:

(1) That no artificially colored, flavored, or preserved piece of goods can possibly be sold for a pure product of any grade or class, unless the price of the good materials is prohibitive to that particular consumer.

(2) That it greatly minimizes the opportunity for fraud.

(3) That, in the event of a prosecution, plenty of competent witnesses could be called in almost any case to determine the probable commercial quality of many articles examined, and thus compel a trial on the merits of the case. Not only this, but such trials would be of enormous educational value to all concerned, especially to consumers, who would very soon learn which manufacturers or retailers were deceivers, and which products were good. And, as far as the office of the Dairy and Food Commission is concerned, would such a course not immediately put it on a much higher plane in the estimation of the people?

It seems to me that this arrangement should prove satisfactory. It simply means that if a given product is pure and of first quality, the manufacturer and retailer both know it and would so state the fact on the label. If the product is of pure materials of inferior quality—the limits of inferiority to be firmly fixed—a correspondingly honest class of goods is sold to the man who cannot afford to pay the price of Class A goods. Blends and patent foods would be sold on their merits, and imitation foods would become far less prevalent.

Before I attempt to arrange examples of extracts and beverages into their classes as given above, I wish to make a few general remarks concerning extracts.

The definition given to flavoring extracts by the Committee on Food Standards, Association of Official Agricultural Chemists, is as follows:

“Flavoring extracts are ethyl-alcohol solutions of the sapid and odorous principles, with or without the coloring-matters, of aro-



matic plants or parts of plants used for flavoring food; and are derived from plants (or parts of plants) whose name they bear."

The principal flavoring extracts are vanilla and lemon. Next in order come the following: almond, anise, cardamon, celery-seed, cinnamon, ginger, coriander, nutmeg, orange, peppermint, onion, cloves, rose, savory, spearmint, sweet basil, marjoram, thyme, sage, tonka, wintergreen, and vanilla and tonka. Imitation extracts of strawberry, raspberry, pineapple, wild cherry, and in fact imitations of many of the above are also made.

To realize the profits which a manufacturer of flavoring extracts may make, and to show why there is absolutely no excuse for anything but pure extracts, let us examine now into the cost of making a true U. S. P. vanilla extract from the best Mexican beans at this year's prices. I take vanilla as an example, for the reason that it is most difficult and expensive of them all to make.

The U. S. P. formula calls for three ounces of beans, six ounces of sugar, and nineteen and one half ounces of ethyl alcohol (with water not estimated) for one quart of extract.

| COST.                       |         |               |              |
|-----------------------------|---------|---------------|--------------|
| Best Mexican beans. . . . . | per lb. | \$5.50; per 3 | oz. = \$1.03 |
| Sugar . . . . .             | " "     | .07; " 6      | " = 0.026    |
| Alcohol . . . . .           | " gal.  | 2.65; " 19.5  | " = 0.404    |

\$1.460 per qt.

or about 4½ cents per ounce.

This kind of extract readily sells for 12½ cents per ounce. The highest price of best Mexican beans in the last ten years was \$14.00 per pound, while the lowest was \$5.50 (this year's price). Ordinary Mexican beans sell for \$3.00 this year, while \$8.00 was the highest price known in ten years. Prices of all of the beans are as follows:

|  | Highest<br>Price.  | Lowest<br>Price. |
|--|--------------------|------------------|
| <i>Mexican</i> , from district of Palenta (40 large plantations in district) . . . . . | Best . . . . .     | \$14.00          |
|  | Ordinary quality   | 8.00             |
| <i>Bourbon</i> , from Bourbon Is., Indian Ocean, French possession.                    | Best . . . . .     | 8.00             |
|  | Ordinary . . . . . | 2.60             |
| South American . . . . .   | Best . . . . .     | 7.00             |
|  | Ordinary . . . . . | 4.00             |
| <i>Seychelles</i> , from Seychelles Is., Indian Ocean, British possession.             | Best . . . . .     | 6.00             |
|  | Ordinary . . . . . | 1.20             |
| <i>Comores</i> , from Comores Is., French possession.                                  | Best . . . . .     | 6.00             |
|  | Ordinary . . . . . | 1.30             |
| <i>Tahiti</i> , from Tahiti Is., Pacific Ocean. (Via San Francisco.)                   | Best . . . . .     | 5.00             |
|  | Ordinary . . . . . | 1.00             |

From these prices it is seen that a *true U. S. P. vanilla extract* (though belonging to inferior-goods class, being made from Tahiti beans) can be made this year for 49 cents per quart, or about  $1\frac{1}{2}$  cents per ounce. Think of the profits of selling a pure but inferior article such as this for, say, 6 cents per ounce, and this can be considered legitimate. It is very seldom indeed that the best Mexican beans are used alone even in the very best tinctures on the market. The cheaper grades are either mixed with Mexican beans or with each other or used alone. I wish to mention a peculiar fact in passing, namely, that tinctures of vanilla and tonka are very often preferred to a pure tincture of vanilla. This is legitimate if labelled a blend (with formula given). Why, we might here ask, should this strong flavor be preferred? The answer is very simple. People buy these things for the odor and do not think of the final flavor in the cake, candy, or whatever the product in which it is used may be. They have apparently never realized the delicate, delicious flavor of true vanilla, and perhaps in 99 cases out of 100 they have never had the opportunity of testing a fine, true extract so as to appreciate it, although they may have asked for it each time they asked for vanilla at the grocery.

In the case of lemon extract the profits are even larger for a U. S. P. product. This costs about 76 cents per quart, say 60 cents for the alcohol and 16 cents for the oil and lemon-peel. This is equal to about  $2\frac{1}{2}$  cents per ounce, and lemon extract is almost universally sold for 10 cents, sometimes even more. And so I might go on through the whole list. It should cause no wonder that thousands of gallons of these extracts are marketed each year—it is a good business. People want flavoring extracts. But even with such enormous profits in the sale of the best extracts what conditions do we find on the market? How many so-called “Vanilla Extracts, Double Strength” have any portion of the vanilla bean in them? How many correspond to U. S. P. standards? I might add right here that a true U. S. P. extract of Mexican beans made in my laboratory shows about the following characteristics:

|                          |        |          |
|--------------------------|--------|----------|
| Specific gravity.....    | 1.0150 | per cent |
| Vanillin.....            | 0.127  | “ “      |
| Alcohol (by weight)..... | 38.00  | “ “      |
| Total solids.....        | 22.50  | “ “      |
| Sugar (sucrose).....     | 20.00  | “ “      |

Can there be any legitimate excuse for selling a 10 per cent alcoholic solution of vanillin and coumarin, with perhaps a little glucose or glycerine and colored with caramel, costing about 1 cent per ounce for extract of vanilla, when it costs so little to prepare a pure article? What would happen if we removed the caramel? Wouldn't that regulate the price of such a commodity? And, further, does not common-sense dictate that we must distinctly label such a product an "imitation"? What else can it be called? Undoubtedly the formula of such a product should be given on the label. Don't you see that this sort of stuff has brought the price of vanilla beans down, so that this year they are lower than they ever were? Are we not helping to ruin a legitimate industry by permitting such fraud? Certainly we should at least give the honest man a fair chance for the sale of a good product. Trace the whole thing back and you must agree with me that coloring-matter is chiefly responsible for the sale of these products. Every bogus "extract of vanilla" which I have examined has been artificially colored, and owes its sale to the color in it. Has this not been your experience?

Now let us see how some of your more common extracts and beverages would be labelled and classified according to my ideas. To take vanilla first:

Under Class 1. "Tincture of Vanilla. U. S. P. Made from Mexican beans, 100 per cent." Corresponds to, etc.

Class 2. "Tincture of Vanilla. U. S. P. Made from Tahiti beans, 100 per cent." Corresponds to, etc.

Class 3. "Tincture of Vanilla. U. S. P. Tahiti beans; 25 per cent; Mexican beans, 75 per cent."

Class 4. "Imitation Tincture of Vanilla. Formula: Vanillin 0.25 per cent; Coumarin 0.15 per cent; Grain Alcohol 10 per cent; Caramel to color."

or

"Imitation Tincture of Vanilla. Formula: U. S. P. Tincture of Vanilla (from Tahiti beans) 25 per cent; Vanillin (synthetical) 0.15 per cent; glycerine 5 per cent. Caramel to color."

Class 6. Any tincture above which did not correspond

to formula, or contained any harmful ingredients.

Then Lemon Extract:

Class 1. "Tincture of Lemon. U. S. P. Made from hand-pressed oil 5 per cent; lemon-peel to color."

Class 2. "Tincture of Lemon. U. S. P. Made from distilled oil 5 per cent; lemon-peel to color."

Class 3. No point in blending oils.

Class 4. "Imitation Tincture of Lemon. Alcohol 40 per cent. Lemon-oil (hand-pressed) 3 per cent. Citronellal 0.5 per cent. Colored with turmeric."

Class 6. Such tinctures as contain less than 3 per cent lemon-oil or harmful ingredients.

These samples suffice to show how easily any consumer could procure at any grocery or drug store just exactly that grade of flavoring extract which his palate or pocket-book demanded.

In closing I can for reasons mentioned not go into details of labelling beverages in general, for my time has been so limited since the mistake was discovered that I have not been able to again go over the matter. I would like to take up, however, Milk and Whiskey.

#### WHISKEYS.

Class 1. "Rye Whiskey. Made from Rye. 100 per cent. Proof 100. Age 4 years."

Class 2. "Rye Whiskey. Made from Rye. 100 per cent. Proof 90. Age 2 years."

Class 3. "Whiskey Blend. Made from 50 per cent Rye and 50 per cent Corn Whiskeys. Proof 100. Age 4 years."

Class 4. "Imitation (rather than artificial) Whiskey. Formula: Alcohol 50 per cent; Prune-juice 5 per cent; Glycerine 0.3 per cent; Caramel to color."

Class 5. Not represented.

Class 6. Whiskeys below proof; improperly labelled, etc.

#### MILK.

Class 1. "Milk, Jersey. Butter-fats 5 per cent." (Date of milking, to-day, 4 A.M.)

Class 2. "Milk, Holstein. Butter-fat 3 per cent." (Date of milking, to-day, 4 A.M.)

Class 3. "Milk, Jersey 50 per cent, Holstein 50 per cent. Butterfats 4 per cent." (Date of milking, to-day, 4 A.M.)  
A standardized milk would also come under this classification.

Class 4. Reduced and sweetened for infants.

Class 5. Not represented.

Class 6. Below standard, preserved, etc.

## THE USE OF SULPHUROUS ACID IN FOOD PRODUCTS.

By DR. CHARLES D. HOWARD, Chemist, State Board of Health, New Hampshire.

FOOD chemists are well aware of the extensive use now being made of sulphurous acid and its combinations for preserving and bleaching purposes. It is now nothing unusual to find this compound present in comparatively large quantities in such articles as dried apricots, prunes, citron, and desiccated cocoanut; in certain meat products and in ketchups and table sauces; in all kinds of malt liquors, and also in molasses and syrups, and in all the cheaper grades of candy. Thus the number of foods containing this compound in greater or less proportion, added directly or indirectly, is very large, and more than once the question has arisen with us as regards the minimum amounts that should be recognized as adulteration.

It not infrequently happens that sulphurous acid is present in the finished product as a result of its use in the raw materials from which such product has been prepared. This is pre-eminently the case with malt liquors; and while our observations would seem to indicate that there is practically no beer on sale in New Hampshire to-day that does not contain a certain amount of sulphurous acid, nevertheless the brewers will most strenuously urge that they do not use a grain of preservative of any kind.

The presence of sulphurous acid in beer may be explained in at least three ways: (1) its direct addition for preservative purposes; (2) its introduction in the glucose, where such is used; and (3) the presence of this compound in the hops employed in brewing. Recent examinations made by us of hops show the presence of sulphurous acid in very considerable quantity. Thus in a kilogram of hops grown in California there was found no less than 3.264 grams of sulphurous acid. Hops from Washington State

showed 2.112 grams and from Oregon 2.176 grams. A sample of Bavarian, crop of 1905, contained 2.368 grams, while Bohemian hops showed 2.304 grams to the kilogram. A somewhat remarkable fact was that a nice-looking lot of hops grown in New York State and forwarded with the other samples showed no trace whatever of sulphurous acid.

In this connection I find that it is the custom in some States to take no account of sulphurous acid below a certain arbitrarily fixed minimum quantity, while in others the matter of the accidental presence of this compound in malt liquors seems to have, as yet, received no recognition whatever.

Another article at present highly adulterated by  $\text{SO}_2$  is glucose—especially the confectioner's variety. Notwithstanding that the public's attention was called to this fact by Dr. Winton several years ago, yet to-day the average lot of confectioner's glucose will be found heavily loaded with  $\text{SO}_2$ ,—as much as one and one half to two grams of the gas to the kilogram of syrup being nothing unusual. As if this were not enough, candy-makers are now having pressed upon them preparations intended to allow of a larger quantity of glucose being incorporated in the candy than would otherwise be possible without causing stickiness. Investigation of two of these preparations, sold under the names of "Avizol" and "Cyrantis," indicate that they are nothing more than saturated solutions of bisulphites.

Of the forty samples of molasses examined by us during the past three months, there was not one that failed to show the presence of sulphurous acid in some quantity. Of the thirty-seven samples in which this adulterant was estimated quantitatively the amount was found to range from 4 milligrams to 94 milligrams sulphurous acid in 100 grams of molasses, the average quantity found being 30 milligrams in 100 grams, or three tenths of a gram per kilogram. As certain molasses jobbers have contended, that in view of the present extensive distribution of sulphites in food products, we would find this compound present in the various grades of sugars, it is interesting to note that examination of one very dark sample of brown sugar showed the presence of 3 milligrams only of  $\text{SO}_2$ , while a sample of light-brown sugar and two

samples of granulated failed to show the slightest trace of sulphites. This latter has also been our experience with regard to all the maple syrups on which this test has been made.

Another impurity of apparently common occurrence in molasses is zinc. While the presence of slight traces of this metal is doubtless to be expected and is probably not objectionable, yet the quantity of such appearing in the molasses on sale in New Hampshire is, in my estimation, altogether too great to be passed over. Thus but 11 out of the 35 samples examined for zinc failed to give a test for this metal. Of the nearly 70 per cent thus found contaminated, the quantity of zinc present, calculated as metal, was found to range from a trace to 50 milligrams in 100 grams, or one-half gram of metal to the kilogram. In the 4 samples of sugar examined no trace of zinc was discovered. A number of examinations was also made for tin salts, but in most cases the quantity indicated was but slight.

#### DISCUSSION.

DR. WILEY: This subject of the use of sulphurous acid in food products is one of greater importance than is realized by the majority of people, not only from the point of sanitation but also a technical question. Fruit which is to be dried and preserved is put into burning sulphur, and by the time it is made into wine it has received ten treatments of sulphurous acid. This is exceptionally true in the case of white wines, as it bleaches the fruit, and is not used quite so much in red wines. In Bordeaux they have been trying to overcome this. Four years ago the food inspectors went into the matter of German wines very carefully, and found that they contained a much smaller percentage of sulphur. When this became known to the French they established a committee, composed of forty experts, who made analyses, and in the end they wanted us to compromise with them, and I think we came pretty near doing it, but our experts could come to but one conclusion—that it was *not only a harmful but a dangerous thing*. Under the action of sulphurous acid the red corpuscles of the blood in the human system become bleached to white. It is true that a harmful substance is not so harmful when in small quantities, but the effect is certainly according to our principles, and I think it is a question which deserves careful consideration. Sulphurous acid is an excellent germicide and its bleaching qualities are unquestioned, but it seems to me that the human system really needs neither of



these qualities. I really wish that this Association would take up the matter and show us whether or not food products can be made without the use of sulphurous acid. I am very sorry to say that I find the use of sulphites to be on the increase, and it is without doubt dangerous to health.

## PORT INSPECTION.

By R. E. DOOLITTLE, Chief, New York Laboratory, U. S. Department of Agriculture.

THE Secretary of Agriculture was authorized by act of Congress of March 3, 1903, to inspect before entry into this country all foods, drugs, beverages, and condiments of foreign production or manufacture. This law was included in the regular appropriation bill for the Department of Agriculture for the year 1903, and with slight amendments has been embraced in all subsequent appropriation acts. Congress at its last session also included the inspection of imported food and drug products under the new Food Law, and when this law goes into effect January 1st next the port inspections will probably be conducted under the general Food Law instead of the Appropriation Act. By the terms of the act under which we now operate, which is the Appropriation Act of March 30, 1906, the Secretary of Agriculture, whenever he has reason to believe any food product, drug, beverage, or condiment is being imported from a foreign country which is dangerous to the health of the people of the United States or which is falsely labelled or branded as to contents or as to place of manufacture or production, shall make a request upon the Secretary of the Treasury for samples from original packages of such articles for inspection and analysis, and the Secretary of the Treasury is authorized to open such original packages and deliver specimens to the Secretary of Agriculture for the purpose mentioned. The Secretary of the Treasury shall also refuse delivery to the consignee of any such goods which the Secretary of Agriculture reports to him to have been inspected and analyzed and found to be dangerous to health or falsely labelled or branded either as to contents or as to place of manufacture or production, or which are forbidden entry or to be sold, or are re-

stricted in sale in the country in which they are made or from which they are exported.\*

As is expressed by the language of the act, the inspection of imported food products covers the following items:

(1) To ascertain whether or not the products are injurious to health.

By decision of the Secretary of Agriculture of August 6, 1904, a product is deemed injurious to health (1) if any substance, with the exception of the long-used well-known condimental substances, viz., common salt, spices, sugar, wood-smoke, and vinegar, be added thereto for preserving, coloring, or other purposes, which is injurious to health either as determined by actual experimental evidence or in the predominating opinion of health officers, hygienists, and physiological chemists; and (2) if the product be decomposed, filthy, decayed, or in any unfit condition for human consumption.

(2) The second item covered by the inspection is to ascertain whether or not the products are falsely branded or labelled, first, in regard to the contents of the package, and, second, as to place of manufacture or production.

By the regulations issued by the Secretary of Agriculture food products are held misbranded:

(a) If any false name or property be assigned thereto in the label, directly or by implication.

(b) If any false statement be contained in the label relating to the place of manufacture or production of the contents of the package, directly or by implication.

(c) If they be not of the nature, substance, and quality commonly associated with the name under which they are sold or offered for sale.

(3) The third point covered by the inspection of imported food products is to ascertain whether or not they are forbidden entry to or are restricted in sale in the country in which they are made or from which they are exported. The Food Inspection Act expressly forbids entry into the United States of any products that are forbidden entry in the country where they are manu-

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\* From Appropriation Act, Department of Agriculture, June 30, 1906.

factured or from which they are exported. It also prohibits entry into this country of products which are forbidden to be sold or are restricted in sale in the countries in which they are manufactured or from which they are exported.

To convey a proper idea of the manner in which the food inspection is carried on it is necessary to refer to some practices of the customs service. Both the Department of Agriculture and the Treasury Department are concerned in the execution of the Imported Food Inspection Act. In fact the Secretary of the Treasury is the administrative officer. Shipments of merchandise are always in the custody of the Treasury Department, and samples are taken and delivered for inspection and analysis by the Secretary of the Treasury upon request of the Secretary of Agriculture; furthermore, the Secretary of the Treasury upon request of the Secretary of Agriculture refuses the admission of products found adulterated within the meaning of the law. Thus both departments are interested throughout the whole inspection work.

In the execution of the regular customs law it is required that within forty-eight hours after a vessel makes entry at a port in this country all consignees of merchandise in that vessel shall make entry and shall present at the custom-house a copy of the consular invoice covering their respective shipments of goods. An invoice, as you probably know, is simply a list containing the items of merchandise together with the prices and all items of expense, certified before the United States consular officer of the country from which the goods are exported. From this invoice the duty is quickly estimated and the amount paid at once by the consignee of the goods. Permits are issued in most cases for removal from the dock of all goods except public-store cases, a bond for twice their value being given to protect the government and secure return of the goods should occasion demand. At least one case in every ten of each line of case goods is sent to the appraiser's stores for the fixing of values. The invoice is also sent to the public stores, and after proper recording it reaches the hands of the examiner who makes the appraisement of the goods. It is while the invoice is in the hands of the examiner that the

inspection is made by the Department of Agriculture under the Food Inspection Law.

I may say here that during the first year of the existence of the Food Inspection Law all work was done by the Bureau of Chemistry at its Washington office. Arrangements were made with the Department of State whereby copies of all invoices of food products were sent direct to the bureau by the American consuls of the different countries; but the delay occasioned by the transmission of samples and correspondence so inconvenienced the importers and the customs officials that it was decided to try the plan of having laboratories at the principal ports of entry.

The first port laboratory was opened in the appraiser's stores in the city of New York, September 6, 1904. This was found to greatly facilitate the inspection work, and as a result of the experience at that port five more laboratories were opened last year, viz., at Boston, Philadelphia, Chicago, New Orleans, and San Francisco. Shipments arriving at ports at which there are no laboratories are still inspected at the Bureau of Chemistry by means of the copies of invoices sent by the consular officers.

At the port laboratory the inspection is made by the examination of the regular invoice entered for appraisement purposes when this invoice is in the possession of the examiner of the merchandise. The inspecting officer of the Department of Agriculture visits the various examiners having the appraisement of food products, where all invoices are open for his inspection. No invoice containing an item of food product is permitted to be returned by an examiner until it has been inspected by the inspecting officer of the Department of Agriculture. If, on examining an invoice, the inspector finds no article he desires sampled or further inspected, he stamps the invoice "No Sample Desired by U. S. Department of Agriculture." An invoice thus stamped may be returned or passed to another examiner without further detention. If, however, a sample is desired there is attached to the invoice a small tag describing the particular case from which a sample is wanted. It is then the duty of the examiner to procure this sample and forward it at once to the laboratory of the department, and also to notify the consignee of the goods that a sample has

been taken for inspection purposes, and that he should hold intact the remainder of the shipment until the examination is completed and he receives further notice from the Department of Agriculture.

Often when inspecting an invoice the inspector is unable to decide until he can see the goods whether or not a sample should be requested. Take, for instance, the question of labels. Repeated analyses of certain lines of merchandise informs an inspector as to their composition, and it then becomes a question of inspection of labels, with occasional complete examination and analysis of the new brands and grades that appear from time to time. As an example of this class of goods we have the French peas in which sulphate of copper is used to give the green color. Pending experiments which are now being made, the Secretary of Agriculture has decided that such products may be admitted, provided the label plainly states that they are "Colored (or Prepared) with Sulphate of Copper." The inspecting officer, therefore, examining an invoice covering a consignment of peas or beans from France or Belgium has but to determine in most cases whether or not the labels bear the notification of the presence of copper. To provide for this form of inspection it has been arranged that by attaching a detention slip to an invoice the inspector's attention will be called to the public-store cases covered by that invoice when they are opened for appraisal by the examiner of customs. Of course any or all cases may be ordered to public stores, though in general, as I stated before, one case in every ten of each different line of products is ordered to public stores at the time entry is made.

The inspector when making his visits to the examiner makes what we call the floor inspection. He looks over the contents of the various public-store cases, and where goods are found properly labelled according to the results of previous analyses he can pass them by stamping the invoice in the usual manner. Should a case be found not properly labelled or from which he desires samples for any other purpose, the detention is made and sample requested in the regular way. What has been said of the peas and beans applies, of course, to many other lines of products. This form of inspection greatly facilitates the work, as it lessens the number of samples sent to the laboratory for analysis. In fact, it

would be impossible, at a port like New York, with the small force available under the appropriation Congress has made for food inspection, to even analyze samples from all shipments of scarcely any one line of products.

The floor inspection becomes more and more important as new lines of work are covered and the manufacturer and importer learn the requirements of the law and govern their products accordingly. At the port of New York we have not been able as yet to cover nearly all the different lines of food products. For one not acquainted with the customs service it is hard to appreciate the volume of merchandise that passes through a port like New York. About 75 per cent of all the products brought into this country passes through that port. Probably an average of over 10,000 invoices of food products alone are entered every month of the busy season, which extends from the first of September to about the first of May. I have seen invoices of wines on which the duty alone amounted to over \$5000. I speak of this that you may gain some idea of the extent of the inspection work and perhaps better appreciate the difficulties that naturally arise from the execution of a law that involves so great and varied interests.

It is necessary to so provide in every detail of the food inspection work that there shall be no conflict with the customs service or delay in the handling of the merchandise, otherwise the whole work of the port would become blocked in a very short time. When steps were first taken to inaugurate the inspection work there was great fear among some of the customs officials that the whole customs service would be disrupted, and Dr. Wiley or Dr. Bigelow could give a very interesting account of the difficulties encountered and overcome before the work was gotten under way. The Department adopted the policy of taking up only a few lines of products that could be well handled and making the inspection complete in every respect along the line under the examination. Of course at any time and without notice one line of products may be discontinued and another taken up, though a line of products that has once been thoroughly covered is never afterward entirely dropped, as the floor inspection and occasional analyses of suspected samples serve to keep them under proper control.

The port laboratories receive direct from the consular officers of the different countries copies of all invoices covering shipments of food products entering that port. This copy of the invoice is accompanied by a declaration of the shipper as to the place where the products are grown and manufactured and the presence or absence of preservatives, coloring-matters, or other added substances. The examination of these invoices assists in keeping the inspector informed as to the character of the goods entering the port.

To return more particularly to the details of the system of inspection. After a sample has been requested from a shipment of merchandise it is delivered at the earliest possible moment by the customs examiner to the port laboratory. The necessary examination is made, and if found pure the consignee is notified that the examination has been completed and that the shipment represented by same will not be further detained by the Department of Agriculture. If a sample is found adulterated within the meaning of the law, the collector of customs is requested to secure actual custody of the goods, and the importer is notified of the findings of the examination and a time set at which he may be present and introduce testimony regarding the case at hand. In the meantime a report of the findings of the port laboratory, together with a sample of the merchandise, are sent to the Bureau of Chemistry at Washington for verification. The evidence introduced by the importer, the declaration of the shipper, the laboratory results, in fact all matters relating to or bearing on the case, are taken into consideration in making the final decision. If it be decided that the goods are entitled to entry, the collector of customs for the port is notified accordingly and requested to release the shipment under whatever restrictions may be decided upon. If it be decided that the goods are not entitled to entry, the collector of customs is so notified and requested to secure their reshipment beyond the limits of the United States. No penalty is imposed for bringing adulterated goods to the United States. The loss of the goods or the expense incurred in securing their reshipment, etc., has been found to be quite as effectual in enforcing the provisions of the law.

The enforcement of the Food Inspection Act has produced a marked change in the character of the products brought into this



country. At New York we have made a thorough inspection of the following lines of products: vinegars, jellies, jams, and fruit preserves, canned vegetables, tinned and potted meats, fish in olive-oil, olive-oil itself, and egg products. Considerable work has also been done or is under way in the following lines: macaroni, chocolates and cocoas, non-alcoholic beverages, and certain lines of spices and condiments. As a result of the inspection of these lines of products many importers are bringing in a much better grade of products, the use of adulterants being discontinued altogether. Others have made no change in the quality of their products, but have altered their labels in a manner necessary to correctly inform the purchaser of the exact character of the product. It is not necessary for me to enumerate the adulterants found in the different products in the course of our work. Suffice it to say that in general they were the same as commonly used in domestic goods. So-called "Pure Wine Vinegar" was found in some instances to be the ordinary distilled product colored with caramel. Jellies, jams, and preserves often contained glucose and salicylic acid. Sardines bearing the impressive label "Packed in Pure Olive-oil" were found to be packed in a mixture of oils of which cottonseed formed the major portion, though more often peanut- and sesame-oils were used. A product not so commonly met with in the State food control work and with which we had considerable experience was what is known as liquid egg. Liquid egg is simply the whole egg after the removal of the shell. Soon after the laboratory at New York was established it was discovered that thousands of cases of this product were being entered at that port each year and that it was preserved with from 3 to 5 per cent of borax. One shipment was found which was preserved with fluorides. The product came mostly from China and was used by the large restaurants and bakeries of this country. I understand it has also been used, or at least experimented with, in the manufacture of oleomargarine. By a decision of the Secretary of Agriculture all products of this class so preserved were prohibited entry on and after December 15, 1904. Attempts have since been made to bring it in in a frozen condition, but this was not a success and the plan was soon abandoned.

In the enforcement of the inspection law I am pleased to say that we have had in general the hearty co-operation of the importers. In the majority of instances of adulteration found it has only been a matter of arriving at an understanding of the exact requirement of the law and giving sufficient time to enable the importers to communicate with their manufacturers on the other side. Of course in the import trade as in all other branches of business there are certain people who can only construe a law enacted for the protection of the public health as a menace to their business and one which they will obey only when every avenue of escape has been tested and found closed. I believe I am warranted in saying the Department has been very lenient with violators of the law and has in every instance given sufficient notice and ample opportunity for an importer, if he so desired, to comply with the law without severe financial loss. Of course the port inspection work has but nicely begun. There are many and important lines of products which have not as yet been touched upon. Every few days important matters come to the attention of the department that demand thorough investigation before the real inspection work can be commenced. In fact, there is always a certain amount of investigation to be done before any new line of inspection can be taken up. The work of the port laboratory is by no means confined to the analyses of samples from shipments inspected. Research on composition of certain products, detection of adulterants, and methods of analysis must be kept constantly under way. Much, however, is being accomplished, and with the growth of the service and the co-operation that will come from the enforcement of the national Food Law it is hoped that better and greater results will accompany the work in the future.

## FROM THE CANNER'S STANDPOINT CONCERNING FURTHER FEDERAL AND STATE LEGISLATION.

By JAMES P. OLNEY, President of the New York State Canned Goods Packers' Association.

Mr. President and Members of the Interstate Pure Food Commission, Ladies and Gentlemen: In the first place, the fruit and vegetable packers should, and I believe do, welcome the opportunity of meeting with this distinguished and most important commission and considering with it the matters which are of common interest and concern.

Especially in view of the resolutions unanimously passed at Atlantic City in February last by the principal fruit and vegetable packing interests of the United States, favoring a national Pure Food Law, I am sure that it is no venture in behalf of the New York State Canned Goods Packers' Association, to congratulate Dr. H. W. Wiley, the trade journals, and all who have in any way contributed to the passage of the national Pure Food Law.

It places all packers upon the same basis, which was their desire, and will materially benefit the general vegetable and fruit canning interests throughout the country. These items will be consumed in greater proportions in the future than in the past.

Great results have been accomplished by its passage. It is an absolute guarantee of pure canned fruits and vegetables, and it will serve as an inspiration of renewed confidence by the consumer in these commodities, which, as Dr. Wiley publicly, frankly, and truthfully has recently said, are better when put up by reputable concerns than the general run of the green product as ordinarily marketed.

### UNIFORMITY OF LAWS.

It would seem that so far as canned fruits and vegetables are concerned the national law is broad enough, sufficiently

exacting, and strong enough to fully protect the consuming public in the most important matters in which it is interested, and are there any good reasons why the State laws should not, at the first opportunity, be amended to conform to the national one, and operations under same remain in abeyance so far as inconsistent with the national law concerning particularly adulterations and misbranding? Why should the canners be obliged to pack goods to comply with different laws in different States? Should not a law passed by Congress and approved by the President and which is presumably good enough for the nation be good enough for the different States constituting the nation?

It would seem that if there is any part of the new law which it is desired by any particular locality should be changed, that there should be one common point, one arena, where the advantages and disadvantages of the proposed change can be fully considered and fought out, and that place should be Washington and not, if you please, the capitals of all the States in the Union. If one State is to have laws inconsistent with the national one, then certainly it is the prerogative of all the States.

It is, of course, recognized that to secure the desired results there must be both national and State legislation, but the State legislation should be the same as the federal laws so far, at least, as adulteration and misbranding are concerned.

As a rule, the federal laws are good enough for the different States, and why should there be an exception in the case of pure food laws?

The difference of opinion which has arisen concerning the so-called "weight and measure" clause it seems to me amply justifies the views as above expressed. This is a matter which was most thoroughly considered at Washington, in committees and upon the floor, and why is it not a part of good citizenship to be satisfied with that conclusion at least to the extent of accepting the law in that regard as the law of the land until amended by Congress should there later on be a sentiment sufficiently strong to justify same? Do not the vegetable packers of this country take sufficient chances with the elements in addition to the ordinary business risks without being obliged from time to time to present their

cause before different State legislatures or accept the alternative of submitting to such laws as the State may think best to enact or discontinue business in such States?

#### SO-CALLED WEIGHT AND MEASURE CLAUSE.

The national law, as I understand it, provides in substance that if a package is marked to contain a certain quantity that there is a misbranding if in fact the package does not contain the quantity as represented; but the packer is not obliged to place anything in this regard on the label, but if he does, it must be correct. This is certainly right and to it no one can take exception, but referring especially to the packing of vegetables and fruits, which is the business of the members of the New York State Packers' Association, absolutely no benefit can be realized by the general public in requiring the weight or measure of the contents of the cans to be printed upon same, and in making this statement it is not the purpose to question for a moment the good faith of the advocates of such a provision in certain State laws. From a practical standpoint it would seem that such a contention can only be consistent with the idea that those favoring same are unfamiliar with the manufacturing end of the proposition.

If I understand correctly the position of those favoring a different weight and measure clause from that contained in the national law, it is that the weight or measure should be printed on the label, giving the exact weight of the contents or at least the approximate weight or measure.

The following are the reasons which occur to me why such a clause can serve no good purpose:

First. The standard to be aspired to in the packing of canned fruits and vegetables should be, particularly, quality. A can may contain more weight of an inferior article or at least as much as that of a superior quality of the same article by reason of being older and not as good as if placed in the can when in a more tender condition. The purchaser is influenced by the quality and not the quantity.

Second. It is absolutely impossible to secure uniform weights of any item, and if only the approximate weight is required, then the fancied result sought for by the friends of this idea is in fact not accomplished.

A leading New York State packer said to me a few days ago that his cans contained several ounces more of a particular item than the amount required by a certain State law, and what is true of that packer applies to other packers of New York State and, as a general rule, throughout the country.

Third. There are some items, like peas and beans, which are packed in a brine, the latter weighing as much as the peas or beans when in a certain condition. How, therefore, is the consumer protected in this regard?

Take a can of the smallest-sized peas, and one third of the total weight consists, and very properly so, of brine, and if there was a purpose to deceive, and at the same time comply with some of the State requirements, the can could contain one half or even more of water and the total weight would be fully up to the label requirement.

Again, the weight of the can itself and the amount of the solder used fluctuates more or less.

Fourth. The natural condition of certain products, particularly peas and beans, is such that the material itself, although the cans in both cases may be filled, will vary materially in the weight.

For instance, a can of small peas or beans would contain perhaps fifty times as many as a can of the larger sizes of these items, and yet, with the water added to the larger sizes, the weight would be the same as the can containing the small sizes, although the value of the latter would be two or three times more than that of the can containing the larger sizes.

Fifth. It is a well-recognized fact by those familiar with the business that the weight of the contents will vary, one season with another and even one day with another, depending upon climatic conditions, although the same quantity in dimensions is placed in the can.

Sixth. The weight and measure clause would serve as a sort of premium to the packer to at least use as large figures as the weight

and measure of the contents would actually justify, especially if approximate figures can be used, and in this way the public mind is influenced and educated in a certain way to look more for quantity than quality, which is inconsistent with the spirit and intent of the new law; and very proper it is that the slogan should be quality, quality, quality, but plenty of it.

I think it would be most desirable that a general clause be incorporated at some future time in the national law requiring fruit and vegetable packers to place in the cans, exclusive of the brine, as much of the fruit and vegetable as may be practicable, imposing a severe penalty for its violation, and the public would be fully protected under such a provision wherever there is at present any abuse along this line, which is in fact a pretty small percentage in the great quantity of fruits and vegetables packed. Filling the cans is no more than the packers of New York State are doing and have been always doing. While I believe thoroughly in the principle of well-filled cans, yet as a rule I think that slack-filled cans are sold at correspondingly lower prices, even the consumer not paying, as a rule, a price consistent with a perfectly filled package. But every packer should be obliged to fill his cans as full as may be practicable of the material itself.

It has been asked why the packers should object to placing the weight and measure on the cans, and that this could be easily done when labels are ordered. In providing label requirements the packer is obliged to order certain quantities anyway in order to get reasonable prices, and when ordering in January he does not know how many goods he will sell during the following twelve months, and much less what the crops will be. Labels are oftentimes carried for five or ten years. The company with which I am connected inventoried last January, when the stock was lowest, over 8,000,000 labels, amounting to over \$13,000. Should that packer be obliged to put those labels through the printing-press again at the expense of several thousand dollars? And what is true with reference to the packer referred to applies in a general way and perhaps in some instances more emphatically to other packers in that State, and what applies to that State applies to the other fruit and vegetable canning States.

Again, supposing that another year some State (and if any State can do it then all the States) requires that the date when the goods are packed should be printed upon the labels. Should this same packer then put through the printing-press another 8,000,000 of carry-over labels? And the question can be carried still further, and supposing that one State law requires one particular phraseology with reference to either date or weights, or concerning some further subject, and other States employ other set phrases, then must these labels be either destroyed or reprinted and botched up, at an expense of several thousand dollars more; and who will say where or when the end would be?

Again, as a rule, labels come to the packer from the label manufacturer in packages of five hundred, and I think, with few exceptions, these labels are put on the cans by a machine. As soon as these packages are broken and submitted to the operation of the printing-press it is impossible to again place them together so that they will yield to the operation of the labelling machine with the same satisfactory results as when the original package is placed in the machine.

Under a law as above suggested, prosecute 1 per cent of the packers and cease the persecution of the remaining 99 per cent who deliver a full package.

#### UNIFORM-SIZED CANS.

There is a less difference in the size of tin cans than there was ten years ago, but there is still a variation which applies particularly to the so-called No. 3 can, in ordinary use for tomatoes and many other items which are placed in that sized package, the so-called Jersey tin containing several ounces more than the size smaller.

But it seems to me that there should be a federal law establishing uniform sizes, which, in connection with the suggestion of a requirement for filling same as full of the material itself outside of the brine as is practicable, would accomplish the desired results, which, as it occurs to me, with all due respect to those entertaining different views, cannot be realized by the so-called weight and measure clause as now contained in some of the State laws, and



which clause is impracticable and imposes upon the packer doing business in such States a wholly unnecessary hardship and expense.

#### TIN PLATES.

In reflecting upon the question of coating upon tin plates I am of the opinion that it would be desirable if there could be a federal law requiring uniformity of the tin coating on the plates, and to such an extent as to insure a substantially perfect covering.

#### MUCH CARE SHOULD BE EXERCISED BY THE AUTHORITIES.

This Commission is a powerful agency for good, and the value of its mission for improving certain conditions cannot be over-estimated; but in the prosecution of its most laudable work, care should be taken to do no injustice to well-merited reputations and substantial business interests which it has taken years to establish. Let me give one illustration.

A pure food bulletin recently issued in one of the States, after giving the name of the brand and the packer on the label covering a can of peas, contained the report in effect that the peas in that can were soaked ones, the meaning of which word "soaked" needs no explanation before this body.

As a matter of fact that packer, who has been canning peas for more than fifteen years, has never put up or ever placed on the market a single can of soaked peas. The first information the canner had of this report was when it was received from an old and valued customer. The reputation of that canner's peas is such that his business on that item has increased over 60 per cent during the present year, which I think you will agree with me is a very good showing for the sale of soaked peas for green ones, but rather a sad commentary upon the taste of the American people. I simply ask, Is this right? Should valuable trade-marks and a good name be so carelessly and recklessly dealt with? Should such unwarranted reports be made, which must serve as a football for competitive interests?

Meritorious canned vegetables and fruits have secured for themselves a recognized standing and reputation in the communities in

which they have been introduced as the result only of much effort and expense.

The last decade has marked a new era in the disposition of the regular line of fruits and vegetables. Originally the transactions by the manufacturer of canned goods were confined exclusively to the jobber, while during the period referred to the business with those packing a full line of fruits and vegetables has been revolutionized with most packers, by which they are obliged to send salesmen to solicit orders, in connection with the jobber's salesmen, from the retailer. After the goods have been placed with the retailer at enormous expense, and the consumer has become familiar with certain brands, is it to the interest of any State to inaugurate methods which will surely have the effect of forcing a certain class of packers to withdraw their brands, in time, from their States, which has cost so much to establish, thereby doing a great injustice, not only to the manufacturer, but to the jobber, the retailer, and the consumer, all of which purchasers, through a course of many year's experience, have learned to regard such brands with special favor?

I trust that these suggestions are germane to your deliberations and not wholly unworthy of consideration, and I will esteem it a privilege to consider either now or after this meeting with any one present any of the matters to which I have referred.

While this appearance is not as a result of any meeting of our Association or even of its executive committee, I believe that the views as above stated are in accord with those of the packers generally of our State.

In behalf of our Association I thank you, Mr. President, for this opportunity, and the patient and courteous attention of those present is fully appreciated.

## THE NORMAL CONSTITUENTS OF WHISKEY.

By JAMES H. SHEPARD, Chemist of the South Dakota Food and Dairy Commission.

Gentlemen: The legislature of the State of South Dakota, during its 1905 session, enacted a law to prevent the adulteration of intoxicating liquors. The enforcement of this law, under the terms of the act itself, devolves upon the Food and Dairy Commissioner of the State. Proceeding under the authority of this law, and by order of the Commissioner, I have instituted an investigation for the purpose of ascertaining the constants of a pure whiskey. In order to show the scope of the investigation required, I herewith submit the law as enacted in its entirety:

### CHAPTER 121.

(H. B. 137.)

#### PREVENTING THE ADULTERATION OF INTOXICATING LIQUORS.

An Act entitled an Act to Prevent the Adulteration of Vinous, Spirituous, Malt, Brewed, Fermented or other Intoxicating Liquors, and the Sale of such Adulterated Liquors, and Prescribing Penalties Therefor.

Be it Enacted by the Legislature of the State of South Dakota:

§ 1. It shall be unlawful for any person or persons to adulterate or cause to be adulterated any vinous, spirituous, malt, brewed, fermented or other intoxicating liquors to be offered for sale as a beverage [or] for medicinal purposes by mixing with the same any coloring-matter or any drug or foreign ingredient whatever, or by mixing the same with other liquors of different kind or quality, or with water, or to sell or offer for sale for such purposes such liquors so adulterated; to mix with any vinous, spirituous, malt, brewed, fermented or other intoxicating liquors that may be offered for sale by him or his agent, any substance or ingredient not normal, or any unhealthful ingredient whatsoever, or any substance that may be deleterious or detrimental to health, when such liquors are to be used as a beverage or for medicinal purposes; or offer for sale in this State any vinous, spirituous, malt, brewed, fermented or other intoxicating liquors to be used as a beverage or for medicinal purposes that

are not chemically pure and free from all unnatural or abnormal ingredients. It is hereby made the duty of the Food and Dairy Commissioner of this State to provide for the analysis of such liquors, under the same regulations as are by law prescribed for the testing of articles of food, to enforce the provisions of this act, and to prosecute violations thereof.

§ 2. Any person violating any of the provisions of the preceding section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than ten nor more than one hundred dollars, and by imprisonment in the county jail for not less than ten nor more than thirty days, or by both such fine and imprisonment.

Approved March 7, 1905.

It will be noticed that this law is peculiar, in that it does not name specifically any ingredient that may or may not be present in an intoxicating beverage. It proceeds upon the assumption that there is such a thing as chemically pure whiskey, brandy, rum, etc., and then proceeds to forbid the manufacture and sale of any of these beverages in an adulterated form. It forbids in general terms the use of any drug or foreign ingredient. It also forbids the mixing of liquors of different kinds or quality, without specifying what shall be considered to be a different kind or quality. It does, however, specify that water shall not be added. In this case it is evidently the intention to prevent the lowering of quality in any intoxicating liquor by diluting it with water so that its commercial value may be lowered, but it does not provide that the liquor must contain no water at all. It simply forbids the addition of water to a normal liquor.

It also goes on to specify that any substance that is not normal, or any substance that is deleterious or detrimental to health, shall not be added. And it finally concludes with the sweeping provision that it is unlawful to sell any intoxicating beverage that is not chemically pure and free from all unnatural or abnormal ingredients.

While the law may be criticized for its general and indefinite language, its intention is plain. It intends that intoxicating beverages shall be delivered to consumers just as they leave the hands of manufacturers who are making these liquors in a legal and legitimate way, without the addition of any poisonous or deleterious drugs or compounds not normal to the liquors them-

selves, and that the strength and efficiency of the liquor shall not be lowered by the addition of water. Boiled down to its plain intent, the law is simple enough. But the law imposes upon the Commissioner and his chemist a task that is not so simple.

What, for example, are the normal constituents and their proportions in a pure whiskey? It is popularly supposed that these things are well understood. But such is not the case. No subject has received so little attention as the chemistry of intoxicating liquors. No industrial operation has so long escaped a thorough investigation. And in no subject touching upon products of commercial value is the literature so meager. But few published analyses are available, and recent researches have shown that these must be untrustworthy in some respects, since the methods of analysis employed in the earlier investigations have been shown to be unreliable. The most striking illustration of an unreliable method or methods are those formerly employed in determining the so-called "fusel-oil" in whiskey and brandy. It is but quite recently that intoxicating beverages have commenced to receive the attention they deserve at the hands of chemists. Meanwhile many grave errors and misconceptions have arisen. Some of these are difficult to trace back to their origin, but they have become an integral part of our standard texts, and in the hands of interested parties engaged in fierce commercial warfare have been widely promulgated, much to the detriment of a correct understanding, not only by the public, but by chemists themselves. It seems strange that a beverage whose origin is lost in the dimmest antiquity should be so little understood.

Under these conditions only one course was open to the South Dakota Pure Food Commission. It was necessary to obtain samples of our American whiskeys of known legitimacy and purity, and to subject them to a complete analysis. Fortunately this work arose during the summer vacation, when both myself and my assistants, Messrs. Norton and Koch, could give the time and attention that the subject demands.

But before I proceed to give an account of the samples analyzed and our findings in the case, a few words concerning the

origin of whiskey may aid somewhat to a clearer conception of the subject. Even the name itself is not devoid of interest.

It is quite probable that the knowledge of distilled spirits corresponding somewhat closely to whiskey was known to the ancient Egyptians. When the Arabians overran Egypt they acquired, among other useful information concerning the Egyptian arts and sciences, the knowledge of the art of manufacturing distilled spirits from sprouted grain. This knowledge they carried back with them to their academies in Spain, from whence it spread over Europe. Fairley (*The Analyst*, Sept., 1905) traces the introduction of the art of making whiskey into Ireland to the ancient Phœnician traders. When the English invaded Ireland they found the manufacture of whiskey a well-understood art carried on as a household operation by the inhabitants. The Irish called the spirit they distilled "uisque beatha." This name itself smacks of the aims and traditions of those ancient alchemists who were seeking the water or elixir of life. "Uisque beatha" means water of life. This term was corrupted by the English into "uisquebaugh." Finally the last syllable was altogether dropped, thus shortening the name into "uisque," or whiskey, as it is now spelled.

In Ireland malted barley alone was used in the manufacture of whiskey, and it was to this spirit that the name "whiskey" was originally applied. And, moreover, only the small still or pot still was employed in its distillation. In Ireland and Scotland the genuine small-still whiskey is manufactured by the same process even to this day.

Owing to enormous increase in the consumption of whiskey in modern times, variations on the original materials and processes have been introduced in different countries. But the present inquiry is most deeply concerned with the methods and processes employed in the United States. If we wish to find the legitimate successor of the Irish "uisque beatha," we must find it in those distilleries where grains such as corn and rye are employed, and where the stills are of the simplest construction. In these the modern process of rectification or fractionation is used in the smallest degree. If any product is entitled to be

named by the one word "whiskey," the beverages coming from these stills hold the preference. In these distilleries the whole process of manufacture, beginning with the raw grain and ending with the finished product up to the time the tax is paid and the doubly stamped and sealed package is delivered to the purchaser, is under government supervision.

But there are also other methods of manufacture sanctioned by law in this country, and for the sake of this inquiry whiskeys may be divided into four classes:

1. Whiskey manufactured wholly in the distillery under government supervision, where rectification is not used. This whiskey is matured or aged in wood, and when sold it carries two stamps, one that of the warehouse and the other a tax-paid stamp. This whiskey also may be put up in bottles while in the government warehouse and sealed by a government stamp, when it is said to be bottled in bond. This is the most expensive whiskey to manufacture, owing to the long time required for maturation. And it was from whiskey of this class that our samples for analysis were drawn. These whiskeys are all 100 per cent proof.

2. Blended whiskeys are also found upon the market. These are made by taking two or more whiskeys of the first class and blending them in such proportions that certain properties, such as quality, aroma, body, etc., may be developed to suit certain critical requirements. Thus if two such first-class whiskeys as Old Taylor and Old Overholt, the one a Bourbon and the other a rye whiskey, should be mixed in certain proportions, a blended whiskey would be produced. But the quantity of such blended whiskey found on the market is not comparatively great. In fact such blends offer no commercial inducements, since the blend could not be produced as cheaply as the original whiskeys. Indeed, such whiskeys would have to be the highest-priced whiskey on the market. They would also be 100 per cent proof.

3. Another class of whiskey, and by far the largest class of them all, is made by adding "silent spirit" or "cologne spirit" and water to a whiskey of the first class. Usually some caramel is added to restore the color lost by the addition of the silent spirit and water. The flavor of this class of whiskey is imparted

by the original whiskey of the first class used in the manufacture. In this way a whiskey of the first class is stretched so that the number of gallons of the finished product far exceeds the quantity of the original whiskey of the first class employed. This process of manufacture is called "blending," since the original whiskey is mixed with the silent spirit and water. It is also called "rectifying," since the manufacturer has a rectifier's license and uses the silent spirit produced in rectifying stills. Neither term is exactly descriptive, but the terms "blended whiskey" and "rectified whiskey" are now commonly applied to whiskey of this class. The proofage of this class of whiskey as usually found on the market is somewhat under 100 per cent. It is cheaper to manufacture than whiskey of the first class.

4. The fourth class of whiskey found on our market is wholly artificial. It is made by adding water and coloring-matter, beading-oil, various essences, and other substances to silent spirit. This whiskey is wholly factitious and there is no limitation upon the manufacturer as to the substances employed in its manufacture. Where this whiskey is named at all, it tries to classify itself with whiskey of the third class. But upon what its claims to be known either as a blended whiskey or a rectified whiskey are based it is impossible to discover. This is the cheapest whiskey on the market, and its proofage is usually the least that the demands of the trade or the law of the State in which it is sold will allow.

From the foregoing it will be seen why whiskey of the first class was selected for analysis in order to determine the constants of whiskey.

But what is whiskey? The popular conception of it is a solution of ethyl alcohol in water containing a very unreal and imponderable amount of substances giving it a taste and flavor. This is a very erroneous conception. A complete chemical analysis shows whiskey to be much more than this. It is true that it contains about 50 per cent ethyl alcohol by volume and nearly a like amount of water. But in addition to these it also contains a number of other substances which are present in measurable quantities and of such a nature that whiskey is really a



very complex liquid. Nor must these other substances be regarded in the light of impurities. Every true whiskey manufactured from the time of the ancient Egyptians, down through the age of the alchemists, and including the uisque beatha of the Irish, down to the present best whiskeys of the twentieth century, has included these substances. They are of such a nature that they are naturally produced in the legitimate manufacture of whiskey, and they always will be. Of these substances Allen (*The Analyst*, June, 1901) says: "These secondary constituents of spirits are by no means to be regarded in the light of impurities, as they have wrongly been called and considered by some. They are the associated bodies which give the alcohol its special and valued characters, and to their production, modification, or elimination by age we owe the changes which spirits undergo during the process of maturing."

Now another grave misconception in regard to whiskey is widely disseminated. That concerns the aging or maturation of spirits. Even our standard texts state very gravely that the object of maturation is to remove the so-called fusel-oil or higher alcohols which are found in raw or new whiskey. It is a well-known fact that new whiskey fresh from the still is harsh and unpalatable. It is not fit for consumption. Accordingly the government controls large bonded warehouses where whiskey is stored during maturation. During this period whiskey is simply stored in charred barrels. The popular theory is that during this storage the fusel-oil or higher alcohols are either absorbed, eliminated, or so changed by oxidation that the whiskey loses its harsh flavor. This is entirely wrong. It does not stand to reason that the higher alcohols would be oxidized more rapidly than ethyl alcohol itself, especially when such large proportions of ethyl alcohol are present, and such small amounts of the higher alcohols. All the more unreasonable does this proposition appear when one knows that the higher alcohols are, owing to their denser constitution and higher boiling-points, more difficult of oxidation than ethyl alcohol. It is true that charcoal, under certain conditions, acts as an energetic oxidizing agent, but not probably under the conditions in which it comes in contact with

raw spirits in the charred storage barrels. At best one could not expect the process of oxidation to go on very rapidly under those conditions. The charcoal is constantly submerged in the liquid. It is a well-known fact that to attain its highest efficiency as a filter for purifying water by oxidation, that it is necessary for charcoal to be aerated frequently, and even then the charcoal loses its efficiency to such an extent in a very short time that it is necessary to rechar it and free the pores from accumulated matter. Nothing of this kind takes place in maturation of spirits as now practiced.

The assumption that the quantity or percentage of higher alcohols decreases by aging is not based upon any experimental evidence. On the contrary, what evidence we do now possess tends to show that the percentage of these alcohols increases by aging. Schidrowitz has shown (*Jour. Soc. Chem. Ind.*, June 15, 1905) that the percentage of not only the higher alcohols but that also of the acids and esters is increased by aging in the case of grain whiskeys. He is inclined to attribute the rawness of pot-still whiskeys in part to the presence of pyrrol, phenolic bodies, an alkaline compound and some sulphur compounds. The first resinifies during maturation, and the others are unstable and are oxidized. At least these bodies are not found in mature whiskeys.

The more reasonable explanation of maturation is that it consists first of all in the elimination of the bodies just mentioned; and, secondly, in the combination which slowly takes place, as between the acids and alcohols and between other of the accompanying substances, even the ethyl alcohol itself playing no unimportant part in the process. It may be likened to the action which takes place between caustic bases and corrosive acids, whereby neutral and mild salts are produced. There is this difference, however, in the case of whiskey the action is slow, requiring a long time to bring about this readjustment. Hence the high esteem in which very old whiskeys are held.

But what are the secondary compounds found in pure whiskeys which give them their peculiar flavor, odor, taste, body, and other characteristics which distinguish them from all other

beverages? A short enumeration of these products which are found in a pure whiskey, in addition to the ethyl alcohol and water, follows:

1. **Extractives.**—These are substances taken up by the whiskey from the barrels in which it is aged. In case water has been added to a whiskey the extractive will also include any salts carried by the water. Probably the most active ingredient of the extractive is tannin, which may be taken from the barrel; also some coloring-matter closely resembling caramel may be included in the extractive. This has little action on the human system.

2. **Ash.**—The ash is the mineral part of the extractive remaining after the organic portion has been burned away. The ash also exerts little or no effect on the system.

3. **Acids.**—Whiskeys always carry a small proportion of organic acids. Acetic acid derived from ethyl alcohol occurs in the larger proportions. Next comes valeric acid, derived from amyl alcohol. This occurs in smaller proportions. It would also be strange if traces of propionic acid were not present, being derived from propyl alcohol. These acids may be free or combined with ethereal radicles to form ethereal salts. The origin of these acids is easy to trace. No doubt they are formed in the fermenting mash, and small quantities may be carried over during the process of distillation. But, as is well known, ethyl alcohol oxidizes slowly in contact with air to form acetic acid, and the same may be true of the other alcohols. In the analyses the free or volatile acid is given in one column and the fixed or combined acid appears in the next. With acetic acid as it is used in vinegar every one is well acquainted, and its effects upon the system need not be discussed.

4. **Esters.**—The principal ethereal salts or esters found in whiskeys are ethyl acetate and ethyl valerate, derived from ethyl alcohol, and amyl acetate and amyl valerate, derived from amyl alcohol. These are fragment compounds, some with fruity odors, and while, excepting ethyl acetate, they are not officially recognized as medicines, they and similar compounds are extensively employed in making artificial fruit flavors and essences. They probably all possess anæsthetic properties like ethyl acetate.

Amyl nitrite, a closely related compound derived from amyl alcohol, is a valuable stimulant, increasing heart action. No doubt the esters are largely responsible for the flavor and aroma of whiskeys.

5. **Furfurol.**—All genuine whiskeys contain small but measurable quantities of furfurol. Furfurol is a mobile liquid, possessing a faint fragrance resembling oil of cinnamon if the fumes are not too strong. Its physiological action is not well understood. Some, without apparent authority, class it as a poison, while one writer casually mentions (Sawyer, Bul. 81, Bureau of Chemistry, U. S. D. Agr.) that he has worked with it in quantity and does not consider it so poisonous as represented. The literature on the therapeutic action of furfurol is very scant indeed.

6. **Aldehydes.**—As might be expected, pure whiskeys contain appreciable quantities of aldehydes of the alcohols present, but the chief one is ethyl aldehyde. These bodies are formed by gently oxidizing the corresponding alcohol. In fact one of the chief substances produced as an elimination product in the human system during the digestion or transformation of alcohol is aldehyde. This substance is not recognized in therapeutics. But one of its polymers, paraldehyde, is employed in doses of from thirty minims to one fluid drachm as a hypnotic and a sedative. It is probable that the aldehydes as a class would act as irritants. Cinnamac aldehyde or oil of cinnamon is a well-known aldehyde derived from styearl alcohol. Its action is well known.

7. **Higher Alcohols or Fusel-oil.**—All pure whiskeys contain measurable quantities of higher alcohols. Allen (*loc. cit.*) enumerates among those known as occurring in spirits, propyl alcohol and one isomer, butyl alcohol and two isomers, amyl alcohol and three isomers, isoprimary hexyl alcohol and isoprimary heptyl alcohol. It is not probable that all of these higher alcohols occur in any one sample of spirits. Much depends upon the materials employed in manufacturing the whiskey under consideration. In whiskeys it is likely that amyl alcohol always occurs in larger quantities than any of the higher alcohols, although notable quantities of some of the others are usually present.

Concerning the therapeutic action of fusel-oil but little is actually known. Dujardin-Beaumetz and Audige have estimated the toxicity of fusel-oil to be about five times as great as that of ethyl alcohol. Allen states (*loc. cit.*): "Its effect on the general system has probably been greatly exaggerated. A pupil of mine informs me that some three years ago he took a teaspoonful of fusel-oil, mixed with water, without any ill effect. Recently, for three weeks I took every evening, with a few exceptions, a wineglassful of whiskey to which crude fusel-oil had been added to the extent of  $\frac{1}{2}$ , 1, and ultimately 2 per cent. The spirit was extremely nauseous, but produced no headache or other ill effects." But of late the public press has given fusel-oil a most disreputable name. It is true that most of this gratuitous advertising has grown out of fiercely conflicting trade interests, and has been wholly apart from any actual knowledge of the toxicity of fusel-oil itself. Perhaps some will yet remember how a certain brand of malt whiskey, now known to be one of the very poorest brands on the market, made great claims to public favor owing to the absence of the dreadful poison, fusel-oil, which had been removed by straining the whiskey through woolen cloth! Verily, some of the modern arts must be lost, as well as some of the ancient ones! In these degenerate, modern days flannel no longer removes fusel-oil; it has lost its efficacy.

On the other hand Hehner emphatically declares his belief that spirits (*The Analyst*, Feb., 1905) produce their effects upon the system through the agency of ethyl alcohol alone, and that the accompanying products simply serve to give flavor and zest to the spirit. Again, all our pharmacopœias and dispensatories take cognizance of the ethyl-alcohol content alone of spirituous liquors. But in the public mind of to-day fusel-oil occurring in whiskey is held to be utterly obnoxious and a deadly poison. There is absolutely no foundation for this opinion or belief. It is true that fusel-oil does possess toxic properties, but so does ethyl alcohol. And when one takes into consideration the exceedingly minute amount of fusel-oil that a pure whiskey carries as compared with the large percentage of ethyl alcohol, it is easy to see that even if the toxic effect of fusel-oil be five times greater than

that of ethyl alcohol, the preponderating effect of a whiskey must be attributed to the ethyl alcohol. I am not prepared to agree with Hehner that the whole effect is due to ethyl alcohol. It seems to me that the effect of a whiskey must be due to the sum total of the effects of all its ingredients, and I am not agreed that the effect of a pure whiskey would be exactly the same as that of pure ethyl alcohol. In fact I believe it would not, and I am not a homeopath by education or inheritance. The influence of very small amounts of substances, for instance, black pepper, as ordinarily used, upon the digestive system is known to be marked and positive. It is wholly out of proportion to the amount of the substance used or to the nutrients it contains. Neither do I believe it possible to compare the use or effect of one of the constituents of whiskey upon the system, when used alone, to the effect of that ingredient when associated with its congeners and in the more or less combined form in which it must be in a well-matured whiskey. No one, for instance, would predict that the total effects of a certain amount of chlorine and of caustic soda upon the system when administered singly and in a raw or uncombined state would be the same as that of an equivalent amount of salt which would result by the blending or combination of these chemicals.

All pure whiskeys contain fusel-oil and they always will contain it. How it is produced has been one of the mooted questions for a long time. Of late we have experiments that promise to throw light upon this question. Emmerling (*Journal Soc. Chem. Ind.*, 1904, p. 1107) has isolated a bacillus from potatoes which produces fusel-oil, and this would account for the presence of this substance in potato spirit. But what is of more importance to manufacturers of grain whiskeys has recently been announced by Ehrlich (see *Jour. Soc. Chem. Ind.*, June 30, 1905). He has shown that yeast itself produces fusel-oil by acting on the albuminoid derivatives of the wort. This is why I state that all pure whiskeys will always contain fusel-oil. And right here the thought has occurred to me that some other secondary product of whiskey other than fusel-oil might have been made the theme of a popular anathema in the public press. Why not furfurol? Or the alde-

hydes? The pathological action of these substances is just as obscure as that of fusel-oil.

Another error has evidently been made the subject of an extensive propaganda. I refer to the quantities of fusel-oil found in whiskeys of the first class. The public of to-day has been taught that these whiskeys carry excessive amounts of the higher alcohols. Our investigation on the samples analyzed does not confirm this wide-spread belief. It would be neither possible nor accurate to declare that the constants of all first-class whiskeys are the same as those of the samples analyzed. There is no doubt a variation of greater or less degree, even in the different runs made in the same distillery. It is not at all unlikely that some distilleries make much poorer products than those analyzed. But these samples certainly show that American whiskeys of the first class are among the very best in the world. And there is no doubt that many of our other distilleries are making whiskeys that are just as good.

Another fact should not be lost sight of right here: There are no whiskeys made, nor can they be made, without the aid of these secondary products. Whiskeys of the third class have them. Not only do they carry secondary products from the original whiskeys employed in their manufacture, but they also carry similar secondary products, fusel-oil included, from the silent spirit employed. It will be seen that even the severe course in fractionation to which silent spirits are subjected still leaves notable and measurable quantities of all the secondary products, excepting furfurool, carried by whiskeys of the first class. In short, there is no pure ethyl alcohol on the market, and there never has been. We found while preparing our reagents that even our high-priced and so-called absolute alcohol, used only for the most exacting chemical investigations, carried measurable quantities of the aldehydes.

Factitious whiskeys also have these secondary products. Not only do they carry the secondary products of silent spirits, but they also have the artificial esters and other substances added to imitate pure whiskeys.

The samples analyzed were all bottled in bond goods and

were received at the laboratory with their stamps intact. The genuineness of the samples are therefore above question. A description of the samples follows:

## DESCRIPTION OF SAMPLES.

For this inquiry it was necessary that each sample be perfectly authenticated, and in order that the exact origin of each sample and the source through which it came may be known, the following descriptions are added:

**Sample No. 1.—Hermitage.**—Pure rye whiskey, copper distilled; distillery No. 4, District No. 7, Franklin County, Kentucky; W. A. Gaines & Co. Sample direct from distillery. Stamp No. 547484. Made in the spring of 1896; bottled spring of 1904.

**Sample No. 2.—Old Crow.**—Bourbon whiskey, copper distilled; distillery No. 106, District No. 7, Woodford County, Kentucky. Stamp No. 658429. Sample direct. Made spring of 1897; bottled spring of 1905. W. A. Gaines & Co.

**Sample No. 3.—Nelson, Old Kentucky.**—Standard whiskey; fire copper; distillery No. 4, District No. 5, Kentucky; Nelson Distillery Company. Stamp No. 599163. Made spring of 1900; bottled spring of 1905. Sample direct. Kentucky Distilleries and Warehouse Company, Frankfort, Ky.

**Sample No. 4.—Anderson.**—Hand-made sour-mash whiskey; fire copper; distillery No. 97, District No. 5; The Anderson Distilling Co., Louisville, Ky. Stamp No. 544463. Made spring of 1900; bottled fall of 1904. Sample from Kentucky Distilleries and Warehouse Company, Frankfort, Ky.

**Sample No. 5.—Belle of Nelson.**—Belle of Nelson Distillery Co.; distillery No. 271; District No. 5, Kentucky. Stamp No. 602055. Made spring of 1900; bottled spring of 1904. Sample direct.

**Sample No. 6.—Bond & Lillard.**—Hand-made sour-mash whiskey; distillery No. 274, District No. 8; Stoll & Co., Lexington, Ky. Sample direct. Made spring of 1901; bottled spring of 1905. Stamp No. 826349.



**Sample No. 7.—Melwood.**—Fire doubled, copper; distillery No. 34, District No. 5; Melwood Distillery Co., Louisville, Ky. Sample from Kentucky Distilleries and Warehouse Company, Frankfort, Ky. Stamp No. 649444. Made spring of 1899; bottled spring of 1905.

**Sample No. 8.—Cedar Brook.**—Hand-made sour-mash whiskey D. L. Moore, distiller, Anderson County, Kentucky, formerly W. H. McBrayer. Distillery No. 44; District No. 8, Kentucky. Made spring of 1892; bottled spring of 1898. Stamp No. 118344. Sample from Julius Kessler & Co., Chicago.

**Sample No. 9.—Sam Clay.**—Hand-made sour-mash whiskey; Paris Distilling Co., Paris, Bourbon County, Kentucky. Distillery No. 77; District No. 7, Kentucky. Made spring of 1896; bottled spring of 1903. Stamp No. 449536. Sample from Julius Kessler & Co., Chicago.

**Sample No. 10.—Old Taylor.**—Bourbon whiskey; E. H. Taylor, Jr., & Sons, Frankfort, Ky. Distillery No. 53; District No. 7, Kentucky. Made fall of 1899; bottled spring of 1905. Stamp No. 698945. Sample direct.

**Sample No. 11.—Old Overholt.**—Special reserve rye whiskey; A. Overholt & Co., Broad Ford, Pa. Bottles 4234248 and 4234246. Distillery No. 3; District No. 23, Pennsylvania. Made fall of 1897; bottled fall of 1904. Stamp No. 731177. Samples direct.

**Sample No. 12.—Edgewood.**—Sour-mash whiskey; Paxton Bros. & Co., distillers, Gilbert's Creek, Ky.; Edgewood Distilling Co., proprietors, Cincinnati, Ohio. Distillery No. 76; District No. 8, Kentucky. Made spring of 1900; bottled spring of 1905. Stamp No. 785453. Sample direct.

**Sample No. 13.—Atherton.**—J. M. Atherton & Co., distillers, New Haven, Ky. Julius Kessler & Co., proprietors, Chicago. Distillery No. 87; District No. 5, Kentucky. Made spring of 1896; bottled fall of 1903. Stamp No. 460031. Sample from Julius Kessler & Co.

**Sample No. 14.—Old Elk.**—Stoll & Co., distillers, Lexington, Ky. Distillery No. 1; District No. 7, Kentucky. Made spring of 1901; bottled spring of 1905. Stamp No. 845675.

**Sample No. 15.—Neutral Spirits.**—This sample is a neutral

spirit such as is now used by blenders. It was furnished by Julius Kessler & Co., Chicago.

**Sample No. 16.—Neutral or Cologne Spirits.**—This is a sample of neutral or cologne spirit purchased by the South Dakota Agri-

## STATEMENT OF ANALYSES OF WHISKEYS AND NEUTRAL SPIRITS.

| Laboratory Number. | Name.                 | Distiller.                        | Kind.               |
|--------------------|-----------------------|-----------------------------------|---------------------|
| 1                  | Hermitage . . . . .   | W. A. Gaines & Co . . . . .       | Rye                 |
| 2                  | Old Crow . . . . .    | W. A. Gaines & Co .. . . .        | Bourbon             |
| 3                  | Nelson Old Kent'y.    | Nelson Dist. Co . . . . .         | Standard            |
| 4                  | Anderson . . . . .    | Anderson Dist. Co . . . . .       | Hand-made sour-mash |
| 5                  | Belle of Nelson . . . | Belle of Nelson Dist. Co. . . . . |                     |
| 6                  | Bond & Lillard . . .  | Bond & Lillard . . . . .          | Hand-made sour-mash |
| 7                  | Melwood . . . . .     | Melwood Dist. Co. . . . .         |                     |
| 8                  | Cedar Brook . . . . . | D. L. Moore . . . . .             | Hand-made sour-mash |
| 9                  | Sam Clay . . . . .    | The Paris Dist. Co. . . . .       | Hand-made sour-mash |
| 10                 | Old Taylor . . . . .  | E. H. Taylor & Son, Inc. . . . .  | Bourbon             |
| 11                 | Old Overholt . . . .  | A. Overholt & Co. . . . .         | Special Reserve     |
| 12                 | Edgewood . . . . .    | T. W. Paxton . . . . .            | Sour-mash           |
| 13                 | Atherton . . . . .    | J. M. Atherton & Co. . . . .      |                     |
| 14                 | Old Elk . . . . .     | Stoll & Co. . . . .               |                     |
| 15                 | Neutral Spirits . . . | Furnished by J. Kessler & Co..    |                     |
| 16                 | Neutral Spirits . . . | Laboratory sample . . . . .       |                     |

| Laboratory Number. | Age, Years. | Proof. | Specific Gravity. | Alcohol, Per Cent by Volume. | Extract, Grams per 100 c. c. | Ash, Grams per 100 c. c. | Total Acid, Grams per 100 c. c. | Fixed Acid, Grams per 100 c. c. | Volatile Acid, Grams per 100 c. c. | Esters, Grams per 100 c. c. | Furfurol, Grams per 100 c. c. | Aldehydes, Grams per 100 c. c. | Higher Alcohols, Grams per 100 c. c. |
|--------------------|-------------|--------|-------------------|------------------------------|------------------------------|--------------------------|---------------------------------|---------------------------------|------------------------------------|-----------------------------|-------------------------------|--------------------------------|--------------------------------------|
| 1                  | 8           | 100    | .93455            | 50.1                         | .1898                        | .0077                    | .0920                           | .0128                           | .0792                              | .0818                       | .0030                         | .0175                          | .0849                                |
| 2                  | 8           | 100    | .93401            | 50.1                         | .1815                        | .0073                    | .0684                           | .0093                           | .0591                              | .0607                       | .0032                         | .0175                          | .1026                                |
| 3                  | 5           | 100    | .93417            | 50                           | .1604                        | .0072                    | .0668                           | .0102                           | .0566                              | .0559                       | .0024                         | .0100                          | .1604                                |
| 4                  | 4½          | 100    | .93405            | 49.8                         | .1621                        | .0074                    | .0671                           | .0102                           | .0569                              | .0748                       | .0026                         | .0120                          | .1309                                |
| 5                  | 4           | 100    | .93369            | 50.2                         | .1485                        | .0073                    | .0624                           | .0075                           | .0549                              | .0559                       | .0026                         | .0150                          | .1520                                |
| 6                  | 4           | 100    | .93458            | 49.9                         | .1327                        | .0058                    | .0492                           | .0075                           | .0417                              | .0396                       | .0010                         | .0080                          | .1074                                |
| 7                  | 6           | 100    | .93307            | 50.4                         | .1386                        | .0064                    | .0748                           | .0086                           | .0662                              | .0616                       | .0013                         | .0105                          | .1927                                |
| 8                  | 6           | 100    | .93345            | 50                           | .1537                        | .0097                    | .0588                           | .0099                           | .0489                              | .0696                       | .0007                         | .0140                          | .1371                                |
| 9                  | 7           | 100    | .93409            | 50                           | .1800                        | .0100                    | .0744                           | .0099                           | .0645                              | .0708                       | .0025                         | .0125                          | .1170                                |
| 10                 | 5½          | 100    | .93387            | 49.9                         | .1293                        | .0051                    | .0609                           | .0072                           | .0537                              | .0493                       | .0008                         | .0095                          | .1417                                |
| 11                 | 7           | 100    | .93485            | 49.8                         | .2120                        | .0080                    | .0930                           | .0135                           | .0795                              | .0940                       | .0050                         | .0225                          | .1195                                |
| 12                 | 5           | 100    | .93365            | 50.1                         | .1245                        | .0072                    | .0582                           | .0072                           | .0510                              | .0640                       | .0005                         | .0095                          | .0953                                |
| 13                 | 7½          | 100    | .93452            | 49.8                         | .1772                        | .0073                    | .0665                           | .0090                           | .0575                              | .0766                       | .0017                         | .0100                          | .1936                                |
| 14                 | 4           | 100    | .93389            | 50.1                         | .1394                        | .0065                    | .0503                           | .0063                           | .0440                              | .0546                       | .0015                         | .0075                          | .1520                                |
| 15                 | ..          | 190    | .81448            | 95.6                         | .0103                        | .0009                    | .0075                           | .0012                           | .0063                              | .0154                       | .....                         | .0025                          | .0300                                |
| 16                 | ..          | 188    | .81912            | 94.42                        | .0032                        | .0000                    | .0063                           | .0014                           | .0049                              | .0642                       | .....                         | .0110                          | .0396                                |

cultural College for use in the department of chemistry. It was purchased through Iler & Co., duty free for scientific use, and came from the bonded warehouse of the Standard Distilling and Distributing Co., Omaha, Neb.

It will be noticed that the analyses of two samples of silent or neutral spirits have been included. In order that the results obtained in No. 15 might be confirmed, No. 16 was also analyzed. This is a sample of commercial alcohol coming direct to this college and released from bond duty free. As these silent spirits are used in manufacturing whiskey, the proofage is reduced nearly one half, so that the constants as given in the table below should be divided by two in order to ascertain the quantities of fusel-oil, etc., that these spirits carry to the whiskeys which are made by their use.

The analyses of the samples are given in the table on page 247. The results for the extract, ash, etc., are reported in grams per 100 c. c. of the whiskey. This does not give the exact percentage by weight, but this may be found by multiplying the grams found of any constituent by 100 and then dividing the product by the specific gravity of the given sample. The figures obtained will differ slightly from those reported.

#### NOTES ON THE ANALYSES.

The foregoing table gives a comparative view of the constants of the fourteen first-class whiskeys and the two neutral spirits analyzed. The extract varies from 0.1245 in the case of Edgewood to 0.2120 in the case of Old Overholt. The ash varies from 0.0051 in Old Taylor to 0.0100 in Sam Clay. One would expect the extract and ash to be higher in the older whiskeys, but these constants will be largely affected by the nature of the wood or barrels in which the whiskeys are aged.

The total acidity varies from 0.0930 in Old Overholt to 0.0492 in Bond & Lillard. The fixed acid varies from 0.0063 in Old Elk to 0.0135 in Old Overholt. By comparing these constants for fixed acids with those representing the esters, it will be noted that there is an evident relation. This is as one would expect

it to be. The more fixed the acid the larger the amount of the esters.

The esters vary from 0.0396 in Bond & Lillard to 0.0940 in Old Overholt. It will be noticed that Hermitage is also high in esters. Whiskeys carrying a high ester content are strong in their aroma and flavor.

The furfural varies from 0.0005 in Edgewood to 0.0050 in Old Overholt. Attention is called to the fact that in no case among the whiskeys analyzed does the furfural content rise as high as six one-thousandths of 1 per cent.

The aldehydes vary from 0.0080 in Bond & Lillard to 0.0225 in Old Overholt. It will be noted that Hermitage and Old Crow are also high in aldehydes, and still further that these whiskeys are among the oldest whiskeys analyzed.

The higher alcohol or fusel-oil content varies from 0.0849 in Hermitage to 0.1936 in Atherton. And these whiskeys are respectively eight and seven and one-half years old. A further study of the fusel-oil constants will show that there is no relation between the age and fusel-oil content of a whiskey. I believe that the fusel-oil content of a whiskey depends solely upon the initial amount found in the raw whiskey. Aging does not remove fusel-oil.

Of late there has been an attempt to judge the wholesomeness and quality of a whiskey by its fusel-oil content. A maximum standard of 0.25 has been proposed. All the whiskeys analyzed come well under this limit. But I believe this is a move in the wrong direction. I believe it is impossible to express the wholesomeness of a whiskey by a figure representing a single constant, no matter what that constant may be, whether fusel-oil, furfural, or aldehydes. But there may be something in a general balance of figures among constants that may become a criterion of judgment when that balance is properly interpreted. But I believe that no chemist is at this time prepared to say positively just what relation should exist between the different constants for a good or bad whiskey.

In examining the table I have been impressed by the ratio between the esters and the fusel-oil constants. In Hermitage,

a very aromatic whiskey, it is nearly 1 to 1. In Old Overholt the ratio is but slightly greater. In others the ratio is nearly 1 to 2, and in still others it is about 1 to 3. But in no case does this ratio rise to 1 to 4 in these first-class whiskeys.

It is also evident that no one of these whiskeys carries all of the maximum or all of the minimum constants. Indeed, it is not so certain that a whiskey carrying either all the maxima or one carrying all the minima would recommend itself to the consumer. But it would not be difficult to conceive that a whiskey carrying a very high fusel-oil content and a very low ester content would be rejected as lacking flavor. Again, a very high free-acid figure would not be desirable. And especially would a whiskey in which the constituents have not reached a final stage of combination be acceptable. It would be raw and unpalatable and deleterious.

Now in the case of blended whiskeys it is evident that the constants would be the means of the proportional amounts of the original whiskeys employed in their manufacture.

In third-class whiskeys the constants will be proportioned to those of the whiskey and of the silent spirit employed. As a rule the constants would all be lower than those of the first and second class.

In artificial whiskeys there is no foretelling what their constants would be. It would all depend upon what the manufacturer chose to add to the silent spirit. I believe that these whiskeys are the ones which should be most carefully supervised.

Under these circumstances and for the reasons mentioned, I would not recommend either a set of maxima or of minima upon which the South Dakota Commission should arbitrarily judge the wholesomeness of a whiskey. Many analyses must be made before it would be safe to assign the proper limits. But it is a self-evident fact that the consumer should be correctly informed as to what class of whiskey he is buying, and that he receives that which he buys.

U. S. DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY—ORDER No. 137.

A. D. MELVIN, CHIEF OF BUREAU.

**REGULATIONS GOVERNING THE MEAT INSPECTION OF THE  
UNITED STATES DEPARTMENT OF AGRICULTURE.**

(NOT INCLUDING REGULATIONS FOR MICROSCOPIC INSPECTION OF  
PORK OR REGULATIONS AFFECTING TRANSPORTATION OF MEAT  
IN INTERSTATE OR FOREIGN TRADE.)

*(Issued under authority conferred on the Secretary of Agriculture by the act of Con-  
gress approved June 30, 1906.)*

U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., July 25, 1906.

For the purpose of preventing the use in interstate or foreign commerce of meat and meat food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food, under the authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (Public, No. 382), the following regulations are hereby prescribed for the inspection, reinspection, examination, supervision, disposition, and method and manner of handling of live cattle, sheep, swine, and goats, and the carcasses and meat food products of cattle, sheep, swine, and goats, and for the sanitation of the establishments at which inspection is maintained.

These regulations, which for purposes of identification are designated as B. A. I. Order No. 137, will supersede B. A. I. Order No. 1, dated March 9, 1897, and B. A. I. Order No. 125, dated June 27, 1904, and all amendments thereto, except the portions of the last-named order and amendments which relate to the microscopic inspection of pork, and shall become and be effective at once.

JAMES WILSON,  
*Secretary of Agriculture.*

GENERAL REGULATIONS.

SCOPE OF INSPECTION.

REGULATION 1. All slaughtering, packing, meat-canning, salting, rendering, or similar establishments whose meats or meat food products,

in whole or in part, enter into interstate or foreign commerce shall have inspection under these regulations unless exempted from inspection by the Secretary of Agriculture. Only farmers, and retail butchers or retail dealers supplying their customers, may be exempted under the law, but they are, nevertheless, subject to the provision of the law which places a penalty upon any person who shall sell or offer for sale or transportation, for interstate or foreign commerce, any meat or meat food products which are diseased, unsound, unhealthful, unwholesome, or otherwise unfit for human food, knowing that such meat food products are intended for human consumption.

All carcasses and parts of carcasses of cattle, sheep, swine, and goats, and all meats and meat food products thereof entering into interstate or foreign commerce shall show either that they have been inspected and passed or that they have been exempted from inspection under these regulations. All meats and meat food products on hand October 1, 1906, at establishments where inspection has not been previously maintained, or which have been inspected under previously existing law and regulations, shall be examined and labeled under these regulations before being allowed to enter into interstate or foreign commerce.

#### APPLICATION FOR INSPECTION OR EXEMPTION.

REGULATION 2. The proprietor or operator of each slaughtering, packing, meat-canning, rendering, or similar establishment engaged in the slaughtering of cattle, sheep, swine, or goats, or in the packing, canning, or other preparation of any food product into which the meats or meat food products of said animals enter in whole or in part, for interstate or foreign commerce, shall make application to the Secretary of Agriculture for inspection or for exemption from inspection. The said application shall be made in writing, addressed to the Secretary of Agriculture, Washington, D. C., and shall state the location of the establishment, the address of the owner or of a duly authorized officer or agent of the same, the kinds of animals slaughtered, the estimated number of animals of any species slaughtered per day and per week, or the estimated amount of meats or meat food products received from other establishments, and the character, quantity, and proposed disposition of the products of said establishment. Blank application forms will be furnished by the Chief of the Bureau of Animal Industry upon request. If an establishment is not in a sanitary condition, inspection shall not be established.

#### EXEMPTION FROM INSPECTION.

(a) If, in the judgment of the Secretary of Agriculture, the retail butcher or retail dealer who is engaged in supplying his customers through the medium of interstate or foreign commerce should be exempted from Federal inspection, a certificate of exemption will be furnished to the applicant for use with transportation companies and other companies and persons in securing the movement of his products.

## OFFICIAL NUMBER.

REGULATION 3. If inspection is established under said application the Secretary of Agriculture will give said establishment a number by which all its meats and meat food products shall thereafter be known, and this number shall be used by the inspectors of the Department of Agriculture, and also by the proprietors of said establishment, to mark the meats and meat food products of the establishment as hereinafter prescribed. Establishments having one or more branches may use the same number for all by affixing a serial letter in connection with the number to differentiate the products of the different branches. Each establishment at which inspection is maintained must be separate and apart from any other establishment engaged in similar business at which inspection is not maintained.

(a) Retail butchers and dealers who have been exempted from inspection under these regulations will be given numbers by which their products will be known.

## DESIGNATION OF INSPECTORS.

REGULATION 4. The Secretary of Agriculture will designate an inspector to take charge of the inspection at each establishment where inspection is maintained, and will detail to said inspector such assistants as may be necessary to carry on properly the work of inspection and supervision at said establishment. For the purpose of enforcing the law and regulations the inspector and all employees under his direction shall have access at all times, by day or night, whether the establishment be operated or not, to every part of said establishment.

## OFFICE ROOM.

REGULATION 5. Office room, including light and heat, shall be provided by proprietors of establishments, rent free, for the exclusive use of the inspector and other employees of the Department on duty at each establishment. The room or rooms set apart for this purpose must be properly ventilated, conveniently located, and provided with lockers suitable for the protection and storage of such supplies as may be required; all to meet the approval of the inspector in charge.

## ALL CARCASSES AND PRODUCTS INSPECTED.

REGULATION 6. All cattle, sheep, swine, or goats slaughtered at an establishment at which inspection is maintained, and all meats and meat food products prepared therein shall be inspected, handled, and prepared as required by these regulations.

## NOTICE OF DAILY OPERATIONS.

REGULATION 7. The manager of each establishment at which inspection is maintained shall inform the inspector in charge, or his assistant, when work has been concluded for the day, and of the day and hour when work will be resumed. Under no circumstances shall an establishment be



operated except under the supervision of an employee of the Department. All slaughtering must be done within reasonable hours and with reasonable speed, the character of the establishment being considered. Where one inspector is detailed to conduct the work at two or more small establishments where few animals are slaughtered, the inspector in charge may designate the hours for slaughter. No work shall be performed at establishments where inspection is maintained during any day on which such work is prohibited by the law of the State or Territory in which the establishment is located.

#### BADGES.

REGULATION 8. Each employee of the Department engaged in inspection under these regulations will be furnished with a numbered badge, which he shall wear over the left breast on the outer clothing while in the performance of his official duties, and which shall not be allowed to leave his possession.

#### BRIBERY.

REGULATION 9. It is a felony, punishable by fine and imprisonment, for any person, firm, or corporation, or any agent or employee of any person, firm, or corporation, to give, pay, or offer, directly or indirectly, to any Department employee authorized to perform any duty under these regulations, any money or other thing of value with intent to influence said employee in the discharge of his duty under these regulations. It is also a felony, punishable by fine and imprisonment, for any Department employee engaged in the performance of duty under these regulations to receive or accept from any person, firm, or corporation engaged in interstate or foreign commerce any gift, money, or other thing of value given with any purpose or intent whatsoever.

#### SANITATION.

REGULATION 10. Upon receipt of an application for inspection the Secretary of Agriculture will cause to be made an examination of the premises, and will indicate the requirements for sanitation and the necessary facilities for inspection.

REGULATION 11. In order that the carcasses of cattle, sheep, swine, and goats, and the meats and meat food products thereof, may be admitted to interstate or foreign commerce, it is necessary under the law that the establishments in which the animals are slaughtered, or the meats and meat food products are prepared, cured, packed, stored, or handled, shall be suitably lighted and ventilated and maintained in a sanitary condition. All work in such establishments shall be performed in a cleanly and sanitary manner.

(a) Ceilings, side walls, pillars, partitions, etc., shall be frequently white-washed or painted, or, where this is impracticable, they shall, when necessary, be washed, scraped, or otherwise rendered sanitary. Where floors or other parts of a building, or tables or other parts of the equipment, are so old or in such condition that they can not be readily made sanitary, they shall be removed and replaced by suitable materials or otherwise put in a condition acceptable to the inspector in charge. All floors upon which meats are piled

during the process of curing shall be so constructed that they can be kept in a clean and sanitary condition, and such meats shall also be kept clean.

(b) All trucks, trays, and other receptacles, all chutes, platforms, racks, tables, etc., and all knives, saws, cleavers, and other tools, and all utensils and machinery used in moving, handling, cutting, chopping, mixing, canning, or other process, shall be thoroughly cleansed daily, if used.

(c) The aprons, smocks, or other outer clothing of employees who handle meat in contact with such clothing shall be of a material that is readily cleansed and made sanitary, and shall be cleansed daily, if used. Employees who handle meats or meat food products shall be required to keep their hands clean.

(d) All toilet rooms, urinals, and dressing rooms shall be entirely separated from compartments in which carcasses are dressed or meats or meat food products are cured, stored, packed, handled, or prepared. They shall be sufficient in number, ample in size, and fitted with modern lavatory accommodations, including toilet paper, soap, running water, towels, etc. They shall be properly lighted, suitably ventilated, and kept in a sanitary condition. Managers of establishments must see that employees keep themselves clean.

(e) The rooms or compartments in which meats or meat food products are prepared, cured, stored, packed, or otherwise handled shall be lighted and ventilated in a manner acceptable to the inspector in charge and shall be so located that odors from toilet rooms, catch-basins, casing departments, tank rooms, hide cellars, etc., do not permeate them. All rooms or compartments shall be provided with cuspidors, which employees who expectorate shall be required to use.

(f) Persons affected with tuberculosis or any other communicable disease shall not be knowingly employed in any of the departments of establishments where carcasses are dressed, meats handled, or meat food products prepared, and any employee suspected of being so affected shall be so reported by the inspector in charge to the manager of the establishment and to the Chief of the Bureau of Animal Industry.

(g) The fattening of hogs or other animals on the refuse of slaughterhouses will not be permitted on the premises of an establishment where inspection is maintained, and no use incompatible with proper sanitation shall be made of any part of the premises on which such establishment is located. All yards, fences, pens, chutes, alleys, etc., belonging to the premises of such establishment shall, whether they are used or not, be maintained in a sanitary condition.

(h) Butchers who dress diseased carcasses shall cleanse their hands of all grease and then immerse them in a prescribed disinfectant and rinse them in clear water before engaging again in dressing or handling healthy carcasses. All butchers' implements used in dressing diseased carcasses shall be cleansed of all grease and then sterilized, either in boiling water or by immersion in a prescribed disinfectant, and rinsed in clear water before being again used in dressing healthy carcasses.

Facilities for such cleansing and disinfection, approved by the inspector in charge, shall be provided by the establishment. Separate trucks, etc., shall be furnished for handling diseased carcasses and parts. Following the slaughter of an animal affected with an infectious disease a stop shall be made until the

implements have been cleansed and disinfected unless duplicate implements are provided.

(i) Inspectors are required to furnish their own knives for use in dissecting or incising diseased carcasses or parts, and are required to use the same means for disinfecting knives, hands, etc., that are prescribed for employees of the establishment.

(j) Meats and meat food products intended for rendering into edible products must be prevented from falling on the floor, while being emptied into the tanks, by the use of some device, such as a metal funnel.

(k) Plans of new plants and of plants to be remodeled should be submitted to the Secretary of Agriculture.

(l) Carcasses or parts of carcasses inflated with air blown from the mouth shall not be marked "U. S. Inspected and Passed."

(m) Carcasses dressed with skewers that have been held in the mouth shall not be marked "U. S. Inspected and Passed."

#### INTERPRETATION AND DEFINITIONS OF WORDS AND TERMS.

REGULATION 12. Wherever in these regulations the following words, names, or terms are used they shall be construed as follows:

*Inspectors and Department employees.*—These terms shall mean, respectively, inspectors and employees of the Bureau of Animal Industry.

*"U. S. Inspected and Passed."*—This phrase shall mean that the carcasses, parts of carcasses, meats, and meat food products so marked are sound, healthful, wholesome, and contain no dyes, chemicals, preservatives, or ingredients which render meats or meat food products unsound, unhealthful, unwholesome, unclean, or unfit for human food.

*Rendered into lard or tallow.*—This phrase shall mean that the carcasses, parts of carcasses, meats, and meat food products so designated have been passed for the preparation of lard or tallow only.

*"U. S. Inspected and Condemned."*—This phrase shall mean that the carcasses, parts of carcasses, and meat food products so marked are unfit for food and shall be destroyed for food purposes.

*Carcass.*—This word shall mean an animal that has been killed under these regulations, including all parts which are to be used for food.

*Primal parts of carcass.*—This phrase shall mean the usual sections or cuts of the dressed carcass commonly known in the trade, such as sides, quarters, shoulders, hams, backs, bellies, etc., and entire edible organs, such as tongues, livers, etc., before they have been cut, shredded, or otherwise subdivided preliminary to use in the manufacture of meat food products.

*Meat food products.*—This term shall mean any product used for food into the composition of which any portion of the carcass enters, or in the preparation of which any portion of the carcass is used, including lard, mince-meat, extracts, gelatin, oleomargarine, butterine, soups, etc.

*Vinegar.*—The word vinegar, as used herein, shall mean cider vinegar, wine vinegar, malt vinegar, sugar vinegar, glucose vinegar, or spirit vinegar, as defined by the Committee on Food Standards in Circular No. 10, Secretary's Office, United States Department of Agriculture.

## ANTE-MORTEM EXAMINATION AND INSPECTION.

REGULATION 13. An ante-mortem examination and inspection shall be made of all cattle, sheep, swine, and goats about to be slaughtered before they shall be allowed to enter an establishment at which inspection is maintained. Said examination and inspection shall be made in the pens, alleys, or chutes of the establishment at which the animals are about to be slaughtered. The proprietors of the establishments at which the said ante-mortem inspection is conducted shall provide satisfactory facilities for conducting said inspection and for separating and holding apart from healthy animals those showing symptoms of disease.

All animals showing symptoms or suspected of being affected with any disease or condition which, under these regulations, would probably cause their condemnation when slaughtered, shall be marked by affixing to the ear or tail a metal tag as provided in Regulation 20.

All such animals, except as hereinafter provided, shall be slaughtered separately, either before regular slaughter has commenced or at the close of the regular slaughter, and shall be duly identified by a representative of the establishment to the inspector on duty on the killing floor before the skins are removed or the carcasses opened for evisceration.

Animals which have been tagged for pregnancy and which have not been exposed to any infectious or contagious disease are not required to be slaughtered, but before any such animal is removed from the establishment the tag shall be detached by a Department employee and returned with his report to the inspector in charge.

(a) If any pathological condition is suspected in which the question of temperature is important, such as Texas fever, anthrax, pneumonia, black-leg, or septicemia, the exact temperature should be taken. Due consideration, however, must be given to the fact that extremely high temperatures may be found in otherwise normal hogs when subjected to exercise or excitement, and a similar condition may obtain to a less degree among other classes of animals. Animals commonly termed "downers," or crippled animals, shall be tagged, as provided for in Regulation 20, in the abattoir pens for the purpose of identification at the time of slaughter, and shall be passed upon in accordance with these regulations.

## POST-MORTEM INSPECTION AT TIME OF SLAUGHTER.

REGULATION 14. The inspector or his assistants shall, as the time of slaughter, make a careful inspection of all animals slaughtered. The head, tail, thymus gland, bladder, caul, and the entire viscera, and all parts and blood used in the preparation of meat food products shall be retained in such manner as to preserve their identity until after the post-mortem examination has been completed, in order that they may be identified in case of condemnation of the carcass. Suitable racks or metal receptacles shall be provided for retaining such parts.

Carcasses and parts thereof found to be sound, healthful, wholesome, and fit for human food shall be passed and marked as provided in these regulations.

Should any lesion of disease or other condition that would probably render the meat or any organ unfit for food purposes be found on post-mortem examination, such meat or organ shall be marked immediately with a tag, as provided in Regulation 27. Carcasses which have been so marked shall not be washed or trimmed unless such washing or trimming is authorized by the inspector.

#### DISPOSAL OF DISEASED CARCASSES AND ORGANS.

REGULATION 15. The carcasses or parts of carcasses of all animals which are slaughtered at an establishment where inspection is maintained, and which are found at time of slaughter or at any subsequent inspection to be affected with any of the diseases or conditions named below, shall be disposed of according to the section of this regulation pertaining to the disease or condition. It is to be understood, however, that owing to the fact that it is impracticable to formulate rules covering every case, and to designate at just what stage a process becomes loathsome or a disease noxious, the decision as to the disposition of all carcasses, parts, organs not specifically covered by these regulations shall be left to the veterinary inspector in charge. Carcasses found, before evisceration has taken place, to be affected with an infectious or contagious disease, including tuberculosis, shall not be eviscerated at the regular killing bed or bench, but shall be taken to the retaining room, or other specially prepared place, separate from other carcasses, and there opened and examined.

(a) *Anthrax, or charbon.*—All carcasses showing lesions of this disease, regardless of the extent of the disease, shall be condemned and immediately tanked, including the hide, hoofs, horns, viscera, fat, blood, and all other portions of the animal. The killing bed upon which the animal was slaughtered shall be disinfected with a 10 per cent solution of formalin, and all knives, saws, cleavers, and other instruments which have come in contact with the carcass shall be treated as provided in Regulation 11, paragraph (h), before being used upon another carcass.

(b) *Blackleg.*—Carcasses of animals showing lesions of blackleg shall be condemned.

(c) *Hemorrhagic septicemia.*—Carcasses of animals affected with this disease shall be condemned.

(d) *Pyemia and septicemia.*—Carcasses showing lesions of either of these diseases shall be condemned.

(e) *Rabies.*—Carcasses of animals which showed symptoms of rabies before slaughter shall be condemned.

(f) *Tetanus.*—Carcasses of animals which showed symptoms of tetanus before slaughter shall be condemned.

(g) *Malignant epizootic catarrh.*—Carcasses of animals affected with this disease and showing generalized inflammation of the mucous membranes shall be condemned.

(h) *Hog cholera and swine plague.*—(1) Carcasses showing well-marked and progressive lesions of hog cholera or swine plague in more than two of the organs (skin, kidneys, bones, or lymphatic glands) shall be condemned.

(2) Carcasses showing slight lesions which are confined to the kidneys and lymphatic glands may be passed.

(3) Carcasses which reveal lesions more numerous than those described for carcasses to be passed, but not so severe as the lesions described for carcasses to be condemned, may be rendered into lard, provided they are cooked by steam for four hours at a temperature not lower than 220° F.

(4) In inspecting carcasses showing lesions of the skin, bones, kidneys, or lymphatic glands, due consideration shall be given to the extent and severity of the lesions found in the viscera.

(i) *Actinomycosis, or lumpy jaw.*—(1) If the carcass is in a well-nourished condition and there is no evidence upon post-mortem examination that the disease has extended from a primary area of infection in the head, the carcass may be passed, but the head, including the tongue, shall be condemned.

(2) If the carcass is in a well-nourished condition and the disease has extended beyond the primary area of infection, the disposition shall be made in accordance with the regulations relating to tuberculosis.

(j) *Caseous lymphadenitis.*—When the lesions are limited to the superficial lymphatic glands or to a few nodules in an organ, involving also the adjacent lymphatic glands, and the carcass is well nourished, the meat may be passed after the affected parts are removed and condemned. If extensive lesions, with or without pleuritic adhesions, are found in the lungs, or if several of the visceral organs contain caseous nodules and the carcass is emaciated, it shall be condemned.

(k) *Tuberculosis.*—All carcasses affected with tuberculosis and showing emaciation shall be condemned. All other carcasses affected with tuberculosis shall be condemned, except those in which the lesions are slight, calcified, or encapsulated, and are confined to the tissues indicated in any one of the following five paragraphs, or to a less number of such tissues, and excepting also those which may, under paragraphs (6) and (7) below, be rendered into lard or tallow.

(1) The cervical lymphatic glands and two groups of visceral lymphatic glands in a single body cavity, such as the cervical, bronchial, and mediastinal glands, or the cervical, hepatic, and mesenteric glands.

(2) The cervical lymphatic glands and one group of visceral lymphatic glands and one organ in a single body cavity, such as the cervical and bronchial glands and the lungs, or the cervical and hepatic glands and the liver.

(3) Two groups of visceral lymphatic glands and one organ in a single body cavity, such as the bronchial and mediastinal glands and the lungs, or the hepatic and mesenteric glands and the liver.

(4) The cervical lymphatic glands and one group of visceral lymphatic glands in each body cavity, such as the cervical, bronchial, and hepatic glands.

(5) Two groups of visceral lymphatic glands in the thoracic cavity and one group in the abdominal cavity, or one group of visceral lymphatic glands in the thoracic cavity and two groups in the abdominal cavity, such as the bronchial, mediastinal, and hepatic glands, or the bronchial, hepatic, and mesenteric glands.

(6) Carcasses affected with tuberculosis, in which the lesions of the disease are located as described in any one of the preceding five paragraphs, but are slight and in a state of caseation, or liquefaction necrosis, or surrounded by hyperemic zones, and also those in which slight, calcified, or encapsulated

lesions are found in more visceral organs or more groups of visceral lymphatic glands than are specified in any one of the preceding five paragraphs, may be rendered into lard or tallow after the diseased parts are removed. The carcasses shall be cooked by steam at a temperature not lower than 220° F. for not less than four hours.

(7) Carcasses in which the cervical lymphatic glands, one organ, and the serous membrane in a single body cavity, such as the cervical lymphatic glands, the lungs, and the pleura, or the cervical lymphatic glands, the liver, and the peritoneum, are affected with tuberculosis may be rendered into lard or tallow after the diseased parts are removed. The carcasses shall be cooked by steam at a temperature not lower than 220° F. for not less than four hours.

(8) All condemned carcasses, parts of carcasses, or organs showing lesions of tuberculosis shall be deposited in receptacles provided for that purpose, and shall either be tanked at once or be locked in the "condemned" room until such time as an employee of the Department can see that they are placed in the tank.

(9) All heads and other parts showing lesions of tuberculosis shall be condemned.

(l) *Texas fever*.—Carcasses showing sufficient lesions to warrant the diagnosis of Texas fever shall be condemned.

(m) *Parasitic ictero-hematuria*.—Carcasses of sheep affected with this disease shall be condemned.

(n) *Mange, or scab*.—Carcasses of animals affected with the mange, or scab, in advanced stages, shall be condemned. When the disease is slight the carcass may be passed.

(o) *Tapeworm cysts*.—Carcasses of animals slightly affected with tapeworm cysts may be rendered into lard or tallow, but extensively affected carcasses shall be condemned.

(p) *Pneumonia, pleurisy, enteritis, peritonitis, and metritis*.—Carcasses showing generalized inflammation of one of the following tissues—the lungs, pleuræ, intestines, peritoneum, or the uterus—whether in acute or chronic form, shall be condemned.

(q) *Icterus*.—Carcasses showing an intense yellow or greenish-yellow discoloration after proper cooling shall be condemned. Carcasses which exhibit a yellowish tint directly after slaughter, but lose this discoloration on chilling, may be passed for food.

(r) *Uremia and sexual odor*.—Carcasses which give off the odor of urine or a strong sexual odor shall be condemned.

(s) *Urticaria, etc.*—Hogs affected with urticaria (diamond skin disease) *Tinea tonsurans*, *Demodex folliculorum*, or erythema may be passed after detaching and condemning the skin, if the carcass is otherwise fit for food.

(t) *Melanosis, etc.*—Carcasses of animals showing any disease or injury, such as traumatic pericarditis, generalized melanosis, pseudoleukemia, etc. which causes considerable elevation of temperature or affects the system of the animal, shall be condemned.

(u) *Bruises, abscesses, liver flukes, etc.*—Any organ or part of a carcass which is badly bruised or which is affected by malignant tumors, abscesses, suppurating sores, or liver flukes shall be condemned, but when the lesions

are so extensive as to affect the whole carcass, the whole carcass shall be condemned.

(v) *Emaciation and anemia.*—Carcasses of animals too emaciated or anemic to produce wholesome meat and those carcasses which show a slimy degeneration of the fat or a serous infiltration of the muscles shall be condemned.

(w) *Pregnancy and parturition.*—Carcasses of animals in advanced stages of pregnancy (showing signs of preparation for parturition), also carcasses of animals which have within ten days given birth to young and in which there is no evidence of septic infection, may be rendered into lard or tallow if desired by the manager of the establishment, otherwise they shall be condemned.

(x) *Immaturity.*—Carcasses of animals too immature to produce wholesome meat, all unborn and stillborn animals, also carcasses of calves, pigs, kids, and lambs under three weeks of age shall be condemned.

(y) *Diseased parts.*—In all cases where carcasses showing localized lesions of disease are passed or rendered into lard or tallow, the diseased parts must be removed before the "U. S. Retained" tag is taken from the carcass, and such parts shall be condemned.

(z) *Careless scalding.*—Hogs which have been allowed to pass into the scalding vat alive shall be condemned.

(aa) *Dead animals.*—All animals that die in abattoir pens, and those in a dying condition before slaughter, shall be tagged as provided in Regulation 21, and in all cases shall be condemned. In conveying animals which have died in the pens of the establishment to the tank they shall not be allowed to pass through compartments in which food products are prepared. No dead animals shall be brought into an establishment for rendering from outside the premises of said establishment.

#### "RETAINING" AND "CONDEMNED" ROOMS.

REGULATION 16. Separate compartments, to be known as "retaining rooms," or other special places for final inspection, shall be set apart at all establishments at which inspection is maintained, and all carcasses and parts marked with a "U. S. Retained" tag shall be held in these rooms pending final inspection. These rooms shall be rat proof and furnished with abundant light; the floors shall be of cement, metal, or brick laid in cement. They shall be provided with facilities for locking, and locks for this purpose will be furnished by the Department. The keys to such locks shall remain in the custody of the inspector or his assistant.

Immediately after the final inspection of carcasses and parts marked with "U. S. Retained" tags is completed, those found to be wholesome and fit for human food shall be released by the veterinary inspector conducting the inspection, who shall remove the "U. S. Retained" tags, and the carcasses shall be removed from the retaining rooms and marked "U. S. Inspected and Passed," as provided in Regulation 28.

The floors and walls of all retaining rooms shall be washed with hot water and disinfected after diseased animals are removed, and before any "retained" animals are again placed therein.

Carcasses or parts of carcasses found on final inspection to be unsound, unhealthful, unwholesome, or otherwise unfit for human food shall be marked



"U. S. Inspected and Condemned," as provided in Regulation 28, and shall be removed from the retaining room to the "condemned" room, if not tanked within twenty-four hours.

(a) In each establishment at which condemned carcasses or meat food products are held for more than twenty-four hours after condemnation, there shall be provided a room entirely separate from all other rooms in the establishment. This room shall be secure and shall be provided with a lock, the key of which shall remain in the custody of a Department employee. This room shall be known as the "condemned room," and shall be kept locked at all times, except when condemned meat or meat food product is being taken into or from the said room under the supervision of a Department employee.

All condemned carcasses shall be removed from retaining rooms within twenty-four hours after they are condemned, except in questionable cases, when they are held pending the decision of the inspector in charge. Condemned carcasses shall not be allowed to accumulate, but shall be removed from the "condemned" rooms, treated with coloring substances, or otherwise treated, as provided in Regulation 18, paragraph (b), and tanked within a reasonable time after condemnation. Carcasses of diseased animals which are eviscerated in the retaining room or in the specially prepared place under the provisions of Regulation 15, shall, unless passed, be removed immediately either to the "condemned" room or to the tank.

REGULATION 17. *Bruised parts.*—When a portion of a carcass is to be condemned on account of slight bruises, which can not be properly removed until the carcass is chilled, the carcass shall be marked with a "U. S. Retained" tag and placed in the retaining room. After chilling, the affected portion shall be cut out, marked "U. S. Inspected and Condemned," and removed to the tank or locked in the "condemned" room, and the remainder of the carcass shall be marked "U. S. Inspected and Passed."

#### TANKS AND TANKING.

REGULATION 18. All condemned carcasses, parts of carcasses, and meat food products shall be tanked as follows:

(a) After the lower opening of the tank has been securely sealed by an employee of the Department, and the condemned carcasses, parts, and meat food products are placed therein in his presence, the upper opening shall be likewise securely sealed by such employee, whose duty it shall be then to see that a sufficient force of steam is turned into the tank and maintained a sufficient length of time effectually to render the contents unfit for any edible product. Tanks for this purpose shall be so located or operated that the fumes and odors therefrom shall not pervade compartments in which carcasses are dressed or edible products prepared. Wire and lead seals are provided by the Department for sealing tanks.

(b) A sufficient quantity of coloring matter or other substance to be designated by the Department shall be used in connection with the tanking of all condemned carcasses, parts of carcasses, meats, and meat food products, to destroy them effectually for food purposes.

(c) The seals of tanks containing condemned meats or the tankage thereof shall be broken only by an employee of the Department.

(d) If an establishment where inspection is maintained fails to permit the treatment and tanking of condemned carcasses, parts of carcasses, meats, or meat food products, as required by these regulations, the inspector in charge shall report that fact to the Department, in order that inspection may be withdrawn from such establishment.

REGULATION 19. Any meats or meat food products condemned at establishments which have no facilities for tanking shall be treated as provided in Regulation 18, paragraph (b), and removed to an establishment indicated by the inspector in charge and there tanked and rendered under the supervision of an employee of the Department.

### LABELS, TAGS, AND BRANDS.

#### "U. S. SUSPECT" TAG.

REGULATION 20. To the ear or tail of each animal inspected under Regulation 13 which shows symptoms or is suspected of being affected with any disease or condition which, under these regulations, may cause its condemnation on post-mortem inspection, there shall be affixed by a Department employee at the time of inspection a numbered metal tag bearing the words "U. S. Suspect." The employee who affixes the tag shall report the number to the inspector in charge. This "U. S. Suspect" tag shall remain upon the animal until the preliminary post-mortem inspection at the time of slaughter. If no lesions of disease are then discovered the "U. S. Suspect" tag shall be removed and forwarded to the inspector in charge, with a report that the carcass has been inspected and passed, and the carcass shall be labeled or stamped "U. S. Inspected and Passed," as hereinafter provided.

#### ANTE-MORTEM CONDEMNED TAG.

REGULATION 21. To the ear of each animal which is found in a dying condition or dead on the premises of an establishment at which inspection is maintained there shall be affixed by a Department employee a numbered metal tag bearing the words "U. S. Condemned." The ear bearing the tag shall not be removed from the carcass. The number of this tag shall be reported to the inspector in charge by the employee who affixes it. This tag shall remain on the condemned carcass until it reaches the tank, and immediately before tanking it shall be removed by the Department employee who is supervising the tanking and returned with a report to the inspector in charge.

#### LABELING BEEF FOR EXPORT.

REGULATION 22. Upon each quarter of each dressed beef carcass inspected and passed for export there shall be placed by a Department employee a meat-inspection label or mark, which shall bear the number of the establishment and the words "U. S. Inspected and Passed."

#### LABELING BEEF FOR INTERSTATE COMMERCE.

REGULATION 23. Upon each dressed beef carcass inspected and passed for interstate commerce there shall be placed by a Department employee at

the time of inspection at least ten labels or marks bearing the number of the establishment and the words "U. S. Inspected and Passed."

#### LABELING CANNERS.

REGULATION 24. Upon each quarter of each dressed beef carcass inspected and passed, and which is to be cut up and prepared in the establishment in which the animal was slaughtered or in another establishment where inspection is maintained, there shall be placed by a Department employee at the time of inspection one label or mark bearing the establishment number and the words "U. S. Inspected and Passed." If, however, a primal part of any such carcass is to leave the establishment for interstate or foreign commerce, such primal part, or the container thereof, must be labeled, stamped, or branded, under the personal supervision of a Department employee, with the establishment number and the words "U. S. Inspected and Passed."

#### LABELING CARCASSES OF SHEEP, CALVES, SWINE, AND GOATS.

REGULATION 25. Upon the dressed carcasses of sheep, calves, swine, and goats inspected and passed for interstate or export commerce there shall be placed by a Department employee at the time of inspection at least two labels or marks bearing the number of the establishment and the words "U. S. Inspected and Passed."

#### STAMP ON CLOTH WRAPPING.

REGULATION 26. When the dressed carcasses or parts thereof of cattle, sheep, calves, swine, or goats are wrapped or inclosed for shipment for interstate or export commerce in burlap, muslin, cheese cloth, or other similar substance, the covering shall bear a meat-inspection stamp or other mark on which shall appear the establishment number and the words "U. S. Inspected and Passed."

#### "U. S. RETAINED" TAG.

REGULATION 27. Upon each carcass, or part or detached organ thereof, inspected under Regulation 14, in which any lesion of disease or other condition is found that would probably render the meat or any organ unfit for food purposes, there shall be placed by a Department employee at the time of inspection a paper tag, numbered in duplicate, bearing the words "U. S. Retained," attached by a wire and seal. The inspector who attaches this "U. S. Retained" tag shall detach the numbered stub thereof and return it with his report to the inspector in charge. The other portion shall accompany the carcass to the retaining room.

#### "U. S. CONDEMNED" STAMP.

REGULATION 28. Upon each carcass, or part or detached organ thereof, which is found on final inspection in the retaining room, or other special place for final inspection, to be unsound, unhealthful, unwholesome, or otherwise unfit for human food, there shall be stamped conspicuously by a Department employee at the time of inspection the words "U. S. Inspected and Condemned."

In addition the "U. S. Retained" tag shall remain upon the carcass and shall be stamped with the words "U. S. Inspected and Condemned." This stamped "U. S. Retained" tag shall accompany the carcass to the tank and shall be removed immediately before tanking by the Department employee who is supervising that operation, and he shall write or stamp upon the tag the word "Tanked," the date, sign his name, and return the tag with his report to the inspector in charge. If, however, upon final inspection the carcass is passed for food, the inspector shall stamp the retained tag "U. S. Inspected and Passed," and return the tag with his report to the inspector in charge.

#### MARKING OF PRIMAL PARTS.

REGULATION 29. On each primal part, or organ, or the container thereof which has been inspected and passed, and which is to leave the establishment for interstate or export commerce, and which has not been theretofore marked with the words "U. S. Inspected and Passed" and the establishment number, there shall be placed, under the personal supervision of a Department employee, a mark, stamp, or brand bearing the words "U. S. Inspected and Passed" and the establishment number. When primal parts or organs are shipped between establishments at which inspection is maintained the number of the establishment need not appear.

#### BRANDING IRONS.

REGULATION 30. When hot branding irons or other instruments are used to label hams, bacon, or other primal part with the name of the packer, or with a trade-mark, and it is desired, in addition, to indicate that the meat has been inspected by the Department of Agriculture, the wording for this purpose, which shall be in letters and figures of sufficient size to be legible, shall include the number of the establishment in which the product was produced, and also the statement "U. S. Inspected and Passed," or the abbreviated statement "U. S. Ins. Psd." This marking shall be accepted as the United States inspection mark. It shall be affixed, however, only under the personal supervision of a Department employee.

#### "SPECIAL" STAMP.

REGULATION 31. Upon all meats and meat food products prepared for export with preservatives under Regulation 39, paragraph (b), there shall also be stamped or branded, under the personal supervision of a Department employee, the word "Special." This word "Special" shall not be used upon any inspected meats or meat food products not prepared under said Regulation 39, unless it is used in combination with other words.

#### TRADE LABELS.

REGULATION 32. Upon each can, pot, tin, canvas, or other receptacle or covering containing any meat or meat food product for interstate or foreign commerce, except packages on which meat-inspection stamps appear, there shall be placed, under the supervision of a Department employee, a trade label,

This trade label shall contain the words "U. S. Inspected and Passed, under the act of Congress of June 30, 1906," in plain letters and figures of uniform size, the number of the establishment at which the meat or meat food product is last prepared or packed, and labeled, and the true name of the meat or meat food product contained in such package. Only trade names which are not false or deceptive may be used upon the trade label. A copy of each trade label shall be filed with the inspector in charge for his approval. The inspector in charge shall approve or disapprove each trade label, and report his action for approval to the Chief of the Bureau of Animal Industry, forwarding the label with his report. Only trade labels which have been approved by the Secretary of Agriculture shall be used.

REGULATION 33. *False or deceptive names.*—No meat or meat food products shall be sold or offered for sale by any person, firm, or corporation in interstate or foreign commerce under any false or deceptive name; but established trade name or names which are usual to such products and which are not false and deceptive, and which shall be approved by the Secretary of Agriculture, are permitted. Trade labels which are false or deceptive in any particular shall not be permitted. A meat food product, whether composed of one or more ingredients, shall not be named on a trade label with a name stating or purporting to show that the said meat food product is a substance which is not the principal ingredient contained therein, even though such name be an established trade name.

#### TAGGING REINSPECTED MEATS AND MEAT FOOD PRODUCTS.

REGULATION 34. Upon all meats or meat food products, which are suspected on reinspection of being unsound, unhealthful, unwholesome, or otherwise unfit for human food, or upon the containers thereof, there shall be placed by a Department employee at the time of reinspection the "U. S. Retained" tags hereinbefore described. The employee who affixes the tag shall send the numbered stub with his report to the inspector in charge. These tags shall accompany the said meats or meat food products to the retaining room or other special place for final inspection. When the final inspection is made, if the meat or meat food product be condemned the "U. S. Retained" tag shall be stamped "U. S. Inspected and Condemned," and shall accompany the condemned meat or meat food product to the tank.

Immediately before the meat or meat food product is tanked the employee supervising that operation shall write or stamp the word "Tanked" and the date upon the said tag, and sign his name thereto, and forward the tag to the inspector in charge with his report. If, however, upon final inspection the meat or meat food product is passed for food, the inspector shall stamp the retained tag "U. S. Inspected and Passed," and return the tag with his report to the inspector in charge.

#### REFERENCE TO UNITED STATES INSPECTION.

REGULATION 35. Except as provided in these regulations, no reference to United States inspection shall appear upon any meat or meat food product or the container thereof.

## REINSPECTION.

## REINSPECTION OF PASSED CARCASSES AND PARTS.

REGULATION 36. Before being admitted into any cooking, canning, sausage, or other department of an establishment, also before being packed for shipment, and at such other times as may be deemed necessary, all dressed carcasses or parts thereof that have been previously inspected and passed shall be reinspected by an inspector or his assistants, and if upon any such reinspection any carcass or part thereof is found to have become unsound, unhealthful, unwholesome, or in any way unfit for human food, the original mark, stamp, tag, or label shall be removed or canceled and the carcass or part shall be condemned.

## REINSPECTION OF INSPECTED MEATS RECEIVED AT OFFICIAL ESTABLISHMENTS.

REGULATION 37. Except as provided in Regulation 41, only carcasses and parts thereof, meats, and meat food products which can by marks, seals, brands, or labels be identified as having been previously inspected and passed by a Department employee shall be taken into or allowed to enter an establishment at which inspection is maintained. All such carcasses, parts, meats, and meat food products which are brought into one establishment from another, or which are returned to the establishment from which they issued, shall be identified and reinspected at the time of receipt, and shall be subject to further reinspection in such manner and at such times as may be deemed necessary. If upon any such reinspection any carcass or part thereof, or meat or meat food product, is found to have become unsound, unhealthful, unwholesome, or in any way unfit for human food, the original mark, stamp, tag, or label shall be removed or canceled and the carcass, part, meat, or meat food product shall be condemned.

(a) Special docks and receiving rooms shall be designated by the establishment for the receipt and inspection of meats or meat food products, and no meats or meat food products shall be allowed to enter the establishment by any other docks or receiving rooms, and only in the presence of a Department employee.

## MARKING PASSED CARCASSES OR PARTS.

REGULATION 38. All carcasses and parts of carcasses found upon inspection to be sound, healthful, wholesome, and fit for human food which leave the establishment where they are prepared for interstate or foreign commerce shall be designated by a mark, stamp, tag, or label bearing the words "U. S. Inspected and Passed," and no carcass, part of a carcass, or meat food product which has not been so designated shall be admitted to the canning, sausage, or any other department of any establishment where inspection is maintained other than the establishment in which it was prepared, except as provided in Regulation 41.

## DYES, CHEMICALS, AND PRESERVATIVES.

REGULATION 39. (a) No meat or meat food product for interstate commerce, or for foreign commerce except as hereinafter provided, shall contain any sub-

stance which lessens its wholesomeness, nor any drug, chemical, or dye (unless specifically provided for by a Federal statute), or preservative, other than common salt, sugar, wood smoke, vinegar, pure spices, and, pending further inquiry, saltpeter. Inspection and sampling of prepared meats and meat food products by Department employees shall be conducted in such manner and at such times as may be necessary to secure a rigid enforcement of this regulation.

(b) In accordance with the direction of the foreign purchaser or his agent, meats and meat food products prepared for export may contain preservatives in proportions which do not conflict with the laws of the foreign country to which they are to be exported.

When such meats or meat food products are prepared for export under this regulation they shall be prepared in compartments of the establishment separate and apart from those in which meats and meat food products are prepared according to paragraph (a) of this regulation, and such products shall be kept separate and shall be labeled with special trade labels, approved by the Secretary of Agriculture, and indicating that such products are for export only. Special export certificates will be issued for meats and meat food products of this character, and, if the products are not exported, under no circumstances shall they be allowed to enter domestic trade.

#### PREPARATION OF MEATS AND MEAT FOOD PRODUCTS.

REGULATION 40. All processes used in curing, pickling, preparing, or canning meats and meat food products in establishments where inspection is maintained shall be supervised by Department employees, and no fixtures or appliances, such as tables, trucks, trays, vats, machines, implements, cans, or containers of any kind, shall be used unless they are clean and sanitary, and all steps in the process of manufacture shall be conducted carefully and with strict cleanliness.

(a) *Cured meats.*—Only meats which bear the mark "U. S. Inspected and Passed," or meats in containers which are so marked, and which upon reinspection are found to be sound, healthful, wholesome, and fit for human food, shall be taken into any meat-curing establishment where inspection is maintained. Any meats which upon reinspection are found to have undergone changes which render them unsound, unclean, unhealthful, unwholesome, or otherwise unfit for human food, shall be condemned and disposed of as provided in Regulation 18.

No drug, chemical, or coloring matter shall be used in any process of curing any meats, except as provided in Regulation 39. All pickling fluids and other solutions or substances used in curing meats must be clean. At the time that cured meats are packed for shipment in interstate or foreign commerce they shall be inspected by a Department employee, and any pieces or portions of such meats which are found to have undergone changes which render them unclean, unsound, unhealthful, unwholesome, or otherwise unfit for human food, shall be condemned and disposed of as provided in Regulation 18.

(b) *Sausages and chopped meats.*—All meat entering a sausage establishment where inspection is maintained shall be inspected by a Department employee

when received. No meats which have not been inspected and passed under these regulations at the time of slaughter, or which, having been so inspected and passed, are found upon reinspection by a Department employee to have undergone changes which render them unsound, unclean, unhealthful, unwholesome, or otherwise unfit for human food, shall be employed in the preparation of sausages, chopped meats, or similar meat food products. Meats or meat food products which are found to have undergone these changes shall be condemned and disposed of as provided in Regulation 18. All meat trimmings for sausage shall be carefully inspected and assorted under the supervision of employees of the Department. No drug, chemical, preservative, or coloring matter shall be placed in or upon sausages or chopped meats for interstate or foreign commerce, except as provided in Regulation 39. The curing of sausages or chopped meats or similar meat food products shall be carried out in the manner prescribed for other meats in section (a) of this regulation.

(c) *Canned products.*—All meats or meat food products entering a canning establishment shall be inspected by a Department employee when received. No meat which has not been inspected and passed at the time of slaughter under these regulations, or which, having been inspected and passed, is re-inspected by a Department employee and found to have undergone changes which render it unclean, unsound, unhealthful, unwholesome, or otherwise unfit for human food, shall be allowed to enter into the preparation of canned meats or canned meat food products. No drug, chemical, or coloring matter shall be used in canned meats or meat food products for interstate or foreign commerce, except as provided in Regulation 39.

If at any time during the handling of any meat or meat food product, or at any time after the packing or canning of any such product, any portion or package shall be found to be unwholesome, unhealthful, or otherwise unfit for human food, such portions or packages shall be condemned and disposed of in the manner prescribed in Regulation 18.

No meat food product which has passed through the various processes of canning shall be removed from the container and recooked, reesterilized, or repacked, except under the supervision and with the approval of a Department employee.

REGULATION 41. *Rendering of lard and tallow.*—The rendering of all fats into lard, tallow, oils, and stearin at establishments where inspection is maintained shall be closely supervised by employees of the Department. All portions of carcasses rendered into lard and tallow must be clean and wholesome. Tanks and vats used for rendering condemned carcasses and refuse products must not be connected in any manner with tanks, vats, or other receptacles used for lard or other edible products. Unmelted fat which is not marked or stamped "U. S. Inspected and Passed" and which upon inspection is found to be sweet, clean, and of healthful appearance may be received, inspected, and rendered at a temperature not lower than 170° F. for one hour.



## STAMPS, STAMPING, AND CERTIFICATES.

## STAMPS.

REGULATION 42. Numbered meat-inspection stamps shall be affixed to packages containing meats or meat food products to be shipped or otherwise transported in interstate or foreign trade. No reference to United States inspection other than that contained on the meat-inspection stamp shall appear on any such package.

\* REGULATION 43. *Protection for stamps.*—Stamps shall be affixed in the following manner, and when they have been affixed they shall be covered immediately with a coating of transparent varnish or other similar substance.

(a) The stamp may be affixed in a grooved space, made by removing a portion of the wood, of sufficient size to admit the stamp.

(b) The stamp may be placed on either end of the package, provided that the sides are made to project at least one-eighth of an inch to afford the necessary protection from abrasion.

REGULATION 44. *Destruction of used stamps.*—Whenever any package of meats or meat food products bearing the meat-inspection stamp shall have been opened and its contents removed for sale the stamp on said package shall be immediately defaced and destroyed.

## CERTIFICATES FOR EXPORTS.

REGULATION 45. The inspector in charge of an establishment shall issue certificates of inspection for all carcasses of cattle, sheep, swine, and goats and the meats or meat food products thereof, which are to be exported to foreign countries. Each certificate shall cite the name of the shipper, the name of the consignee, the destination, the establishment number or numbers on the labels, the numbers of the stamps attached to the article to be exported, and the shipping marks. These certificates shall be issued in serial numbers and in triplicate form. Only one certificate shall be issued for each consignment unless otherwise directed by the Chief of the Bureau of Animal Industry.

Both the original and duplicate certificates shall be delivered to the exporter. The original is to be attached to the bill of lading accompanying the shipment for the information of the customs authorities, and shall be delivered to the chief officer of the vessel upon which said consignment is to be transported, and continue with the shipment to destination. The duplicate shall be forwarded by the consignor to the consignee, to be used by the latter in identifying the shipment at the point of destination by comparison with the original.

## COUNTERFEITING, ETC.

REGULATION 46. It is a misdemeanor, punishable by fine and imprisonment, for any person, firm, or corporation, or officer, agent, or employee thereof, to forge, counterfeit, simulate, or falsely represent, or without proper authority to use, fail to use, or detach, or knowingly or wrongfully to alter, deface, or destroy, or to fail to deface or destroy, any of the marks, stamps, tags, labels, or other identification devices provided for by law or by these regulations, on

any carcasses, parts of carcasses, or the food product, or the containers thereof, or wrongfully to use, deface, or destroy any certificate provided for by law or these regulations.

#### REPORTS.

REGULATION 47. Reports of the work of inspection carried on in every establishment shall be daily forwarded to the Department by the inspector in charge, on such blank forms and in such manner as may be specified by the Chief of the Bureau of Animal Industry. The proprietors of establishments at which inspection is maintained shall furnish daily to the Department employees detailed to the various departments accurate information regarding receipts, shipments, and amounts of products on which to base their daily reports.

Weekly reports on sanitation shall be made by the Department employees in charge of the various departments to the inspector in charge of the station, and by the inspector in charge to the Chief of the Bureau of Animal Industry. If any insanitary conditions are detected by any Department employee such conditions shall be reported immediately to the inspector in charge, who, after investigation, shall report them to the Chief of the Bureau.

#### APPEALS.

REGULATION 48. When the action of any inspector in condemning any carcass or part thereof, meat, or meat food product is questioned, appeal may be made to the inspector in charge, and from his decision appeal may be made to the Chief of the Bureau of Animal Industry, or to the Secretary of Agriculture, whose decision shall be final.

#### COOPERATION WITH MUNICIPAL AUTHORITIES.

REGULATION 49. All inspectors in charge are directed to notify the municipal authorities of the character of inspection, and to cooperate with such authorities in preventing the entry of condemned animals, or their products, into the local markets.

The details of any such proposed cooperative arrangement must be first submitted to and approved by the Chief of the Bureau of Animal Industry.

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### LAW UNDER WHICH THE FOREGOING REGULATIONS ARE MADE.

Extract from an act of Congress entitled "An Act making appropriations for the Department of Agriculture for the fiscal year ending June thirtieth, nineteen hundred and seven," Public, No. 382, approved June 30, 1906.

#### THE MEAT-INSPECTION AMENDMENT.

That for the purpose of preventing the use in interstate or foreign commerce, as hereinafter provided, of meat and meat food products which are unsound,

unhealthful, unwholesome, or otherwise unfit for human food, the Secretary of Agriculture, at his discretion, may cause to be made, by inspectors appointed for that purpose, an examination and inspection of all cattle, sheep, swine, and goats before they shall be allowed to enter into any slaughtering, packing, meat-canning, rendering, or similar establishment, in which they are to be slaughtered, and the meat and meat food products thereof are to be used in interstate or foreign commerce; and all cattle, swine, sheep, and goats found on such inspection to show symptoms of disease shall be set apart and slaughtered separately from all other cattle, sheep, swine, or goats, and when so slaughtered the carcasses of said cattle, sheep, swine, or goats shall be subject to a careful examination and inspection, all as provided by the rules and regulations to be prescribed by the Secretary of Agriculture as herein provided for.

That for the purposes hereinbefore set forth the Secretary of Agriculture shall cause to be made by inspectors appointed for that purpose, as hereinafter provided, a post-mortem examination and inspection of the carcasses and parts thereof of all cattle, sheep, swine, and goats to be prepared for human consumption at any slaughtering, meat-canning, salting, packing, rendering, or similar establishment in any State, Territory, or the District of Columbia for transportation or sale as articles of interstate or foreign commerce; and the carcasses and parts thereof of all such animals found to be sound, healthful, wholesome, and fit for human food shall be marked, stamped, tagged, or labeled as "Inspected and Passed;" and said inspectors shall label, mark, stamp, or tag as "Inspected and Condemned," all carcasses and parts thereof of animals found to be unsound, unhealthful, unwholesome, or otherwise unfit for human food; and all carcasses and parts thereof thus inspected and condemned shall be destroyed for food purposes by the said establishment in the presence of an inspector, and the Secretary of Agriculture may remove inspectors from any such establishment which fails to so destroy any such condemned carcass or part thereof, and said inspectors, after said first inspection shall, when they deem it necessary, reinspect said carcasses or parts thereof to determine whether since the first inspection the same have become unsound, unhealthful, unwholesome, or in any way unfit for human food, and if any carcass or any part thereof shall, upon examination and inspection subsequent to the first examination and inspection, be found to be unsound, unhealthful, unwholesome, or otherwise unfit for human food, it shall be destroyed for food purposes by the said establishment in the presence of an inspector, and the Secretary of Agriculture may remove inspectors from any establishment which fails to so destroy any such condemned carcass or part thereof.

The foregoing provisions shall apply to all carcasses or parts of carcasses of cattle, sheep, swine, and goats, or the meat or meat products thereof which may be brought into any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, and such examination and inspection shall be had before the said carcasses or parts thereof shall be allowed to enter into any department wherein the same are to be treated and prepared for meat food products; and the foregoing provisions shall also apply to all such products which, after having been issued from any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, shall be returned to the same or to any similar establishment where such inspection is maintained.

That for the purposes hereinbefore set forth the Secretary of Agriculture shall cause to be made by inspectors appointed for that purpose an examination and inspection of all meat food products prepared for interstate or foreign commerce in any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, and for the purposes of any examination and inspection said inspectors shall have access at all times, by day or night, whether the establishment be operated or not, to every part of said establishment; and said inspectors shall mark, stamp, tag, or label as "Inspected and Passed" all such products found to be sound, healthful, and wholesome, and which contain no dyes, chemicals, preservatives, or ingredients which render such meat or meat food products unsound, unhealthful, unwholesome, or unfit for human food; and said inspector shall label, mark, stamp, or tag as "Inspected and Con-

demned" all such products found unsound, unhealthful, and unwholesome, or which contain dyes, chemicals, preservatives, or ingredients which render such meat or meat food products unsound, unhealthful, unwholesome, or unfit for human food, and all such condemned meat food products shall be destroyed for food purposes, as hereinbefore provided, and the Secretary of Agriculture may remove inspectors from any establishment which fails to so destroy such condemned meat food products: *Provided*, That, subject to the rules and regulations of the Secretary of Agriculture, the provisions hereof in regard to preservatives shall not apply to meat food products for export to any foreign country and which are prepared or packed according to the specifications or directions of the foreign purchaser, when no substance is used in the preparation or packing thereof in conflict with the laws of the foreign country to which said article is to be exported; but if said article shall be in fact sold or offered for sale for domestic use or consumption, then this proviso shall not exempt said article from the operation of all the other provisions of this act.

That when any meat or meat food product prepared for interstate or foreign commerce which has been inspected as hereinbefore provided and marked "Inspected and Passed" shall be placed or packed in any can, pot, tin, canvas, or other receptacle or covering in any establishment where inspection under the provisions of this act is maintained, the person, firm, or corporation preparing said product shall cause a label to be attached to said can, pot, tin, canvas, or other receptacle or covering, under the supervision of an inspector, which label shall state that the contents thereof have been "Inspected and Passed" under the provisions of this act; and no inspection and examination of meat or meat food products deposited or inclosed in cans, tins, pots, canvas, or other receptacle or covering in any establishment where inspection under the provisions of this act is maintained shall be deemed to be complete until such meat or meat food products have been sealed or inclosed in said can, tin, pot, canvas, or other receptacle or covering under the supervision of an inspector, and no such meat or meat food products shall be sold or offered for sale by any person, firm, or corporation in interstate or foreign commerce under any false or deceptive name; but established trade name or names which are usual to such products and which are not false and deceptive and which shall be approved by the Secretary of Agriculture are permitted.

The Secretary of Agriculture shall cause to be made, by experts in sanitation or by other competent inspectors, such inspection of all slaughtering, meat-canning, salting, packing, rendering, or similar establishments in which cattle, sheep, swine, and goats are slaughtered and the meat and meat food products thereof are prepared for interstate or foreign commerce as may be necessary to inform himself concerning the sanitary conditions of the same, and to prescribe the rules and regulations of sanitation under which such establishments shall be maintained; and where the sanitary conditions of any such establishment are such that the meat or meat food products are rendered unclean, unsound, unhealthful, unwholesome, or otherwise unfit for human food, he shall refuse to allow said meat or meat food products to be labeled, marked, stamped, or tagged as "Inspected and Passed."

That the Secretary of Agriculture shall cause an examination and inspection of all cattle, sheep, swine, and goats, and the food products thereof, slaughtered and prepared in the establishments hereinbefore described for the purposes of interstate or foreign commerce to be made during the nighttime as well as during the daytime when the slaughtering of said cattle, sheep, swine, and goats, or the preparation of said food products is conducted during the nighttime.

That on and after October first, nineteen hundred and six, no person, firm, or corporation shall transport or offer for transportation and no carrier of interstate or foreign commerce shall transport or receive for transportation from one State or Territory or the District of Columbia to any other State or Territory or the District of Columbia, or to any place under the jurisdiction of the United States, or to any foreign country, any carcasses or parts thereof, meat, or meat food products thereof which have not been inspected, examined, and marked as "Inspected and Passed," in accordance with the terms of this

act and with the rules and regulations prescribed by the Secretary of Agriculture: *Provided*, That all meat and meat food products on hand on October first, nineteen hundred and six, at establishments where inspection has not been maintained, or which have been inspected under existing law, shall be examined and labeled under such rules and regulations as the Secretary of Agriculture shall prescribe, and then shall be allowed to be sold in interstate or foreign commerce.

That no person, firm, or corporation, or officer, agent, or employee thereof, shall forge, counterfeit, simulate, or falsely represent, or shall without proper authority use, fail to use, or detach, or shall knowingly or wrongfully alter, deface, or destroy, or fail to deface or destroy, any of the marks, stamps, tags, labels, or other identification devices provided for in this act, or in and as directed by the rules and regulations prescribed hereunder by the Secretary of Agriculture, on any carcasses, parts of carcasses, or the food product, or containers thereof, subject to the provisions of this act, or any certificate in relation thereto, authorized or required by this act or by the said rules and regulations of the Secretary of Agriculture.

That the Secretary of Agriculture shall cause to be made a careful inspection of all cattle, sheep, swine, and goats intended and offered for export to foreign countries at such times and places, and in such manner as he may deem proper to ascertain whether such cattle, sheep, swine, and goats are free from disease.

And for this purpose he may appoint inspectors who shall be authorized to give an official certificate clearly stating the condition in which such cattle, sheep, swine, and goats are found.

And no clearance shall be given to any vessel having on board cattle, sheep, swine, or goats for export to a foreign country until the owner or shipper of such cattle, sheep, swine, or goats has a certificate from the inspector herein authorized to be appointed, stating that the said cattle, sheep, swine, or goats are sound and healthy, or unless the Secretary of Agriculture shall have waived the requirement of such certificate for export to the particular country to which such cattle, sheep, swine, or goats are to be exported.

That the Secretary of Agriculture shall also cause to be made a careful inspection of the carcasses and parts thereof of all cattle, sheep, swine, and goats, the meat of which, fresh, salted, canned, corned, packed, cured, or otherwise prepared, is intended and offered for export to any foreign country, at such times and places and in such manner as he may deem proper.

And for this purpose he may appoint inspectors who shall be authorized to give an official certificate stating the condition in which said cattle, sheep, swine, or goats, and the meat thereof, are found.

And no clearance shall be given to any vessel having on board any fresh, salted, canned, corned, or packed beef, mutton, pork, or goat meat, being the meat of animals killed after the passage of this act, or except as hereinbefore provided for export to and sale in a foreign country from any port in the United States, until the owner or shipper thereof shall obtain from an inspector appointed under the provisions of this act a certificate that the said cattle, sheep, swine, and goats were sound and healthy at the time of inspection, and that their meat is sound and wholesome, unless the Secretary of Agriculture shall have waived the requirements of such certificate for the country to which said cattle, sheep, swine, and goats or meats are to be exported.

That the inspectors provided for herein shall be authorized to give official certificates of the sound and wholesome condition of the cattle, sheep, swine, and goats, their carcasses and products as herein described, and one copy of every certificate granted under the provisions of this act shall be filed in the Department of Agriculture, another copy shall be delivered to the owner or shipper, and when the cattle, sheep, swine, and goats or their carcasses and products are sent abroad, a third copy shall be delivered to the chief officer of the vessel on which the shipment shall be made.

That no person, firm, or corporation engaged in the interstate commerce of meat or meat food products shall transport or offer for transportation, sell or offer to sell any such meat or meat food products in any State or Territory

or in the District of Columbia or any place under the jurisdiction of the United States, other than in the State or Territory or in the District of Columbia or any place under the jurisdiction of the United States in which the slaughtering, packing, canning, rendering, or other similar establishments owned, leased, operated by said firm, person, or corporation is located unless and until said person, firm, or corporation shall have complied with all of the provisions of this act.

That any person, firm, or corporation, or any officer or agent of any such person, firm, or corporation, who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor and shall be punished on conviction thereof by a fine of not exceeding ten thousand dollars or imprisonment for a period not more than two years, or by both such fine and imprisonment, in the discretion of the court.

That the Secretary of Agriculture shall appoint from time to time inspectors to make examination and inspection of all cattle, sheep, swine, and goats, the inspection of which is hereby provided for, and of all carcasses and parts thereof, and of all meats and meat food products thereof, and of the sanitary conditions of all establishments in which such meat and meat food products hereinbefore described are prepared; and said inspectors shall refuse to stamp, mark, tag, or label any carcass or any part thereof, or meat food product therefrom, prepared in any establishment hereinbefore mentioned, until the same shall have actually been inspected and found to be sound, healthful, wholesome, and fit for human food, and to contain no dyes, chemicals, preservatives, or ingredients which render such meat food product unsound, unhealthful, unwholesome, or unfit for human food; and to have been prepared under proper sanitary conditions, hereinbefore provided for; and shall perform such other duties as are provided by this act and by the rules and regulations to be prescribed by said Secretary of Agriculture; and said Secretary of Agriculture shall, from time to time, make such rules and regulations as are necessary for the efficient execution of the provisions of this act, and all inspections and examinations made under this act shall be such and made in such manner as described in the rules and regulations prescribed by said Secretary of Agriculture not inconsistent with the provisions of this act.

That any person, firm, or corporation, or any agent or employee of any person, firm, or corporation, who shall give, pay, or offer, directly or indirectly, to any inspector, deputy inspector, chief inspector, or any other officer or employee of the United States authorized to perform any of the duties prescribed by this act or by the rules and regulations of the Secretary of Agriculture any money or other thing of value, with intent to influence said inspector, deputy inspector, chief inspector, or other officer or employee of the United States in the discharge of any duty herein provided for, shall be deemed guilty of a felony and, upon conviction thereof, shall be punished by a fine not less than five thousand dollars nor more than ten thousand dollars and by imprisonment not less than one year nor more than three years; and any inspector, deputy inspector, chief inspector, or other officer or employee of the United States authorized to perform any of the duties prescribed by this act who shall accept any money, gift, or other thing of value from any person, firm, or corporation, or officers, agents, or employees thereof, given with intent to influence his official action, or who shall receive or accept from any person, firm, or corporation engaged in interstate or foreign commerce any gift, money, or other thing of value given with any purpose or intent whatsoever, shall be deemed guilty of a felony and shall, upon conviction thereof, be summarily discharged from office and shall be punished by a fine not less than one thousand dollars nor more than ten thousand dollars and by imprisonment not less than one year nor more than three years.

That the provisions of this act requiring inspection to be made by the Secretary of Agriculture shall not apply to animals slaughtered by any farmer on the farm and sold and transported as interstate or foreign commerce, nor to retail butchers and retail dealers in meat and meat food products, supplying their customers: *Provided*, That if any person shall sell or offer for sale or transportation for interstate or foreign commerce any meat or meat food

products which are diseased, unsound, unhealthful, unwholesome, or otherwise unfit for human food, knowing that such meat food products are intended for human consumption, he shall be guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding one thousand dollars or by imprisonment for a period of not exceeding one year, or by both such fine and imprisonment: *Provided also*, That the Secretary of Agriculture is authorized to maintain the inspection in this act provided for at any slaughtering, meat-canning, salting, packing, rendering, or similar establishment notwithstanding this exception, and that the persons operating the same may be retail butchers and retail dealers or farmers; and where the Secretary of Agriculture shall establish such inspection then the provisions of this act shall apply notwithstanding this exception.

That there is permanently appropriated, out of any money in the Treasury not otherwise appropriated, the sum of three million dollars, for the expenses of the inspection of cattle, sheep, swine, and goats and the meat and meat food products thereof which enter into interstate or foreign commerce and for all expenses necessary to carry into effect the provisions of this act relating to meat inspection including rent and the employment of labor in Washington and elsewhere, for each year. And the Secretary of Agriculture shall, in his annual estimates made to Congress, submit a statement in detail, showing the number of persons employed in such inspections and the salary or per diem paid to each, together with the contingent expenses of such inspectors and where they have been and are employed.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

**Amendment No. 1 to B. A. I. Order No. 137 (Regulations Governing the Meat Inspection of the United States Department of Agriculture).**

**REGULATIONS GOVERNING THE EXAMINATION AND RELABELING OF MEATS AND MEAT FOOD PRODUCTS ON HAND.**

U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., September 7, 1906.

For the purpose of preventing the use in interstate or foreign commerce of meat and meat food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food, under the authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (Public, No. 382), the following regulations are hereby prescribed for the examination and labeling of meats and meat food products on hand October 1, 1906, which have not been inspected under the act of Congress of June 30, 1906.

These regulations, which for purposes of identification are designated as Amendment No. 1 to B. A. I. Order No. 137, shall become and be effective at once.

JAMES WILSON,  
*Secretary of Agriculture.*

INSPECTION AND RELABELING OF MEATS AND MEAT FOOD  
PRODUCTS ON HAND.

REGULATION 50. (a) Stocks of meat and meat food products on hand which are to enter interstate or foreign commerce on or after October 1 next, and which have not been inspected under the act of Congress of June 30, 1906, will be inspected upon application directly to the Chief of the Bureau of Animal Industry or to him thru the inspectors in charge of the various stations.

COLLECTION OF SAMPLES.

(b) The inspector in charge at the point from which such application is made, or to whom the application may be referred, will, upon direction of the Chief of the Bureau, cause samples to be collected by an officer designated by him.

(c) The collector shall personally select at random cans, packages, or por-



tions of each different lot of meat or meat food products which is to enter interstate or foreign trade, note being made at the time whether the samples are for one or the other, and, in the case of foreign shipments, for what country the products are intended. He shall at the same time note the number of packages or pieces of each lot and require that these be kept separate and undisturbed until the examination is finished. The samples in each case should consist of at least one-half pound of the material to be examined.

(d) The collector shall record on a slip provided for that purpose full data concerning each sample, and each sample must be given a serial number to which is prefixt the name of the city of collection. The data should include name of product (as it appears upon the label if labeled), the name of the manufacturer, the name of the establishment from which the sample is taken, the date of collection, and the number of packages in each lot. When this is done there must be attached to each sample a card or sticker bearing the serial number of the sample as recorded on the collector's sample slip, the collector's initial, and any other data that may be deemed desirable. If more than one collector be employed, a letter should be assigned to each, the collector's letter to be affixt to the number in each case, for example: Collector A—Samples, Chicago 1A, Chicago 2A, Chicago 3A, etc. Collector B—Samples, Chicago 1B, Chicago 2B, Chicago 3B, etc.

(e) In cities where the Department has no laboratory the samples collected should be numbered and recorded in the manner described above, prefixing to the number of the sample the name of the city in which collection was made, e. g., Milwaukee 1A, St. Louis 5A, St. Louis 7B. These samples should then be forwarded with their appropriate records, by mail or express, to the inspector in charge of a station at which a laboratory is located. They will be analyzed and reported on in the manner hereinafter described and the original record card returned by the inspector in charge in the laboratory city to the inspector in charge in the city of collection.

#### EXAMINATION AND ANALYSIS OF SAMPLES.

(f) After the samples have been recorded and numbered they must be delivered by the collector to the analyst, or else placed in some designated compartment to which only the analyst and the collector have access. In no case must the samples leave the possession of the analyst until the analysis is completed.

(g) The analyst must record the details of the examination in books or on cards provided for that purpose, and must return to the inspector in charge a report on cards prepared for that purpose. These cards should show the presence or absence of preservatives or coloring matters not permitted by the regulations. In case any preservative or coloring matter prohibited by the regulations is found, the particular preservative or coloring matter must be stated.

(h) When a sufficient number of samples have been examined to establish the wholesomeness of a certain brand, inspectors will be so advised.

#### LABELING AND MARKING.

(i) Upon receipt of the report from the analyst the inspector in charge shall permit those lots of meat or meat food products found free from foreign coloring

matters or preservatives to be correctly relabeled (if improperly labeled) in accordance with this regulation, under the supervision of a Department employee, care being taken to see that only the packages which were contained in the lot at the times the samples were taken are relabeled. Where the analysis shows the presence of substances not permitted by the regulations, the lots of goods from which such samples were taken shall not be relabeled or marked as provided for in this regulation, nor shall meats or meat food products which are falsely labeled as to the kind of meat entering into their composition be relabeled until their trade designation is made to conform with their constituents.

(j) Sweet pickled, dry salted, smoked, and other similar meats shall be inspected, and if found to be clean, healthful, wholesome, and free from any condition contrary to the regulations governing the meat inspection of the United States Department of Agriculture, they shall be labeled or marked as provided in paragraph (k) of this regulation.

(k) For the purpose of marking products inspected under this regulation an inspection stamp will be furnished by the Department reading as follows: "U. S. Inspected and Passed under Regulation 50." When necessary a rubber stamp will be issued in lieu of the paper stamp. One label upon an unopened case or package of canned meats shall be considered sufficient.

#### MEDICAL MEAT PRODUCTS.

REGULATION 51. Products such as meat juice, meat extract, etc., which are intended only for medicinal purposes and are advertised only to the medical profession, are not considered meat food products within the meaning of B. A. I. Order No. 137 and this amendment.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

**Amendment No. 2 to B. A. I. Order No. 137 (Regulations Governing the Meat Inspection of the United States Department of Agriculture).**

**REGULATIONS GOVERNING THE TRANSPORTATION OF MEAT  
IN INTERSTATE AND FOREIGN COMMERCE.**

U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., September 17, 1906.

For the purpose of preventing the use in interstate or foreign commerce of meat and meat food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food, under the authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (34 Stat., 674), the following regulations are hereby prescribed for the transportation in interstate and foreign commerce of the carcasses, parts of carcasses, and meat food products of cattle, sheep, swine, and goats.

A meat food product, within the meaning of the meat-inspection act and of these regulations made thereunder, is considered to be any article intended for human consumption which is derived or prepared from any portion of the carcass of cattle, sheep, swine, or goats, and which, when eaten, is capable of supplying nourishment or energy to the human body, or of repairing body waste. A mixture of which meat is an ingredient will not be considered a meat food product unless the meat contained therein is a definite and considerable portion of the said mixture, and Regulation 12 of B. A. I. Order No. 137 is hereby modified accordingly. But where such a mixture is prepared in an establishment where inspection is maintained, the sanitation of that portion of the establishment in which the said mixture is prepared will be supervised by the Department, and the meat or meat food product which enters the said mixture will be inspected before it enters the said mixture. The mixture will not be officially labeled. Mixtures such as mince-meats, soups, etc., which come under this ruling and which are not officially labeled, are allowed in interstate and foreign commerce without inspection and without certificates, subject to the provisions and requirements of the pure-food law and the regulations made thereunder. Products such as meat juice, meat extract, etc., which are intended and used only for medicinal purposes, and which are advertised only to the medical profession, are not meat food products within the meaning of B. A. I. Order No. 137 and this amendment.

These regulations, which for the purpose of identification are designated as Amendment No. 2 to B. A. I. Order No. 137, shall become and be effective on and after October 1, 1906, but shall not apply to the continuous carriage of meat or meat food products which are in transit on October 1, 1906.

JAMES WILSON,  
*Secretary of Agriculture.*

INTERSTATE TRANSPORTATION.

REGULATION 52. No person, firm, or corporation shall receive for transportation or transport from one State or Territory or the District of Columbia to another State or Territory or the District of Columbia any carcass, part of carcass, or meat food product of cattle, sheep, swine, or goats, unless and until a certificate is made and furnished in one of the forms prescribed in Regulations 53, 54, 55, and 56, showing that such meat or meat food product has been either inspected and past or exempted from inspection, according to act of Congress of June 30, 1906.

When any shipment of meat or meat food products covered by these regulations is offered to any common carrier for carriage within the United States as a part of a foreign movement, the same certificate shall be required as if the shipment were destined to a point within the United States.

INSPECTED MEATS AND PRODUCTS.

REGULATION 53. When any carcass, part of carcass, or meat food product of cattle, sheep, swine, or goats, which has been inspected under the regulations of the Secretary of Agriculture, known as B. A. I. Order No. 137, is offered to any common carrier for transportation from one State or Territory or the District of Columbia to another State or Territory or the District of Columbia as an interstate or foreign shipment, the person, firm, or corporation offering such carcass, part of carcass, or meat food product shall make the following certificate and deliver the same to the said common carrier, except as provided in Regulation 54:

(Date) . . . . ., 190 .  
Name of railroad to which offered: . . . . .  
Shipper: . . . . .  
Consignee: . . . . .  
Point of shipment: . . . . .  
Destination: . . . . .  
Car number and initial: . . . . .

The following-described meats or meat food products have been inspected and past according to act of Congress of June 30, 1906, and are so marked:

. . . . .  
. . . . .  
. . . . .

(Signature.)

This certificate may be stamped upon or incorporated in any form which is regularly or ordinarily used in the shipment of meat or meat food products.

REGULATION 54. An establishment at which inspection is maintained under the regulations of the Secretary of Agriculture, known as B. A. I. Order No.

137, may ship from the said establishment to any other establishment at which inspection is maintained, or to any branch house at which inspection is maintained, any meat or meat food product which has been inspected and past under these regulations without marking the same "Inspected and Passed," if the said shipment be placed in a railroad car which is sealed by an employee of the Bureau of Animal Industry. In shipments provided for by this regulation the said establishment shall make and deliver to the common carrier, in duplicate, a certificate reading as follows:

(Date) . . . . ., 190 .  
 Name of railroad to which offered: . . . . .  
 Shipper: . . . . .  
 Number of establishment: . . . . .  
 Consignee and establishment: . . . . .  
 Number of consignee: . . . . .  
 Point of shipment: . . . . .  
 Point of destination: . . . . .  
 Car number and initial: . . . . .

The following-described meats or meat food products have been inspected and past according to act of Congress of June 30, 1906. They are not marked "Inspected and Passed," but have been placed in car No. . . . . under the supervision of an employee of the Bureau of Animal Industry, and the said car has been sealed by the said employee with official seal No. . . . .

. . . . .  
 . . . . .  
 . . . . .

(Signature.)

The duplicate certificate shall be forwarded immediately by the initial carrier to the Chief of the Bureau of Animal Industry.

#### EXEMPTED MEATS AND PRODUCTS.

REGULATION 55. *Retail Butchers and Dealers.*—When any carcass, part of carcass, or meat food product of cattle, sheep, swine, or goats, which has not been inspected under the regulations of the Secretary of Agriculture, known as B. A. I. Order No. 137, is offered for shipment from one State or Territory or the District of Columbia to another State or Territory or the District of Columbia by any retail butcher or retail dealer, other than a farmer, claiming exemption under paragraph (a) of Regulation 2, B. A. I. Order No. 137, the common carrier shall require the following certificate to be made in duplicate by said retail butcher or retail dealer, which certificate shall in all cases show the exemption number designated by the Secretary of Agriculture for said retail butcher or retail dealer:

(Date) . . . . ., 190 .  
 Name of railroad to which offered: . . . . .  
 Shipper: . . . . .  
 Consignee: . . . . .  
 Point of shipment: . . . . .  
 Point of destination: . . . . .  
 Car number and initial: . . . . .  
 Exempted establishment number: . . . . .

I hereby certify that I am a retail butcher or a retail dealer in meats or meat food products, and the following-described meats or meat food products are

offered for shipment in interstate commerce to a customer, as exempted from inspection according to act of Congress of June 30, 1906, and exemption certificate No. .... The said meat or meat food products are sound, healthful, wholesome, and fit for human food.

.....  
.....  
.....

(Signature of retail butcher or dealer.)

(Address.)

The duplicate certificate shall be forwarded immediately by the initial carrier to the Chief of the Bureau of Animal Industry. This certificate shall be separate and apart from any waybill, bill of lading, or other form ordinarily used in the shipment of meat.

FARMERS.

REGULATION 56.—When any carcass, part of carcass, or meat food product of cattle, sheep, swine, or goats is offered to any common carrier for transportation from one State or Territory or the District of Columbia to another State or Territory or the District of Columbia by a farmer, the common carrier shall require the following certificate from the said farmer, which certificate shall be filled out in duplicate:

(Date) ....., 190 .  
Name of railroad to which offered:.....  
Shipper:.....  
Consignee:.....  
Point of shipment:.....  
Point of destination:.....  
Car number and initial:.....

I hereby certify that I am a farmer, and that the following-described uninspected carcasses or parts thereof have been slaughtered by me upon my farm and are offered for shipment in interstate commerce as exempted from inspection according to act of Congress of June 30, 1906. The said meat or meat food products are sound, healthful, wholesome, and fit for human food.

.....  
.....  
.....

(Signature of farmer.)

(Address of farmer.)

The duplicate certificate shall be forwarded immediately by the initial carrier to the Chief of the Bureau of Animal Industry, Washington, D. C.

REGULATION 57.—All original certificates delivered to the common carrier, as required in these regulations, shall be retained and filed by the initial carrier in order that they may be readily checked by this Department in such manner as the Secretary of Agriculture may from time to time prescribe.

REGULATION 58.—In all cases the waybills, transfer bills, running slips, or conductors' cards accompanying a car containing the said shipment of meat or meat food product covered by these regulations must have embodied in,

stamped upon, or attached to the same a certificate in the following form by the issuing railroad company, in the case of inspected meats:

(Name of railroad company) United States Inspected and Passed,  
as evidenced by shipper's certificate on file with initial carrier.  
(Signed) . . . . ., Agent.

In the case of uninspected meats:

(Name of railroad company) Exempted from inspection, as  
evidenced by shipper's certificate on file with initial carrier.  
(Signed) . . . . ., Agent.

REGULATION 59.—No common carrier shall receive for transportation or transport from the United States to any foreign country any carcass, part of carcass, or meat food product of cattle, sheep, swine, or goats, which has not been inspected and past, and so marked, under the regulations of the Secretary of Agriculture, known as B. A. I. Order No. 137, except from a farmer, or exempted retail butcher or retail dealer supplying a customer, when the provisions of this amendment, requiring certificates for interstate movements, shall apply to the meat or meat food product offered for foreign movement; and no master of any steam or sailing vessel shall receive for transportation or transport from the United States to Great Britain and Ireland or any of the countries of continental Europe any carcass, part of carcass, or meat food product of cattle, sheep, swine, or goats, except ship stores, unless and until a certificate of inspection covering the same has been issued and delivered as provided in Regulation 45 of the regulations of the Secretary of Agriculture, known as B. A. I. Order No. 137. The requirements of the certificate provided for in Regulation 45 are waived for meat and meat food products for export to foreign countries other than those named in this regulation.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

**Amendment No. 3 to B. A. I. Order No. 137 (Regulations Governing the Meat Inspection of the United States Department of Agriculture).**

**REGULATIONS GOVERNING THE INTERSTATE AND FOREIGN TRANSPORTATION OF MEATS AND MEAT FOOD PRODUCTS PREPARED WITH PRESERVATIVES PRIOR TO OCTOBER 1, 1906, AND AMENDING REGULATION NO. 45, GOVERNING THE TRANSPORTATION TO A FOREIGN COUNTRY OF MEATS AND MEAT FOOD PRODUCTS.**

U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., October 1, 1906.

For the purpose of preventing the use in interstate or foreign commerce of meat and meat food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food, under the authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (34 Stat., 674), the following regulations are hereby prescribed for the transportation in interstate and foreign commerce of the carcasses, parts of carcasses, meats, and meat food products of cattle, sheep, swine, and goats.

These regulations, which for purposes of identification are designated as Amendment No. 3 to B. A. I. Order No. 137, shall become and be effective on and after October 1, 1906.

JAMES WILSON,  
*Secretary of Agriculture.*

REGULATION 60. Meats prepared prior to October 1, 1906, to which have been applied externally small quantities of preservative, which have heretofore been usual in the preparation of said meat, but which are now prohibited by B. A. I. Order No. 137 and amendments thereto, will be examined as provided in Regulation 50, paragraphs (a) to (h), and, if found to conform to the Regulations of the Secretary of Agriculture in all respects, except as herein mentioned, may be marked "U. S. Inspected and Passed under Regulation 60," in the manner provided in paragraph (k) of Regulation No. 50, and will then be admitted into interstate and foreign commerce, under the regulations contained in Amendment No. 2 to B. A. I. Order No. 137.



AMENDMENT TO REGULATION NO. 45. Regulation 45, as contained in B. A. I. Order No. 137, is hereby amended to read as follows:

"REGULATION 45. The inspector in charge of an establishment shall issue certificates of inspection for all carcasses of cattle, sheep, swine, and goats, and the meats or meat food products thereof, which are to be exported to foreign countries. Each certificate shall cite the name of the shipper, the name of the consignee, the destination, the establishment number or numbers on the labels, the number of the stamps attached to the article to be exported, and the shipping marks. These certificates shall be issued in serial numbers and in triplicate form. Only one certificate shall be issued for each consignment unless otherwise directed by the Chief of the Bureau of Animal Industry.

"Both the original and duplicate certificates shall be delivered by the inspector to the shipper. The original certificate provided by law for the chief officer of the vessel shall be filed with the customs officers at the time of filing the master's manifest or the supplemental manifest."

Under date of September 25, 1906, the Secretary of Commerce and Labor issued the following instructions for the guidance of collectors of customs:

On and after October 1, 1906, no collector or other officer of customs shall issue clearance to any vessel carrying meat or meat food products for export to Europe until he is satisfied that certificates covering the same, as prescribed by the act of June 30, 1906, have been obtained from the Department of Agriculture.

Collectors and other officers of customs may accept, as satisfactory proof of the fact that the required certificates have been obtained—

A verified statement in writing, in form prescribed by the collector, made by the master or agent of the vessel at the time of application for clearance, to the effect that no meat or meat food products are or will be included in the cargo of the vessel unless duly marked "U. S. Inspected and Passed;" that certificates required by Regulation 45 of B. A. I. Order No. 137, as amended by Amendment No. 3 to the said order, have been obtained from the Department of Agriculture, and that such certificates, if not filed with the master's manifest at the time of issue of clearance, will be filed with the supplemental manifest:

*Provided*, That when said supplemental manifest is filed, a second duly verified statement, in writing, shall be made by the master or agent that the required certificates covering each shipment of meat or meat food products have been obtained, and that the name of shippers, destination, shipping marks, and total number of stamps attached have been filed with said supplemental manifest, and that all meat and meat food products in the cargo of said vessel are covered by the certificates attached to the master's supplemental manifest.

If the master or agent of any vessel shall fail at any time to so file all required certificates either with the master's manifest or with the supplemental manifest, no clearance shall thereafter be granted to any vessel represented by said master or agent until all required certificates of inspection have been duly presented and filed.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

Amendment No. 4 to B. A. I. Order No. 137 (Regulations Governing the Meat Inspection of the United States Department of Agriculture).

AMENDING REGULATIONS 22, 23, 24, AND 25, GOVERNING THE LABELING OF CARCASSES IN ESTABLISHMENTS WHERE INSPECTION IS MAINTAINED; AMENDING REGULATION 41, GOVERNING ENTRANCE OF UNMARKED FATS INTO ESTABLISHMENTS WHERE INSPECTION IS MAINTAINED; AND AMENDING REGULATION 50, GOVERNING THE EXAMINATION AND RELABELING OF MEATS AND MEAT FOOD PRODUCTS ON HAND.

U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., October 2, 1906.

For the purpose of preventing the use in interstate or foreign commerce of meat and meat food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food, under the authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (34 Stat., 674), Regulations 22, 23, 24, 25, 41, and 50 are hereby amended as hereinafter given.

This amendment is designated as Amendment No. 4 to B. A. I. Order No. 137 and shall become and be effective at once.

JAMES WILSON,  
*Secretary of Agriculture.*

REGULATIONS 22, 23, 24, AND 25. These regulations are amended to permit the placing, under the personal supervision of a Departmental employee, of labels upon carcasses by employees of establishments at which inspection is maintained.

REGULATION 41. This regulation is amended to read as follows. The new matter is italicized.

"REGULATION 41. *Rendering of lard and tallow.*—The rendering of all fats into lard, tallow, oils, and stearin at establishments where inspection is maintained shall be closely supervised by employees of the Department. All portions of carcasses rendered into lard and tallow must be clean and wholesome. Tanks and vats used for rendering condemned carcasses and refuse products must not be connected in any manner with tanks, vats, or other receptacles used for lard or other edible products. Unmelted fat *from carcasses which have*

been *U. S. inspected and passed and so marked*, which is not marked or stamped 'U. S. Inspected and Passed,' and which upon inspection is found to be sweet, clean, and of healthful appearance, may be received, inspected, and rendered at a temperature not lower than 170° F. for one hour."

REGULATION 50. Paragraph (j) of Regulation 50 is amended to read as follows:

"(j) Sweet pickled, dry salted, smoked, and other similar meats, lard, lard compounds, lard substitutes, butterine, and oleomargarine shall be inspected, and if found to be clean, healthful, wholesome, and free from any condition contrary to the regulations governing the meat inspection of the United States Department of Agriculture, they shall be labeled or marked as provided in paragraph (k) of this regulation: *Provided*, That during the months of October and November, 1906, shippers who are in possession of sweet pickled, dry salted, smoked, or other similar meats, lard, lard compounds, lard substitutes, butterine, and oleomargarine, which were on hand October 1, 1906, and who have affidavits of the packer who prepared the meat or product that it was cured or prepared prior to October 1, and that no prohibited preservative has been applied thereto, except as allowed by Regulation 60, may mark sweet, clean, sound, wholesome meat or meat food product with the words 'Inspected and Passed under Regulation 50—Provisional,' and such meat or product will then be admitted into interstate and foreign commerce. All persons who mark or ship meat or meat food product under this amendment shall immediately report to the Chief of the Bureau of Animal Industry at Washington a full description and the weight of the meat or product so marked and shipped. This amendment is issued because it is impossible, without seriously interfering with the commerce of the country, to examine each piece of meat in the United States. Attention is called, however, to the fact that it is a violation of law punishable by a fine of \$10,000 and imprisonment for a term of two years for any person to forge, counterfeit, simulate, or use without authority any of the marks provided for by the Regulations of the Secretary of Agriculture. The movement of meat under the provisional marking provided for by this amendment will be closely watched, and any violation of the regulation will be prosecuted."

Paragraph (k) of Regulation 50 is amended to read as follows:

"(k) For the purpose of marking products inspected under this regulation an inspection stamp will be furnished by the Department reading as follows: 'U. S. Inspected and Passed under Regulation 50.' When necessary a rubber stamp will be issued in lieu of the paper stamp. One label upon an unopened case or package of canned meats shall be considered sufficient: *Provided*, That when a brand or line of canned meat food products has been past by the Department as wholesome, and it is necessary to ship a portion of that line or brand in interstate commerce before the stamps provided by the Department can be received, the shipper may mark or stamp the shipment 'Inspected and Passed under Regulation 50—Provisional.' This amendment is issued to prevent an immediate scarcity of canned meat food products. The movement under the provisional marking will be watched closely, and any improper use of this provisional mark will be the subject of prosecution. The burden is upon the shipper who attaches the provisional mark to know that the line or brand has been past by the Department."

UNITED STATES DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY—Circular No. 21.

LETTER OF TRANSMITTAL.

WASHINGTON, D. C., October 16, 1906.

*The Secretaries of the Treasury, of Agriculture, and of Commerce and Labor.*

SIRS: The Commission appointed to represent your several Departments in the formulation of uniform rules and regulations for the enforcement of the food and drugs act, approved June 30, 1906, has reached a unanimous agreement and respectfully submits the results of its deliberations and recommends their adoption.

Very respectfully,

H. W. WILEY,  
JAMES L. GERRY,  
S. N. D. NORTH.

**RULES AND REGULATIONS FOR THE ENFORCEMENT OF  
THE FOOD AND DRUGS ACT.**

GENERAL.

REGULATION 1. *Short Title of the Act.*—The act, "For preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes," approved June 30, 1906, shall be known and referred to as "The Food and Drugs Act, June 30, 1906."

REGULATION 2. *Original Unbroken Package.* (Section 2.)—The term "original unbroken package" as used in this act is the original package, carton, case, can, box, barrel, bottle, phial, or other receptacle put up by the manufacturer, to which the label is attached, or which may be suitable for the attachment of a label, making one complete package of the food or drug article. The original package contemplated includes both the wholesale and the retail package.

REGULATION 3. *Collection of Samples.* (Section 4.)—Samples of unbroken packages shall be collected only by authorized agents of the Department of Agriculture; or by the health, food, or drug officer of any State, Territory, or the District of Columbia, when commissioned by the Secretary of Agriculture for this purpose.

Samples may be purchased in the open market, and if in bulk the marks, brands, or tags upon the package, carton, container, wrapper, or accompanying printed or written matter shall be noted. The collector shall also note the

names of the vendor and agent thru whom the sale was actually made, together with the date of purchase. The collector shall purchase representative samples.

A sample shall be divided into three parts, and each part shall be labeled with the identifying marks. All samples shall be sealed by the collector with a seal provided for the purpose. If the package be less than 4 pounds, or in volume less than 2 quarts, three packages of approximately the same size shall be purchased and the marks and tags upon each noted as above. One sample shall be delivered to the party from whom purchased or to the party guaranteeing such merchandise. One sample shall be sent to the Bureau of Chemistry, or to such chemist or examiner as may be designated by the Secretary of Agriculture, and the third sample shall be held under seal by the Secretary of Agriculture.

REGULATION 4. *Methods of Analysis.* (Section 4.)—Unless otherwise directed by the Secretary of Agriculture, the methods of analysis employed shall be those prescribed by the Association of Official Agricultural Chemists and the United States Pharmacopœia.

REGULATION 5. *Hearings.* (Section 4.)—(a) When the examination or analysis shows that the provisions of the food and drugs act, June 30, 1906, have been violated, notice of that fact, together with a copy of the findings, shall be furnished to the party or parties from whom the sample was obtained or who executed the guaranty as provided in the food and drugs act, June 30, 1906, and a date shall be fixed at which such party or parties may be heard before the Secretary of Agriculture, or such other official connected with the food and drug inspection service as may be commissioned by him for that purpose. The hearings shall be had at a place, to be designated by the Secretary of Agriculture, most convenient for all parties concerned. These hearings shall be private and confined to questions of fact. The parties interested therein may appear in person or by attorney and may propound proper interrogatories and submit oral or written evidence to show any fault or error in the findings of the analyst or examiner. The Secretary of Agriculture may order a reexamination of the sample or have new samples drawn for further examination.

(b) If the examination or analysis be found correct the Secretary of Agriculture shall give notice to the United States district attorney as prescribed.

(c) Any health, food, or drug officer or agent of any State, Territory, or the District of Columbia who shall obtain satisfactory evidence of any violation of the food and drugs act, June 30, 1906, as provided in section 5 thereof, shall first submit the same to the Secretary of Agriculture, in order that the latter may cause notice to be given to the guarantor or to the party from whom the sample was obtained.

REGULATION 6. *Publication.* (Section 4.)—(a) When a judgment of the court shall have been rendered there may be a publication of the findings of the examiner or analyst, together with the findings of the court.

(b) This publication may be made in the form of circulars, notices, or bulletins, as the Secretary of Agriculture may direct, not less than thirty days after judgment.

(c) If an appeal be taken from the judgment of the court before such publication, notice of the appeal shall accompany the publication.

**REGULATION 7. *Standards for Drugs.*** (Section 7.)—(a) A drug bearing a name recognized in the United States Pharmacopœia or National Formulary, without any further statement respecting its character, shall be required to conform in strength, quality, and purity to the standards prescribed or indicated for a drug of the same name recognized in the United States Pharmacopœia or National Formulary, official at the time.

(b) A drug bearing a name recognized in the United States Pharmacopœia or National Formulary, and branded to show a different standard of strength, quality, or purity, shall not be regarded as adulterated if it conforms to its declared standard.

**REGULATION 8. *Formulas—Proprietary Foods.*** (Section 8, last paragraph.)—(a) Manufacturers of proprietary foods are only required to state upon the label the names and percentages of the materials used, in so far as the Secretary of Agriculture may find this to be necessary to secure freedom from adulteration and misbranding.

(b) The factories in which proprietary foods are made shall be open at all reasonable times to the inspection provided for in Regulation 16.

**REGULATION 9. *Form of Guaranty.*** (Section 9.)—(a) No dealer in food or drug products will be liable to prosecution if he can establish that the goods were sold under a guaranty by the wholesaler, manufacturer, jobber, dealer, or other party residing in the United States from whom purchased.

(b) A general guaranty may be filed with the Secretary of Agriculture by the manufacturer or dealer and be given a serial number, which number shall appear on each and every package of goods sold under such guaranty with the words, "Guaranteed under the food and drugs act, June 30, 1906."

(c) The following form of guaranty is suggested:

I (we) the undersigned do hereby guarantee that the articles of foods or drugs manufactured, packed, distributed, or sold by me (us) [specifying the same as fully as possible] are not adulterated or misbranded within the meaning of the food and drugs act, June 30, 1906.

(Signed in ink.)

[Name and place of business of wholesaler, dealer, manufacturer, jobber, or other party.]

(d) If the guaranty be not filed with the Secretary of Agriculture as above, it should identify and be attached to the bill of sale, invoice, bill of lading, or other schedule giving the names and quantities of the articles sold.

#### ADULTERATION.

**REGULATION 10. *Confectionery.*** (Section 7.)—(a) Mineral substances of all kinds (except as provided in Regulation 15) are specifically forbidden in confectionery whether they be poisonous or not.

(b) Only harmless colors or flavors shall be added to confectionery.

(c) The term "narcotic drugs" includes all the drugs mentioned in section 8, food and drugs act, June 30, 1906, relating to foods, their derivatives and preparations, and all other drugs of a narcotic nature.

**REGULATION 11. *Substances Mixt and Packed with Foods.*** (Section 7, under "Foods.")—No substance may be mixt or packed with a food product

which will reduce or lower its quality or strength. Not excluded under this provision are substances properly used in the preparation of food products for clarification or refining, and eliminated in the further process of manufacture.

REGULATION 12. *Coloring, Powdering, Coating, and Staining.* (Section 7, under "Foods.")—(a) Only harmless colors may be used in food products.

(b) The reduction of a substance to a powder to conceal inferiority in character is prohibited.

(c) The term "powdered" means the application of any powdered substance to the exterior portion of articles of food, or the reduction of a substance to a powder.

(d) The term "coated" means the application of any substance to the exterior portion of a food product.

(e) The term "stain" includes any change produced by the addition of any substance to the exterior portion of foods which in any way alters their natural tint.

REGULATION 13. *Natural Poisonous or Deleterious Ingredients.* (Section 7, paragraph 5, under "Foods.")—Any food product which contains naturally a poisonous or deleterious ingredient does not come within the provisions of the food and drugs act, June 30, 1906, except when the presence of such ingredient is due to filth, putrescence, or decomposition.

REGULATION 14. *External Application of Preservatives.* (Section 7, paragraph 5, under "Foods," proviso.)—(a) Poisonous or deleterious preservatives shall only be applied externally, and they and the food products shall be of a character which shall not permit the permeation of any of the preservative to the interior, or any portion of the interior, of the product.

(b) When these products are ready for consumption, if any portion of the added preservative shall have penetrated the food product, then the proviso of section 7, paragraph 5, under "Foods," shall not obtain, and such food products shall then be subject to the regulations for food products in general.

(c) The preservative applied must be of such a character that, until removed, the food products are inedible.

REGULATION 15. *Wholesomeness of Colors and Preservatives.* (Section 7, paragraph 5, under "Foods.")—(a) Respecting the wholesomeness of colors, preservatives, and other substances which are added to foods, the Secretary of Agriculture shall determine from chemical or other examination, under the authority of the agricultural appropriation act, Public 382, approved June 30, 1906, the names of those substances which are permitted or inhibited in food products; and such findings, when approved by the Secretary of the Treasury and the Secretary of Commerce and Labor, shall become a part of these regulations.

(b) The Secretary of Agriculture shall determine from time to time, in accordance with the authority conferred by the agricultural appropriation act, Public 382, approved June 30, 1906, the principles which shall guide the use of colors, preservatives, and other substances added to foods; and when concurred in by the Secretary of the Treasury and the Secretary of Commerce and Labor, the principles so established shall become a part of these regulations.

REGULATION 16. *Character of the Raw Materials.*—(Section 7, paragraph 1, under "Drugs;" paragraph 6, under "Foods.")—(a) The Secretary of Agricul-

ture, when he deems it necessary, shall examine the raw materials used in the manufacture of food and drug products, and determine whether any filthy, decomposed, or putrid substance is used in their preparation.

(b) The Secretary of Agriculture shall make such inspections as often as he may deem necessary.

#### MISBRANDING.

REGULATION 17. *Label.* (Section 8.)—(a) The term "label" applies to any printed, pictorial, or other matter upon or attached to any package of a food or drug product, or any container thereof.

(b) The principal label shall consist, first, of all words which the food and drugs act, June 30, 1906, specifically requires, to wit, the name of the substance or product; the name of place of manufacture in the case of food compounds or mixtures; words which show that the articles are compounds, mixtures, or blends; the words "compound," "mixture," or "blend;" or words designating the substances or their derivatives and proportions required to be named in the case of drugs and foods. All these required words shall appear upon the principal label with no intervening descriptive or explanatory reading matter. Second, if the name of the manufacturer and place of manufacture are given, they shall also appear upon the principal label. Third, elsewhere upon the principal label other matter may appear in the discretion of the manufacturer.

(c) The principal label on foods or drugs for domestic commerce shall be printed in English (except as provided in Regulation 19), with or without the foreign label in the language of the country where the food or drug product is produced or manufactured. The size of type shall not be smaller than 8-point (brevier) caps: *Provided*, That in case the size of the package will not permit the use of 8-point cap type the size of the type may be reduced proportionately.

(d) The form, character, and appearance of the labels, except as provided above, are left to the judgment of the manufacturer.

(e) Descriptive matter upon the label shall be free from any statement, design, or device regarding the article or the ingredients or substances contained therein, or quality thereof, or place of origin, which is false or misleading in any particular.

(f) An article containing more than one food product or active medicinal agent is misbranded if named after a single constituent.

In the case of drugs the nomenclature employed by the United States Pharmacopœia and the National Formulary shall obtain.

(g) The term "design" or "device" applies to pictorial matter of every description, and to abbreviations, characters, or signs for weights, measures, or names of substances.

(h) The use of any false or misleading statement, design, or device shall not be justified by any statement given as the opinion of an expert or other person, appearing on any part of the label, nor by any descriptive matter explaining the use of the false or misleading statement, design, or device.

(i) The regulation regarding the principal label will not be enforced until October 1, 1907, in the case of labels printed and now on hand, whenever any statement therein contained which is contrary to the food and drugs act, June



30, 1906, as to character of contents, shall be corrected by a supplemental label, stamp, or paster. All other labels now printed and on hand may be used without change until October 1, 1907.

REGULATION 18. *Name and Address of Manufacturer.* (Section 8.)—(a) The name of the manufacturer or producer, or the place where manufactured, except in case of mixtures and compounds having a distinctive name, need not be given upon the label, but if given, must be the true name and the true place. The words "packed for ———," "distributed by ———," or some equivalent phrase, shall be added to the label in case the name which appears upon the label is not that of the actual manufacturer or producer, or the name of the place not the actual place of manufacture or production.

(b) When a person, firm, or corporation actually manufactures or produces an article of food or drug in two or more places, the actual place of manufacture or production of each particular package need not be stated on the label except when in the opinion of the Secretary of Agriculture the mention of any such place, to the exclusion of the others, misleads the public.

REGULATION 19. *Character of Name.* (Section 8.)—(a) A simple or unmixt food or drug product not bearing a distinctive name shall be designated by its common name in the English language, or, if a drug, by any name recognized in the United States Pharmacopœia or National Formulary. No further description of its components or qualities is required, except as to content of alcohol, morphine, etc.

(b) The use of a geographical name shall not be permitted in connection with a food or drug product not manufactured or produced in that place, when such name indicates that the article was manufactured or produced in that place.

(c) The use of a geographical name in connection with a food or drug product will not be deemed a misbranding when by reason of long usage it has come to represent a generic term and is used to indicate a style, type, or brand; but in all such cases the State or Territory where any such article is manufactured or produced shall be stated upon the principal label.

(d) A foreign name which is recognized as distinctive of a product of a foreign country shall not be used upon an article of domestic origin except as an indication of the type or style of quality or manufacture, and then only when so qualified that it can not be offered for sale under the name of a foreign article.

REGULATION 20. *Distinctive Name.* (Section 8.)—(a) A "distinctive name" is a trade, arbitrary, or fancy name which clearly distinguishes a food product, mixture, or compound from any other food product, mixture, or compound.

(b) A distinctive name shall not be one representing any single constituent of a mixture or compound.

(c) A distinctive name shall not misrepresent any property or quality of a mixture or compound.

(d) A distinctive name shall give no false indication of origin, character, or place of manufacture, nor lead the purchaser to suppose that it is any other food or drug product.

REGULATION 21. *Compounds, Imitations, or Blends Without Distinctive Name.* (Section 8.)—(a) The term "blend" applies to a mixture of like substances, not excluding harmless coloring or flavoring ingredients used for the purpose of coloring and flavoring only.

(b) If any age is stated, it shall not be that of a single one of its constituents, but shall be the average of all constituents in their respective proportions.

(c) Coloring and flavoring can not be used for increasing the weight or bulk of a blend.

(d) In order that colors or flavors may not increase the volume or weight of a blend, they are not to be used in quantities exceeding 1 pound to 800 pounds of the blend.

(e) A color or flavor can not be employed to imitate any natural product or any other product of recognized name and quality.

(f) The term "imitation" applies to any mixture or compound which is a counterfeit or fraudulent simulation of any article of food or drug.

REGULATION 22. *Articles without a Label.* (Section 8, paragraph 1, under "Drugs;" paragraph 1, under "Foods.")—It is prohibited to sell or offer for sale a food or drug product bearing no label upon the package or no descriptive matter whatever connected with it, either by design, device, or otherwise, if said product be an imitation of or offered for sale under the name of another article.

REGULATION 23. *Proper Branding not a Complete Guaranty.*—Packages which are correctly branded as to character of contents, place of manufacture, name of manufacturer, or otherwise, may be adulterated and hence not entitled to enter into interstate commerce.

REGULATION 24. *Incompleteness of Branding.*—A compound shall be deemed misbranded if the label be incomplete as to the names of the required ingredients. A simple product does not require any further statement than the name or distinctive name thereof, except as provided in Regulations 19 (a) and 28.

REGULATION 25. *Substitution.* (Sections 7 and 8.)—(a) When a substance of a recognized quality commonly used in the preparation of a food or drug product is replaced by another substance not injurious or deleterious to health, the name of the substituted substance shall appear upon the label.

(b) When any substance which does not reduce, lower, or injuriously affect its quality or strength, is added to a food or drug product, other than that necessary to its manufacture or refining, the label shall bear a statement to that effect.

REGULATION 26. *Waste Materials.* (Section 8.)—When an article is made up of refuse materials, fragments, or trimmings, the use of the name of the substance from which they are derived, unless accompanied by a statement to that effect, shall be deemed a misbranding. Packages of such materials may be labeled "pieces," "stems," "trimmings," or with some similar appellation.

REGULATION 27. *Mixtures or Compounds with Distinctive Names.* (Section 8. First proviso under "Foods," paragraph 1.)—(a) The terms "mixtures" and "compounds" are interchangeable and indicate the results of putting together two or more food products.

(b) These mixtures or compounds shall not be imitations of other articles, whether simple, mixt, or compound, or offered for sale under the name of other articles. They shall bear a distinctive name and the name of the place where the mixture or compound has been manufactured or produced.

(c) If the name of the place be one which is found in different States, Territories, or countries, the name of the State, Territory, or country, as well as the name of the place, must be stated.

REGULATION 28. *Substances Named in Drugs or Foods.* (Section 8. Second

under "Drugs;" second under "Foods.")—(a) The term "alcohol" is defined to mean common or ethyl alcohol. No other kind of alcohol is permissible in the manufacture of drugs except as specified in the United States Pharmacopœia or National Formulary.

(b) The words alcohol, morphine, opium, etc., and the quantities and proportions thereof, shall be printed in letters corresponding in size with those prescribed in Regulation 17, paragraph (c).

(c) A drug, or food product except in respect of alcohol, is misbranded in case it fails to bear a statement on the label of the quantity or proportion of any alcohol, morphine, opium, heroin, cocaine, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate, or acetanilide, or any derivative or preparation of any such substances contained therein.

(d) A statement of the maximum quantity or proportion of any such substances present will meet the requirements, provided the maximum stated does not vary materially from the average quantity or proportion.

(e) In case the actual quantity or proportion is stated it shall be the average quantity or proportion with the variations noted in Regulation 29.

(f) The following are the principal derivatives and preparations made from the articles which are required to be named upon the label:

ALCOHOL, ETHYL: (*Cologne spirits, Grain alcohol, Rectified spirits, Spirits, and Spirits of wine.*)

*Derivatives—*

Aldehyde, Ether, Ethyl acetate, Ethyl nitrite, and Paraldehyde.

*Preparations containing alcohol—*

Bitters, Brandies, Cordials, Elixirs, Essences, Fluid extracts, Spirits, Sirups, Tinctures, Tonics, Whiskies, and Wines.

MORPHINE, ALKALOID:

*Derivatives—*

Apomorphine, Dionine, Peronine, Morphine acetate, Hydrochloride, Sulphate, and other salts of morphine.

*Preparations containing morphine or derivatives of morphine—*

Bougies, Catarrh Snuff, Chlorodyne, Compound powder of morphine, Crayons, Elixirs, Granules, Pills, Solutions, Sirups, Suppositories, Tablets, Triturates, and Troches.

OPIUM, GUM:

*Preparations of Opium—*

Extracts, Denarcotized opium, Granulated opium, and Powdered opium, Bougies, Brown mixture, Carminative mixtures, Crayons, Dover's powder, Elixirs, Liniments, Ointments, Paregoric, Pills, Plasters, Sirups, Suppositories, Tablets, Tinctures, Troches, Vinegars, and Wines.

*Derivatives—*

Codeine, Alkaloid, Hydrochloride, Phosphate, Sulphate, and other salts of codeine.

*Preparations containing codeine or its salts—*

Elixirs, Pills, Sirups, and Tablets.

COCAINE, ALKALOID:

*Derivatives—*

Cocaine hydrochloride, Oleate, and other salts.

*Preparations containing cocaine or salts of cocaine—*

Coca leaves, Catarrh powders, Elixirs, Extracts, Infusion of coca, Ointments, Paste pencils, Pills, Solutions, Sirups, Tablets, Tinctures, Troches, and Wines.

HEROIN:

*Preparations containing heroin—*

Sirups, Elixirs, Pills, and Tablets.

## ALPHA AND BETA EUCAINE:

*Preparations—*

Mixtures, Ointments, Powders, and Solutions.

## CHLOROFORM:

*Preparations containing chloroform—*

Chloranodyne, Elixirs, Emulsions, Liniments, Mixtures, Spirits, and Sirups.

## CANNABIS INDICA:

*Preparations of cannabis indica—*

Corn remedies, Extracts, Mixtures, Pills, Powders, Tablets, and Tinctures.

CHLORAL HYDRATE (*Chloral*, U. S. Pharmacopœia, 1890):*Derivatives—*

Chloral acetophenoxim, Chloral alcoholate, Chloralamide, Chloralimide, Chloral orthoform, Chloralose, Dormiol, Hypnal, and Uraline.

*Preparations containing chloral hydrate or its derivatives—*

Chloral camphorate, Elixirs, Liniments, Mixtures, Ointments, Suppositories, Sirups, and Tablets.

ACETANILIDE (*Antifebrine*, *Phenylacetamide*):*Derivatives—*

Acetphenetidine, Citrophen, Diacetanilide, Lactophenin, Methoxy-acetanilide, Methylacetanilide, Para-Iodoacetanilide, and Phenacetine.

*Preparations containing acetanilide or derivatives—*

Analgesics, Antineuralgics, Antirheumatics, Cachets, Capsules, Cold remedies, Elixirs, Granular effervescing salts, Headache powders, Mixtures, Pain remedies, Pills, and Tablets.

REGULATION 29. *Statement of Weight or Measure.* (Section 8. Third under "Foods.")—(a) A statement of the weight or measure of the food contained in a package is not required. If any such statement is printed, it shall be a plain and correct statement of the average net weight or volume, either on or immediately above or below the principal label, and of the size of letters specified in Regulation 17.

(b) A reasonable variation from the stated weight for individual packages is permissible, provided this variation is as often above as below the weight or volume stated. This variation shall be determined by the inspector from the changes in the humidity of the atmosphere, from the exposure of the package to evaporation or to absorption of water, and the reasonable variations which attend the filling and weighing or measuring of a package.

REGULATION 30. *Method of Stating Quantity or Proportion.* (Section 8.)—In the case of alcohol the expression "quantity" or "proportion" shall mean the average percentage by volume in the finished product. In the case of the other ingredients required to be named upon the label, the expression "quantity" or "proportion" shall mean grains or minims per ounce or fluid ounce, and also, if desired, the metric equivalents therefor, or milligrams per gram or per cubic centimeter, or grams or cubic centimeters per kilogram or per liter; provided that these articles shall not be deemed misbranded if the maximum of quantity or proportion be stated, as required in Regulation 28 (d).

## EXPORTS AND IMPORTS OF FOODS AND DRUGS.

REGULATION 31. *Preparation of Food Products for Export.* (Section 2.)—(a) Food products intended for export may contain added substances not permitted in foods intended for interstate commerce, when the addition of such substances does not conflict with the laws of the countries to which the food products are

to be exported and when such substances are added in accordance with the directions of the foreign purchaser or his agent.

(b) The exporter is not required to furnish evidence that goods have been prepared or packed in compliance with the laws of the foreign country to which said goods are intended to be shipped, but such shipment is made at his own risk.

(c) Food products for export under this regulation shall be kept separate and labeled to indicate that they are for export.

(d) If the products are not exported they shall not be allowed to enter interstate commerce.

REGULATION 32. *Imported Food and Drug Products.* (Section 11.)—(a) Meat and meat food products imported into the United States shall be accompanied by a certificate of official inspection of a character to satisfy the Secretary of Agriculture that they are not dangerous to health, and each package of such articles shall bear a label which shall identify it as covered by the certificate, which certificate shall accompany or be attached to the invoice on which entry is made.

(b) The certificate shall set forth the official position of the inspector and the character of the inspection.

(c) Meat and meat food products as well as all other food and drug products of a kind forbidden entry into or forbidden to be sold, or restricted in sale in the country in which made or from which exported, will be refused admission.

(d) Meat and meat food products which have been inspected and past thru the customs may, if identity is retained, be transported in interstate commerce.

REGULATION 33. *Declaration.* (Section 11.)—(a) All invoices of food or drug products shipped to the United States shall have attached to them a declaration of the shipper, made before a United States consular officer, as follows:

I, the undersigned, do solemnly and truly declare that I am the \_\_\_\_\_  
(Manufacturer, agent, or shipper.)  
of the merchandise herein mentioned and described, and that it consists of food or drug products which contain no added substances injurious to health.

These products were grown in \_\_\_\_\_ and manufactured in \_\_\_\_\_ by \_\_\_\_\_  
(Country.) (Country.) (Name  
\_\_\_\_\_ during the year \_\_\_\_\_, and are exported from \_\_\_\_\_ and consigned  
(City.)  
of manufacturer.)

to \_\_\_\_\_. The products bear no false labels or marks, contain <sup>no</sup> added  
(City.) <sup>some</sup> coloring matter or preservative \_\_\_\_\_, and are not of a character to cause pro-  
(Name of added color or preservative.)  
hibition or restriction in the country where made or from which exported.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

(Signed): \_\_\_\_\_.

(b) In the case of importations to be entered at New York, Boston, Philadelphia, Chicago, San Francisco, and New Orleans, and other ports where food and drug inspection laboratories shall be established, this declaration shall be attached to the invoice on which entry is made. In other cases the declaration shall be attached to the copy of the invoice sent to the Bureau of Chemistry.

REGULATION 34. *Denaturing.* (Section 11.)—Unless otherwise declared on the invoice or entry, all substances ordinarily used as food products will be treated as such. Shipments of substances ordinarily used as food products in-

tended for technical purposes must be accompanied by a declaration stating that fact, and must be so denatured as to prevent their use as foods.

REGULATION 35. *Bond, Imported Foods, and Drugs.* (Section 11).—Unexamined packages of food and drug products may be delivered to the consignee prior to the completion of the examination to determine whether the same are adulterated or misbranded upon the execution of a penal bond by the consignee in the sum of the invoice value of such goods with the duty added, for the return of the goods to customs custody.

REGULATION 36. *Notification of Violation of the Law.* (Section 11.)—If the sample on analysis or examination be found not to comply with the law, the importer shall be notified of the nature of the violation, the time and place at which final action will be taken upon the question of the exclusion of the shipment, and that he may be present, and submit evidence, which evidence (Form 15), with a sample of the article, shall be forwarded to the Bureau of Chemistry at Washington, accompanied by report card (Forms 16, 17, 18, 19, and 20).

REGULATION 37. *Appeal to the Secretary of Agriculture and Remuneration.* (Section 11.)—All applications for relief from decisions arising under the execution of the law should be address to the Secretary of Agriculture, and all vouchers or accounts for remuneration for samples shall be filed with the chief of the inspection laboratory, who shall forward the same, with his recommendation, to the Department of Agriculture for action.

REGULATION 38. *Shipment beyond the jurisdiction of the United States.* (Section 11.)—The time allowed the importer for representations regarding the shipment may be extended at his request to permit him to secure such evidence as he desires, provided that this extension of time does not entail any expense to the Department of Agriculture. If at the expiration of this time, in view of the data secured in inspecting the sample and such evidence as may have been submitted by the manufacturers or importers, it appears that the shipment can not be legally imported into the United States, the Secretary of Agriculture shall request the Secretary of the Treasury to refuse to deliver the shipment in question to the consignee, and to require its reshipment beyond the jurisdiction of the United States.

REGULATION 39. *Application of Regulations.*—These regulations shall not apply to domestic meat and meat food products which are prepared, transported, or sold in interstate or foreign commerce under the meat-inspection law and the regulations of the Secretary of Agriculture made thereunder.

REGULATION 40. *Alteration and Amendment of Regulations.*—These regulations may be altered or amended at any time, without previous notice, with the concurrence of the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor.

The above rules and regulations are hereby adopted.

LESLIE M. SHAW,  
*Secretary of the Treasury.*

JAMES WILSON,  
*Secretary of Agriculture.*

VICTOR H. METCALF,  
*Secretary of Commerce and Labor.*

WASHINGTON, D. C., October 17, 1906.

## THE FOOD AND DRUGS ACT, JUNE 30, 1906.

AN ACT For preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That it shall be unlawful for any person to manufacture within any Territory or the District of Columbia any article of food or drug which is adulterated or misbranded, within the meaning of this Act; and any person who shall violate any of the provisions of this section shall be guilty of a misdemeanor, and for each offense shall, upon conviction thereof, be fined not to exceed five hundred dollars or shall be sentenced to one year's imprisonment, or both such fine and imprisonment, in the discretion of the court, and for each subsequent offense and conviction thereof shall be fined not less than one thousand dollars or sentenced to one year's imprisonment, or both such fine and imprisonment, in the discretion of the court.

SEC. 2. That the introduction into any State or Territory or the District of Columbia from any other State or Territory or the District of Columbia, or from any foreign country, or shipment to any foreign country of any article of food or drugs which is adulterated or misbranded, within the meaning of this Act, is hereby prohibited; and any person who shall ship or deliver for shipment from any State or Territory or the District of Columbia to any other State or Territory or the District of Columbia, or to a foreign country, or who shall receive in any State or Territory or the District of Columbia from any other State or Territory or the District of Columbia, or foreign country, and having so received, shall deliver, in original unbroken packages, for pay or otherwise, or offer to deliver to any other person, any such article so adulterated or misbranded within the meaning of this Act, or any person who shall sell or offer for sale in the District of Columbia or the Territories of the United States any such adulterated or misbranded foods or drugs, or export or offer to export the same to any foreign country, shall be guilty of a misdemeanor, and for such offense be fined not exceeding two hundred dollars for the first offense, and upon conviction for each subsequent offense not exceeding three hundred dollars or be imprisoned not exceeding one year, or both, in the discretion of the court: *Provided*, That no article shall be deemed misbranded or adulterated within the provisions of this Act when intended for export to any foreign country and prepared or packed according to the specifications or directions of the foreign purchaser when no substance is used in the preparation or packing thereof in conflict with the laws of the foreign country to which said article is intended to be shipped; but if said article shall be in fact sold or offered for sale for domestic use or consumption, then this proviso shall not exempt said article from the operation of any of the other provisions of this Act.

SEC. 3. That the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor shall make uniform rules and regulations for carrying out the provisions of this Act, including the collection and examination of specimens of foods and drugs manufactured or offered for sale in the District of Columbia, or in any Territory of the United States, or which shall be offered for sale in unbroken packages in any State other than that in which they shall have been respectively manufactured or produced, or which shall be received from any foreign country, or intended for shipment to any foreign country, or which may be submitted for examination by the chief health, food, or drug officer of any State, Territory, or the District of Columbia, or at any domestic or foreign port through which such product is offered for interstate commerce, or for export or import between the United States and any foreign port or country.

SEC. 4. That the examinations of specimens of foods and drugs shall be made in the Bureau of Chemistry of the Department of Agriculture, or under the direction and supervision of such Bureau, for the purpose of determining from such examinations whether such articles are adulterated or misbranded within

the meaning of this Act; and if it shall appear from any such examination that any of such specimens is adulterated or misbranded within the meaning of this Act, the Secretary of Agriculture shall cause notice thereof to be given to the party from whom such sample was obtained. Any party so notified shall be given an opportunity to be heard, under such rules and regulations as may be prescribed as aforesaid, and if it appears that any of the provisions of this Act have been violated by such party, then the Secretary of Agriculture shall at once certify the facts to the proper United States district attorney, with a copy of the results of the analysis or the examination of such article duly authenticated by the analyst or officer making such examination, under the oath of such officer. After judgment of the court, notice shall be given by publication in such manner as may be prescribed by the rules and regulations aforesaid.

SEC. 5. That it shall be the duty of each district attorney to whom the Secretary of Agriculture shall report any violation of this Act, or to whom any health or food officer or agent of any State, Territory, or the District of Columbia shall present satisfactory evidence of any such violation, to cause appropriate proceedings to be commenced and prosecuted in the proper courts of the United States, without delay, for the enforcement of the penalties as in such case herein provided.

SEC. 6. That the term "drug," as used in this Act, shall include all medicines and preparations recognized in the United States Pharmacopœia or National Formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation, or prevention of disease of either man or other animals. The term "food," as used herein, shall include all articles used for food, drink, confectionery, or condiment by man or other animals, whether simple, mixed, or compound.

SEC. 7. That for the purposes of this Act an article shall be deemed to be adulterated:

In case of drugs:

First. If, when a drug is sold under or by a name recognized in the United States Pharmacopœia or National Formulary, it differs from the standard of strength, quality, or purity, as determined by the test laid down in the United States Pharmacopœia or National Formulary official at the time of investigation: *Provided*, That no drug defined in the United States Pharmacopœia or National Formulary shall be deemed to be adulterated under this provision if the standard of strength, quality, or purity be plainly stated upon the bottle, box, or other container thereof although the standard may differ from that determined by the test laid down in the United States Pharmacopœia or National Formulary.

Second. If its strength or purity fall below the professed standard or quality under which it is sold.

In the case of confectionery:

If it contain terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt, or spirituous liquor or compound or narcotic drug.

In the case of food:

First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

Second. If any substance has been substituted wholly or in part for the article.

Third. If any valuable constituent of the article has been wholly or in part abstracted.

Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health: *Provided*, That when in the preparation of food products for shipment they are preserved by any external application applied in such manner that the preservative is necessarily removed mechanically, or by maceration in water, or otherwise, and directions for the removal of said preservative shall be printed on the covering or the package,



the provisions of this Act shall be construed as applying only when said products are ready for consumption.

Sixth. If it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter.

SEC. 8. That the term "misbranded," as used herein, shall apply to all drugs, or articles of food, or articles which enter into the composition of food, the package or label of which shall bear any statement, design, or device regarding such article, or the ingredients or substances contained therein which shall be false or misleading in any particular, and to any food or drug product which is falsely branded as to the State, Territory, or country in which it is manufactured or produced.

That for the purposes of this Act an article shall also be deemed to be misbranded:

In case of drugs:

First. If it be an imitation of or offered for sale under the name of another article.

Second. If the contents of the package as originally put up shall have been removed, in whole or in part, and other contents shall have been placed in such package, or if the package fail to bear a statement on the label of the quantity or proportion of any alcohol, morphine, opium, cocaine, heroin, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate, or acetanilide, or any derivative or preparation of any such substances contained therein.

In the case of food:

First. If it be an imitation of or offered for sale under the distinctive name of another article.

Second. If it be labeled or branded so as to deceive or mislead the purchaser, or purport to be a foreign product when not so, or if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall have been placed in such package, or if it fail to bear a statement on the label of the quantity or proportion of any morphine, opium, cocaine, heroin, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate, or acetanilide, or any derivative or preparation of any of such substances contained therein.

Third. If in package form, and the contents are stated in terms of weight or measure, they are not plainly and correctly stated on the outside of the package.

Fourth. If the package containing it or its label shall bear any statement, design, or device regarding the ingredients or the substances contained therein, which statement, design, or device shall be false or misleading in any particular: *Provided*, That an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases:

First. In the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names, and not an imitation of or offered for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced.

Second. In the case of articles labeled, branded, or tagged so as to plainly indicate that they are compounds, imitations, or blends, and the word "compound," "imitation," or "blend," as the case may be, is plainly stated on the package in which it is offered for sale: *Provided*, That the term blend as used herein shall be construed to mean a mixture of like substances, not excluding harmless coloring or flavoring ingredients used for the purpose of coloring and flavoring only: *And provided further*, That nothing in this Act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their trade formulas, except in so far as the provisions of this Act may require to secure freedom from adulteration or misbranding.

SEC. 9. That no dealer shall be prosecuted under the provisions of this Act

when he can establish a guaranty signed by the wholesaler, jobber, manufacturer, or other party residing in the United States, from whom he purchases such articles, to the effect that the same is not adulterated or misbranded within the meaning of this Act, designating it. Said guaranty, to afford protection, shall contain the name and address of the party or parties making the sale of such articles to such dealer, and in such case said party or parties shall be amenable to the prosecutions, fines, and other penalties which would attach, in due course to the dealer under the provisions of this Act.

SEC. 10. That any article of food, drug, or liquor that is adulterated or misbranded within the meaning of this Act, and is being transported from one State, Territory, District, or insular possession to another for sale, or, having been transported, remains unloaded, unsold, or in original unbroken packages, or if it be sold or offered for sale in the District of Columbia or the Territories, or insular possessions of the United States, or if it be imported from a foreign country for sale, or if it is intended for export to a foreign country, shall be liable to be proceeded against in any district court of the United States within the district where the same is found, and seized for confiscation by a process of libel for condemnation. And if such article is condemned as being adulterated or misbranded, or of a poisonous or deleterious character, within the meaning of this Act, the same shall be disposed of by destruction or sale, as the said court may direct, and the proceeds thereof, if sold, less the legal costs and charges, shall be paid into the Treasury of the United States, but such goods shall not be sold in any jurisdiction contrary to the provisions of this Act or the laws of that jurisdiction: *Provided, however,* That upon the payment of the costs of such libel proceedings and the execution and delivery of a good and sufficient bond to the effect that such articles shall not be sold or otherwise disposed of contrary to the provisions of this Act, or the laws of any State, Territory, District, or insular possession, the court may by order direct that such articles be delivered to the owner thereof. The proceedings of such libel cases shall conform, as near as may be, to the proceedings in admiralty, except that either party may demand trial by jury of any issue of fact joined in any such case, and all such proceedings shall be at the suit of and in the name of the United States.

SEC. 11. The Secretary of the Treasury shall deliver to the Secretary of Agriculture, upon his request from time to time, samples of foods and drugs which are being imported into the United States or offered for import, giving notice thereof to the owner or consignee, who may appear before the Secretary of Agriculture, and have the right to introduce testimony, and if it appear from the examination of such samples that any article of food or drug offered to be imported into the United States is adulterated or misbranded within the meaning of this Act, or is otherwise dangerous to the health of the people of the United States, or is of a kind forbidden entry into, or forbidden to be sold or restricted in sale in the country in which it is made or from which it is exported, or is otherwise falsely labeled in any respect, the said article shall be refused admission, and the Secretary of the Treasury shall refuse delivery to the consignee and shall cause the destruction of any goods refused delivery which shall not be exported by the consignee within three months from the date of notice of such refusal under such regulations as the Secretary of the Treasury may prescribe: *Provided,* That the Secretary of the Treasury may deliver to the consignee such goods pending examination and decision in the matter on execution of a penal bond for the amount of the full invoice value of such goods, together with the duty thereon, and on refusal to return such goods for any cause to the custody of the Secretary of the Treasury, when demanded, for the purpose of excluding them from the country, or for any other purpose, said consignee shall forfeit the full amount of the bond: *And provided further,* That all charges for storage, cartage, and labor on goods which are refused admission or delivery shall be paid by the owner or consignee, and in default of such payment shall constitute a lien against any future importation made by such owner or consignee.

SEC. 12. That the term "Territory" as used in this Act shall include the insular possessions of the United States. The word "person" as used in this Act shall be construed to import both the plural and the singular, as the case

demands, and shall include corporations, companies, societies, and associations. When construing and enforcing the provisions of this Act, the act, omission, or failure of any officer, agent, or other person acting for or employed by any corporation, company, society, or association, within the scope of his employment or office, shall in every case be also deemed to be the act, omission, or failure of such corporation, company, society, or association as well as that of the person.

SEC. 13. That this Act shall be in force and effect from and after the first day of January, nineteen hundred and seven.

Approved, June 30, 1906.

UNITED STATES DEPARTMENT OF AGRICULTURE,

BUREAU OF CHEMISTRY,

H. W. WILEY, Chief of Bureau.

**FOOD INSPECTION DECISIONS 40-43.\***

(F. I. D. 40.)

FILING GUARANTY.

In order that both the Department and the manufacturer may be protected against fraud it is requested that all guaranties of a general character filed with the Secretary of Agriculture in harmony with Regulation 9, Rules and Regulations for the Enforcement of the Food and Drugs Act, June 30, 1906, be acknowledged before a notary or other official authorized to affix a seal. Attention is called to the fact that when a general guaranty has been thus filed every package of articles of food and drugs put up under the guaranty should bear the legend, "Guaranteed under the Food and Drugs Act, June 30, 1906," and also the serial number assigned thereto, if the dealer is to receive the protection contemplated by the guaranty. No other word should go upon this legend or accompany it in any way. Particular attention is called to the fact that nothing should be placed upon the label, or in any printed matter accompanying it, indicating that the guaranty is made by the Department of Agriculture. The appearance of the serial number with the phrase above mentioned upon a label does not exempt it from inspection nor its guarantor from prosecution in case the article in question be found in any way to violate the food and drugs act of June 30, 1906.

Approved:

JAMES WILSON,

*Secretary of Agriculture.*

WASHINGTON, D. C., October 25, 1906.

(F. I. D. 41.)

APPROVAL OF LABELS.

Numerous requests are referred to this Department for the approval of labels to be used in connection with articles of food and drugs under the food and drugs act of June 30, 1906. This act does not authorize the Secretary of Agriculture nor any agent of the Department to approve labels. The Department therefore

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\* F. I. D. Nos. 1 to 39 relate to imported foods only.

will not give its approval to any label. Any printed matter upon the label implying that this Department has approved it will be without warrant. It is believed that with the law and the regulations before him the manufacturer will have no difficulty in arranging his label in harmony with the requirements set forth. If there be questions on which there is doubt respecting the general character of labels, decisions under the food and drugs act will be rendered, of a public character and published from time to time, covering such points.

Approved:

JAMES WILSON,

*Secretary of Agriculture.*

WASHINGTON, D. C., October 25, 1906.

(F. I. D. 42.)

#### MIXING FLOURS.

The following communication has been received respecting the mixing of flours of different cereals:

In conformity with the custom of a century of more, the manufacturers of rye flour, in order to produce a lighter and more easily worked flour, have added a proportion of wheat flour to their rye and branded it "Rye Flour."

This custom simply conforms to the consumers' demand for a whiter loaf and from every standpoint is a perfectly legitimate operation.

Under the interpretation of the food and drugs act of June 30, 1906, apparent restrictions are placed upon this compounding, and I would therefore respectfully ask your ruling upon the following points:

1. Under this interpretation will it be necessary to add the word "compound" to the brands?

2. Will it be necessary in accordance with this interpretation to name in the brand the fact that a wheat admixture has been made, in addition to the use of the word "compound," providing that word is necessary?

3. Referring to paragraph *f*, Regulation 17, which reads as follows:

"An article containing more than one food product or active medicinal agent is misbranded if named after a single constituent,"  
will it be permissible to still name the rye-wheat admixture "rye flour?"

The food and drugs act of June 30, 1906, and the rules and regulations made thereunder, provide for the proper marking of food products and penalties for misbranding.

The act also provides that a food product is not misbranded "in the case of articles labeled, branded, or tagged so as to plainly indicate that they are compounds, imitations, or blends, and the word 'compound,' 'imitation,' or 'blend,' as the case may be, is plainly stated on the package in which it is offered for sale."

Keeping in view these provisions of the law, and rules and regulations made thereunder, it appears that the mixing of rye flour and wheat flour is not prohibited by the law provided the package is marked "compound" or "mixture," the word standing alone and without qualification, and also if the label contain the information which shows that it is properly branded. The mixture may also be denominated a "blend" if rye flour and wheat flour be regarded as like substances. It is held that this information in the case mentioned would be a statement of the ingredients used in making the compound. It is further held that the use of an ingredient in small quantity simply for the purpose of naming

it in the list of ingredients would be contrary to the intent of the law, and therefore that the ingredients must be used in quantities which would justify the appearance of their names upon the label. The statement made of the constituents used should be of a character to indicate plainly that the article is a compound, mixture, or blend.

It is evident from the above explanation that the naming of a mixture of this kind "rye flour" would be plainly a violation of the law and the regulations made thereunder.

Attention is called also to the act of Congress approved June 13, 1898, U. S. Revised Statutes, sections 36 to 49, inclusive, imposing special taxes under the supervision of the Commissioner of Internal Revenue on mixed flour.

Approved:

W. M. HAYS,

*Acting Secretary.*

WASHINGTON, D. C., October 30, 1906.

(F. I. D. 43.)

#### RELABELING OF GOODS ON HAND.

The following is a type of numerous communications received concerning the operation of the food law:

The retail grocers of our city, as well as some of the jobbers, are very much concerned over stocks of canned goods and other similar goods they might have in stock on January 1, 1907, when the new pure-food act goes into effect.

We are under the impression that where there is nothing deleterious to health contained in such goods so held it is not the Department's intention to interfere in any way, shape, or form with them.

Where these goods are held by retailers in our own city does this come within the jurisdiction of the National law, or is it controlled only by State laws?

Similar letters have been received relating to drugs, medicines, and other articles affected by the operation of the law. A general answer is deemed advisable, which, it is hoped, will cover the cases in question.

Section (i) of Regulation 17 provides that—

The regulation regarding the principal label will not be enforced until October 1, 1907, in the case of labels printed and now on hand, whenever any statement therein contained which is contrary to the food and drugs act, June 30, 1906, as to character of contents, shall be corrected by a supplemental label, stamp, or paster. All other labels now printed and on hand may be used without change until October 1, 1907.

It is held that under this regulation labels which contain statements relating to the name of manufacturer, the place of manufacture, etc., which are not in harmony with the general meaning of the law may be used if on hand on the 1st of January, 1907, the day on which the regulations become effective. Any statement, however, respecting the character of the contents which is false or misleading should be corrected as indicated. The correction should secure the obliteration of the misstatement either by placing the supplemental label or paster over it or obliterating it in some other way. If the goods contain artificial color or preservative other than ordinary condimental substances (salt, sugar, vinegar, wood smoke, spices, and condiments of all kinds), that fact

should appear upon the supplemental stamp or paster. If any of the words required to be placed upon drugs and foods in the specific wording of the act do not appear upon the label, such as alcohol, opium, etc., it is held that the correction must include the enumeration of these substances, as provided for in Regulations 28 and 29.

If goods that are packed and sealed in a carton which contains the bottle or other package also sealed and labeled were not in the hands of the manufacturer after January 1, 1907, but had been already delivered to the jobber or dealer, it will be held sufficient to mark the external carton alone, provided the goods are sold only in the unbroken carton. If the container, however, holds a large number of separate packages, it will be necessary that each of the separate packages to be sold as such shall be labeled with the words required specifically by the act.

It must not be forgotten that Regulation 17, section (i), is for the purpose of avoiding the expense of relabeling articles already packed and branded at the time the regulations go into effect and which necessarily could not have been so packed and branded with any intent to evade the provisions of the law, and it is expected that jobbers and dealers will do everything in their power to bring the packages now on hand into as close harmony with the provisions of the act and the regulations made thereunder as possible.

All articles in the hands of manufacturers, jobbers, and dealers on the 1st day of January, 1907, which are sold wholly within the State in which they are found on that date are exempt from the provisions of the act. Thus the use of the supplemental label, stamp, or paster is required only on those articles which on or after the 1st day of January, 1907, enter interstate commerce or are offered for sale in the District of Columbia and the Territories. It is believed that the provisions of Regulation 17, section (i), can be complied with without great annoyance and expense. It will be deemed sufficient if the supplemental pasters and labels are attached at the time the goods are shipped beyond the State line, that is, they need not necessarily be attached to such articles on the 1st day of January, but at any time thereafter when prepared for interstate commerce. Thus the labor of meeting this requirement will be distributed according to the exigencies of actual trade. On and after October 1, 1907, the labels must be originally properly printed, and no further amendment will be considered.

Approved:

W. M. HAYS,

*Acting Secretary.*

WASHINGTON, D. C., November 6, 1906.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

**Amendment No. 6 to B. A. I. Order No. 137 (Regulations Governing the Meat Inspection of the United States Department of Agriculture).**

**REGULATIONS GOVERNING THE USE OF DYES, CHEMICALS,  
AND PRESERVATIVES.**

U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., November 15, 1906.

For the purpose of preventing the use in interstate or foreign commerce of meat or meat-food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food, under the authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (34 Stat., 674), Regulation 39 is hereby amended as hereinafter given. This amendment is designated as Amendment No. 6 to B. A. I. Order No. 137 and shall become effective at once.

JAMES WILSON,  
*Secretary of Agriculture.*

REGULATION 39. (a) No meat or meat-food product for interstate commerce, or for foreign commerce except as hereinafter provided, shall contain any substance which lessens its wholesomeness, or any drug, chemical, harmful dye, or preservative, other than the preservatives common salt, sugar, wood smoke, vinegar, pure spices, and, pending further inquiry, saltpeter. No dye, unless specifically authorized by a Federal statute, shall be used in any meat-food product prepared for interstate or foreign commerce, until the use of such dye has been specifically authorized by the Secretary of Agriculture. The Department is conducting careful investigations into the effect of various dyes upon meat and meat-food products, and, while the investigation of all dyes is not completed, it has been demonstrated that certain dyes do not render meat and meat-food products unsound, unhealthful, unwholesome, or otherwise unfit for human food. The names of harmless dyes which may be used will be communicated to the inspectors in charge from time to time as the investigation progresses, and no meat or meat-food product which contains a dye whose use has not been approved by the Secretary of Agriculture shall be marked "Inspected and Passed" or allowed in interstate or foreign commerce. Inspection and sampling of prepared meat and meat-food products by Department employees shall be con-



ducted in such manner and at such times as may be necessary to secure a rigid enforcement of this regulation.

(b) In accordance with the direction of the foreign purchaser or his agent, meat and meat-food products prepared for export may contain preservatives in proportions which do not conflict with the laws of the foreign countries to which they are to be exported.

When such meat or meat-food products are prepared for export under this regulation they shall be prepared in compartments of the establishment separate and apart from those in which meat and meat-food products are prepared according to paragraph (a) of this regulation, and such products shall be kept separate and shall be labeled with special trade labels, approved by the Secretary of Agriculture, and indicating that such products are for export only. Special export certificates will be issued for meat and meat-food products of this character, and, if the products are not exported, under no circumstances shall they be allowed to enter domestic trade.

The law permits the use, under the above restrictions, of preservatives in meat and meat-food products for export, but does not permit the use of any dye or coloring matter not permitted in meats prepared for interstate trade. Neither is there in the law any authority for allowing a trade label for use in export trade which is not permitted in interstate trade.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

Amendment No. 5 to B. A. I. Order No. 137 (Regulations Governing the Meat Inspection of the United States Department of Agriculture).

**REGULATIONS GOVERNING THE INTERSTATE TRANSPORTATION OF INSPECTED AND PAST MEATS AND MEAT-FOOD PRODUCTS WHICH ARE ALLEGED TO BE OR HAVE BECOME UNFIT FOR FOOD, AND RESTRICTING THEIR ADMISSION INTO ESTABLISHMENTS WHERE INSPECTION IS MAINTAINED.**

U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., November 15, 1906.

For the purpose of preventing the use in interstate commerce of inspected and past meat and meat-food products which after inspection have become unsound, unwholesome, or otherwise unfit for human food, under authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (34 Stat., 674), the following regulation is hereby prescribed for the transportation in interstate commerce of the said meat and meat-food products of cattle, sheep, swine, and goats.

This regulation, which for the purpose of identification is designated as Amendment No. 5 to B. A. I. Order No. 137, shall become effective on and after December 1, 1906.

JAMES WILSON,  
*Secretary of Agriculture.*

REGULATION 61. Meats and meat-food products which have been inspected and past and so marked, and which have been transported from the establishments at which they were prepared into the channels of trade, and which are alleged or known to have become unsound, unwholesome, or otherwise unfit for human food, may be transported in interstate commerce under the following restrictions:

(1) Inspected and marked meat or meat-food product which is alleged to be unsound, unwholesome, or otherwise unfit for food may be shipped by the owner thereof from one State or Territory or the District of Columbia to any establishment at which inspection is maintained in the same or a different State or Territory, if a written permit in duplicate for such shipment be first had and obtained from the Chief of the Bureau of Animal Industry. In all such shipments both the original and duplicate copies of the permits shall be surrendered to the

carrier accepting the meat or meat-food product, who shall require the shipper to furnish three copies of the form of certificate hereinafter given. One of these certificates and the duplicate copy of the permit shall be retained by the carrier; another copy of the certificate, together with original permit, shall be mailed by the carrier to the Chief of the Bureau of Animal Industry, Washington, D. C.; and the third copy shall be addressed and mailed by the carrier to the Bureau of Animal Industry inspector in charge at the point to which the shipment is consigned. Upon the arrival of the shipment at the establishment where inspection is maintained the inspector in charge shall cause a careful inspection to be made of the shipment, to determine whether or not it is unsound, unwholesome, or otherwise unfit for food. Should the meat or meat-food product contained in the shipment prove to be unsound, unwholesome, or otherwise unfit for food, it shall at once be stamped "U. S. Inspected and Condemned" and be immediately tanked or removed to the condemned room. If the meat or meat-food product contained in the shipment shall prove to be sound, wholesome, and fit for food, the inspector shall allow the meat or meat-food product to enter the establishment.

(2) Inspected and marked meat or meat-food product which is alleged to be unsound, unwholesome, or otherwise unfit for human food may be shipped by the owner thereof from one State or Territory or the District of Columbia to any jobber, wholesaler, or other dealer from whom the said meat or meat-food product was purchased, if a written permit, in duplicate, for such shipment be first had and obtained from the chief of the Bureau of Animal Industry. In all such shipments both the original and duplicate copies of the permits shall be surrendered to the carrier accepting the meat or meat-food product, who shall require the shipper to furnish two copies of the form of certificate hereinafter given. One of these certificates and the duplicate copy of the permit shall be retained by the carrier, and the other copy of the certificate, together with the original permit, shall be mailed by the carrier to the Chief of the Bureau of Animal Industry, Washington, D. C. If the meat or meat-food product which is shipped under this regulation proves to be unsound, unwholesome, or otherwise unfit for human food, it may not be reshipped in interstate commerce as a food product. Attention is directed to the meat-inspection law, which provides a penalty of a fine of \$10,000 and imprisonment for two years for any person who ships for human consumption in interstate or foreign trade any meat or meat-food product which is unsound, unwholesome, or otherwise unfit for human food.

(3) Inspected and marked meat or meat-food product which is known to be unsound, unwholesome, or otherwise unfit for human food may be shipped by the owner thereof from one State or Territory or the District of Columbia to another State or Territory or the District of Columbia, for use in the arts, such as the shipment of lard which has become unfit for food to a soap factory for use in making soap. No such shipment shall be made unless and until a written permit, in duplicate, shall be first had and obtained from the Chief of the Bureau of Animal Industry. In all such shipments both the original and duplicate copies of the permits shall be surrendered to the carrier accepting the meat or meat-food product, who shall require the shipper to furnish two copies of the form of certificate hereinafter given. One of these certificates and the duplicate copy of the permit shall be retained by the carrier, and the other copy of the certificate,

together with the original permit, shall be mailed by the carrier to the Chief of the Bureau of Animal Industry, Washington, D. C. In addition to the above requirements, no such shipment shall be accepted by any carrier unless and until the meat or meat-food product which is known to be unsound, unwholesome, or otherwise unfit for food shall have been denatured or otherwise rendered unavailable for food purposes under the supervision of an employee of the Bureau of Animal Industry. The carrier shall also require the shipper to certify that the meat or meat-food product has been so denatured or otherwise rendered unavailable for food purposes. The written certificate of the shipper that the meat or meat-food product has been denatured shall be forwarded by the carrier to the chief of the Bureau of Animal Industry with the original permit and the shipping certificate.

(4) The certificate required by this regulation shall be in the following form and shall in all cases show a description and the weight of the meat or meat-food product:

Date....., 190  
Name of carrier to which offered .....  
Shipper .....  
Consignee .....  
Point of shipment .....  
Destination .....  
Car number and initial.....

The following-described meats or meat-food products have been inspected and past according to act of Congress of June 30, 1906, and are so marked. It is { alleged } that the said meat or meat-products are unsound, unwholesome, and unfit for food. { known }

DESCRIPTION AND WEIGHT OF SHIPMENT.

.....  
.....  
.....  
.....

(Signature of shipper.)

(5) In shipments of meat and meat-food products which are known to be unsound, unwholesome, or otherwise unfit for human food, and which therefore require an additional certificate of denaturing, it is suggested that the following form of certificate be used:

....., of the city of ..... and State of ..... hereby certifies that the following-described inspected and marked meat or meat-food product has been denatured or otherwise rendered unavailable for food purposes under the supervision of....., an employee of the Bureau of Animal Industry, and is offered to the..... for transportation from..... in the State of....., to..... in the State of.....

DESCRIPTION OF MEAT.

.....  
.....  
.....  
.....

(Signature of shipper.)

....., 190

(6) On all shipments made under Regulation 61 the waybills, transfer bills, running slips, or conductor's cards accompanying the said shipment of meat or meat-food products must have embodied in, stamped upon, or attached to the same a certificate in the following form by the issuing railroad company:

(Name of railroad company.)

U. S. inspected and past and alleged unsound, unwholesome, or otherwise unfit for food, as evidenced by shipper's certificate on file with initial carrier.

(Signed)....., *Agent.*

UNITED STATES DEPARTMENT OF AGRICULTURE,

BUREAU OF CHEMISTRY,

H. W. WILEY, Chief of Bureau.

**FOOD INSPECTION DECISIONS 44 AND 45.**

(F. I. D. 44.)

SCOPE AND PURPOSE OF FOOD-INSPECTION DECISIONS.

From the tenor of many inquiries received in this Department it appears that many persons suppose that the answers to inquiries address to this Department, either in letters or in published decisions, have the force and effect of the rules and regulations for the enforcement of the food and drugs act of June 30, 1906. The following are illustrations of the inquiries received by this Department:

Must we stamp all goods as conforming to the drug and food law, whether they have alcohol and narcotics therein, or not?

On a brand of salad oil, which is a winter-strain cotton-seed oil, can it be sold under the brand of salad oil, or must it state that it is cotton-seed oil?

It seems highly desirable that an erroneous opinion of this kind should be corrected. The opinions or decisions of this Department do not add anything to the rules and regulations nor take anything away from them. They therefore are not to be considered in the light of rules and regulations. On the other hand, the decisions and opinions referred to express the attitude of this Department in relation to the interpretation of the law and the rules and regulations, and they are published for the information of the officials of the Department who may be charged with the execution of the law and especially to acquaint manufacturers, jobbers, and dealers with the attitude of this Department in these matters. They are therefore issued more in an advisory than in a mandatory spirit. It is clear that if the manufacturers, jobbers, and dealers interpret the rules and regulations in the same manner as they are interpreted by this Department, and follow that interpretation in their business transactions, no prosecution will lie against them. It needs no argument to show that the Secretary of Agriculture must himself come to a decision in every case before a prosecution can be initiated, since it is on his report that the district attorney is to begin a prosecution for the enforcement of the provisions of the act.

In so far as possible it is advisable that the opinions of this Department respecting the questions which arise may be published. It may often occur that the opinion of this Department is not that of the manufacturer, jobber, or dealer. In this case there is no obligation resting upon the manufacturer, jobber, or dealer to follow the line of procedure marked out or indicated by the

opinion of this Department. Each one is entitled to his own opinion and interpretation and to assume the responsibility of acting in harmony therewith.

It may be proper to add that in reaching opinions and decisions on these cases the Department keeps constantly in view the two great purposes of the food and drugs act, namely, to prevent misbranding and to prohibit adulteration. From the tenor of the correspondence received at this Department and from the oral hearings which have been held, it is evident that an overwhelming majority of the manufacturers, jobbers, and dealers of this country are determined to do their utmost to conform to the provisions of the act, to support it in every particular, and to accede to the opinions of this Department respecting its construction. It is hoped, therefore, that the publication of the opinions and decisions of the Department will lead to the avoidance of litigation which might arise due to decisions which may be reached by this Department indicating violations of the act, violations which would not have occurred had the opinions and decisions of the Department been brought to the attention of the offender.

JAMES WILSON,  
*Secretary of Agriculture.*

WASHINGTON, D. C., December 1, 1906.

(F. I. D. 45.)

#### BLENDED WHISKIES.

Many letters are received by the Department making inquiries concerning the proper method of labeling blended whisky. Manufacturers are anxious to know the construction placed by the Department upon this particular part of the food and drugs act of June 30, 1906, and to ascertain under what conditions the words "blended whisky" or "whiskies" may be used. The following quotation from one of these letters presents a particular case of a definite character:

On account of the uncertainty prevailing in our trade at the present time as to how to proceed under the pure-food law and regulations regarding what will be considered a blend of whiskies, I am taking the liberty of expressing to you to-day two samples of whisky made up as follows:

Sample A contains 51 per cent of Bourbon whisky and 49 per cent of neutral spirits. In this sample a small amount of burnt sugar is used for coloring, and a small amount of prune juice is used for flavoring, neither of which increases the volume to any great extent.

Sample B contains 51 per cent of neutral spirits and 49 per cent of Bourbon whisky. Burnt sugar is used for coloring, and prune juice is used for flavoring, neither of which increases the volume to any great extent.

I have marked these packages "blended whiskies" and want your ruling as to whether it is proper to thus brand and label such goods.

My inquiry is for the purpose of guiding the large manufacturing interests in the trade that I represent.

In a subsequent letter from the same writer the following additional statement is made:

The reason for wanting your decision or ruling in this matter is just this: No house in the trade can afford to put out goods and run the risk of seizure and later litigation by the Government on account of the odium that would be attached in fighting the food and drugs act.

The question presented is whether neutral spirits may be added to Bourbon whisky in varying quantities, colored and flavored, and the resulting mixture

be labeled "blended *whiskies*." To permit the use of the word "whiskies" in the described mixture is to admit that flavor and color can be added to neutral spirits and the resulting mixture be labeled "whisky." The Department is of opinion that the mixtures presented can not legally be labeled either "blended whiskies" or "blended whisky." The use of the plural of the word "whisky" in the first case is evidently improper for the reason that there is only one whisky in the mixture. If neutral spirit, also known as cologne spirit, silent spirit, or alcohol, be diluted with water to a proper proof for consumption and artificially colored and artificially flavored, it does not become a whisky, but a "spurious imitation" thereof, not entirely unlike that defined in section 3244, Revised Statutes. The mixture of such an imitation with a genuine article can not be regarded as a mixture of like substances within the letter and intent of the law.

JAMES WILSON,  
*Secretary of Agriculture.*

WASHINGTON, D. C., December 1, 1906.



UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

**Amendment No. 7 to B. A. I. Order No. 137 (Regulations Governing the Meat Inspection of the United States Department of Agriculture).**

**REGULATIONS GOVERNING THE ADMISSION INTO ESTABLISHMENTS WHERE INSPECTION IS MAINTAINED OF THE CARCASSES AND MEAT AND MEAT-FOOD PRODUCTS OF ANIMALS WHICH HAVE NOT HAD POST-MORTEM INSPECTION BY AN INSPECTOR OF THE BUREAU OF ANIMAL INDUSTRY AT THE TIME OF SLAUGHTER; THE INTERSTATE AND FOREIGN TRANSPORTATION OF IMPORTED MEAT AND MEAT-FOOD PRODUCTS; AND THE INTERSTATE TRANSPORTATION OF CERTAIN MEAT AND MEAT-FOOD PRODUCTS ON HAND ON OCTOBER 1.**

U. S. DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., December 5, 1906.

For the purpose of preventing the use in interstate commerce of meat and meat-food products which are unsound, unwholesome, unhealthful, or otherwise unfit for human food, under authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (34 Stat., 674), the following new regulations, and an amendment to the amendment to paragraph (j) of Regulation 50, are hereby prescribed for the transportation in interstate and foreign commerce of the meat and meat-food products of cattle, sheep, swine, and goats.

This regulation, which for the purpose of identification is designated as Amendment No. 7 to B. A. I. Order No. 137, shall become and be effective at once.

JAMES WILSON,  
*Secretary of Agriculture.*

REGULATION 62. Meat and meat-food products from the carcasses of animals which have not had post-mortem inspection by inspectors of the Bureau of Animal Industry at the time of slaughter will not, except as hereinafter provided, be admitted into establishments where inspection is maintained. The exception to this rule applies only to carcasses with the head and all viscera, except the stomach, bladder, and intestines, held together by natural attach-

ments. Such carcasses, if offered for admission into an establishment where inspection is maintained, shall be inspected, and if found to be free from disease and otherwise sound, wholesome, healthful, and fit for human food, they will be marked "U. S. Inspected and Passed" and admitted into establishments where inspection is maintained. If found to be diseased, unsound, unwholesome, unhealthful, or otherwise unfit for human food, they will be marked "U. S. Inspected and Condemned," and the proprietor of the establishment where inspection is maintained will be required to destroy them for food purposes. This is an absolute requirement of the meat-inspection law and can not be waived or departed from in any instance or particular.

REGULATION 63. Establishments where inspection is maintained which also process or prepare imported meat or meat-food products will be required to conduct such processing or preparation in a building separate and apart from the building in which domestic meat and meat-food products are prepared under Department supervision. The Attorney-General, in opinion dated September 27, 1906, ruled that the meat-inspection amendment did not cover the transportation of imported meat and meat-food products. Therefore, imported meat and meat-food products which have not been mixt with or added to domestic meat or meat-food products may be exported to any foreign country without the certificate required by Regulation 45, as amended by Amendment No. 3 to B. A. I. Order No. 137. However, the collector of customs should require an affidavit that any such meat or meat-food product offered for export is in fact imported and not mixt with or added to any domestic meat or meat-food product.

REGULATION 64. Imported meat and meat-food product which has not been mixt with or added to domestic meat or meat-food product may be transported in interstate commerce. When any imported meat or meat-food product which has not been mixt with or added to any domestic meat or meat-food product is offered to any common carrier for transportation from one State or Territory or the District of Columbia to another State or Territory or the District of Columbia as interstate or foreign shipment, the person, firm, or corporation offering such imported meat or meat-food product shall make the following certificate, in duplicate, and deliver the same to the common carrier:

Date....., 190

Name of carrier to which offered.....

Shipper.....

Consignee.....

Point of shipment.....

Destination.....

Car number and initial.....

(Need not be given in the case of express companies or ships.)

The following-described meats or meat-food products are imported and have not been mixt with or added to any domestic meat or meat-food product, and are sound, healthful, wholesome, and fit for human food:

*Description and weight of shipment.*

.....

.....

.....

.....

.....  
(Signature of shipper.)

The duplicate certificate shall be forwarded immediately by the initial carrier to the Chief of the Bureau of Animal Industry, Washington, D. C. The waybills, transfer bills, running slips, or conductors' cards accompanying a car containing a shipment of imported meat or meat-food product made under this regulation must have embodied in, stamped upon, or attached to the same a certificate in the following form by the issuing railroad company:

(Name of railroad company).....

Imported meat and meat-food product not mixt with domestic meat or meat-food product, as evidenced by shipper's certificate on file with initial carrier.

(Signed)....., *Agent.*

REGULATION 50. Paragraph (j) of Regulation 50, as amended by Amendment No. 4 to B. A. I. Order No. 137, is hereby further amended by inserting the words "and December" after the word "November" in the seventh line of the said paragraph and by inserting the words "and January, 1907," after the figures "1906" in the seventh line of said paragraph. The effect of this amendment is to add two months to the time during which sweet pickled, dry salted, smoked, and other similar meats, lard, lard compounds, lard substitutes, butterine, and oleomargarine, which were on hand on October 1, may be inspected and past and moved in interstate commerce.

UNITED STATES DEPARTMENT OF AGRICULTURE,

BUREAU OF CHEMISTRY.

H. W. WILEY, Chief of Bureau.

FOOD INSPECTION DECISIONS 46-48.

46. Fictitious Firm Names. 47. Flavoring Extracts. 48. Substances  
Used in the Preparation of Foods.

(F. I. D. 46.)

FICTITIOUS FIRM NAMES.

The following extract from a letter is typical of a question frequently asked:

In connection with our manufacture of flavoring extracts, we produce an article containing a certain percentage of artificial coumarin and vanillin. This product has been placed on the market under the name of ——— and Company, a fictitious firm, altho dealers have always understood that it was our product. Is there any objection to our continuing to brand the product as manufactured by ——— and Company?

The same question has frequently been asked by importers who state that they desire to assume the responsibility for particular brands.

It has been held by the Attorney-General (F. I. D. 2) that—

the words “\* \* \* Daisy Sugar Corn, ——— ——— Company, Milwaukee, Wis.,” clearly imply that the goods referred to are manufactured or prepared by that company in Wisconsin. The general public, unfamiliar with trade practices, would inevitably reach that conclusion.

Regulation 18 provides that if the name of the manufacturer and the place of manufacture be given, they must be the true name and the true place. It would appear, therefore, that the use of a fictitious name in such a manner that it would be understood to be the name of the manufacturer would be clearly a violation of Regulation 18. It is apparent that the provisions of Regulation 18 will not be fulfilled by the nominal incorporation of a fictitious firm. The regulations require that goods must be actually manufactured by the firm represented on the label as the manufacturer.

When a proper name, other than that of the manufacturer, is placed upon a label it must not be used in the possessive. For instance,

CHARLES GASTON'S  
OLIVE OIL  
BORDEAUX

can only be properly used on an oil manufactured by Charles Gaston at Bordeaux. The same is true if the designation

GASTON'S  
OLIVE OIL  
BORDEAUX

be employed.

On the other hand, the word "Gaston" might be used in an adjective sense, and not in the possessive case as qualifying the words "olive oil," in a manner that would indicate that it represented a brand and not a manufacturer, as

GASTON OLIVE OIL.

In such case, however, neither given name nor initials should be employed. The word "Gaston" should be in the same type as "olive oil" and in equal prominence, thus forming a part of the label. Again, "Gaston," or "Charles Gaston," might be used accompanied by the word "Brand," as,

OLIVE OIL  
GASTON BRAND.

Or,

OLIVE OIL  
CHARLES GASTON BRAND.

In such cases, however, the name of the manufacturer should also be given.

JAMES WILSON,  
*Secretary of Agriculture.*

WASHINGTON, D. C., December 13, 1906.

(F. I. D. 47.)

#### FLAVORING EXTRACTS.

The percentage of alcohol is not required to be stated in the case of extracts sold for the preparation of foods only. It is held, however, that extracts which are sold or used for any medicinal purpose whatever should have the percentage of alcohol stated on the label.

Numerous inquiries are received regarding the proper designation of products made in imitation of flavoring extracts or in imitation of flavors. Such products include "Imitation vanilla flavor," which is made from such products as tonka extract, coumarin, and vanillin, with or without vanilla extract. They may also include numerous preparations made from synthetic fruit ethers intended to imitate strawberry, banana, pineapple, etc. Such products should not be so designated as to convey the impression that they have any relation to the flavor prepared from the fruit. Even when it is not practicable to prepare the flavor directly from the fruit, "imitation" is a better term than "artificial."

These imitation products should not be designated by terms which indicate in any way by similarity of name that they are prepared from a natural fruit or from a standard flavor. The term "venallos," for instance, would not be a proper descriptive name for a preparation intended to imitate vanilla extract. Such products should either be designated by their true names, such as "vanilla and vanillin flavor," "vanillin and coumarin flavor," or by such terms as "imitation vanilla flavor" or "vanilla substitute."

Articles in preparation of which such substitutes are employed should not be labeled as if they were prepared from standard flavors or from the fruits themselves. For instance, ice cream flavored with imitation strawberry flavor should not be designated as "strawberry ice cream." If sold as strawberry ice cream without a label the product would appear to be in violation of Regulation 22.

Artificial colors should be declared whenever present.

JAMES WILSON,  
*Secretary of Agriculture.*

WASHINGTON, D. C., December 13, 1906.

(F. I. D. 48.)

#### SUBSTANCES USED IN THE PREPARATION OF FOODS.

The following letter was recently received at the Department of Agriculture:

We import a preparation of gelatin preserved with sulphurous acid for the purpose of fining wine. This gelatin is not used as a food and does not remain in the wine, altho a small amount of the sulphurous acid may be left in the wine. Please inform us if the sale of this product is a violation of the food law.

It is held that the products commonly added to foods in their preparation are properly classed as foods and come within the scope of the food and drugs act. The Department can not follow a food product into consumption in order to determine the use to which it is put. Pending a decision on the wholesomeness of sulphurous acid as provided in Regulation 15 (b), its presence should be declared.

JAMES WILSON,  
*Secretary of Agriculture.*

WASHINGTON, D. C., December 13, 1906.

#### LIST OF FOOD INSPECTION DECISIONS.

- F. I. D. 1-39 practically concern imported foods only and were not issued under the food and drugs act, June 30, 1906.
- |          |   |   |
|----------|---|---|
| F. I. D. | { | 40. Filing Guaranty.                                |
|          |   | 41. Approval of Labels.                             |
|          |   | 42. Mixing Flours.                                  |
| F. I. D. | { | 43. Relabeling of Goods on Hand.                    |
|          |   | 44. Scope and Purpose of Food Inspection Decisions. |
| F. I. D. | { | 45. Blended Whiskies.                               |
|          |   | 46. Fictitious Firm Names.                          |
|          |   | 47. Flavoring Extracts.                             |
|          |   | 48. Substances Used in the Preparation of Foods.    |

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

**Amendment No. 8 to B. A. I. Order No. 137 (Regulations Governing the Meat Inspection of the United States Department of Agriculture).**

**AMENDMENT TO REGULATIONS 50, 53, 55, 56, 61, AND 64,  
GOVERNING THE INTERSTATE AND FOREIGN TRANS-  
PORTATION OF MEATS AND MEAT-FOOD PRODUCTS.**

U. S. DEPARTMENT OF AGRICULTURE.

OFFICE OF THE SECRETARY.

WASHINGTON, D. C., January 21, 1907.

For the purpose of preventing the use in interstate or foreign commerce of meats and meat-food products which are unsound, unwholesome, unhealthful or otherwise unfit for human food, under authority conferred upon the Secretary of Agriculture by the provisions of the act of Congress approved June 30, 1906 (34 Stat., 674), the following amendments to Regulations 50, 53, 55, 56, 61, and 64 are hereby prescribed for the transportation in interstate and foreign commerce of the carcasses, parts of carcasses, meats, and meat-food products of cattle, sheep, swine, and goats.

This amendment, which for the purpose of identification is designated as Amendment No. 8 to B. A. I. Order No. 137, shall become and be effective on and after February 1, 1907.

JAMES WILSON,  
*Secretary of Agriculture.*

**REGULATION 50.** Paragraph (*j*) of Regulation 50, as amended by Amendments Nos. 4 and 7 to B. A. I. Order No. 137, is hereby further amended by changing the wording of the proviso (commencing with the seventh line of said paragraph as it appears in Amendment No. 4) to read as follows: "*Provided, That during the months of October, November, and December, 1906, and January, February, and until March 15, 1907, shippers who are in possession*" etc. The effect of this amendment is to allow until March 15, 1907, to dispose of the remaining sweet pickled, dry salted, smoked, and other similar meats, lard, lard compounds, etc., which were prepared or were in process of preparation prior to October 1, 1906.

**REGULATIONS 53, 55, 56, 61, and 64.** The requirement of each of the above regulations that car numbers and initials shall be shown on the various shipping certificates is hereby modified to include only carload shipments. On certificates for less than carload shipments the car numbers and initials need not be shown.

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY.

**INSTRUCTIONS CONCERNING TRADE LABELS UNDER THE  
MEAT-INSPECTION LAW AND REGULATIONS (Revised).**

WASHINGTON, D. C., December 10, 1906.

TO INSPECTORS AND OTHERS:

The following instructions are intended, so far as possible, to cover the interpretation of the meat-inspection law regarding trade labels, and include tentative rulings made by the Pure Food Commission under the pure-food law. These tentative rulings of the Pure Food Commission are made known at this time by the Bureau of Animal Industry in order that labels for meat-food products may be prepared in conformity with both laws.

The essential features of a label must be placed together in any desired order without interspersing any descriptive, qualifying, or advertising matter. The essential features are as follows:

The true name of the product.

The true name of the manufacturer, if given.

The true name of the place of manufacture, if given.

The name of the manufacturer is not required under the meat-inspection or pure-food laws, but if given it must be the true name.

Persons, firms, or corporations owning subsidiary companies having legal entity may use the names of such companies, provided application has been made for inspection, and it has been granted; the inspection legend in such case to bear the establishment number of the parent firm or corporation.

The name of the place of manufacture, other than the establishment number embodied in the inspection legend, is not required under the meat-inspection law. The name of the place of manufacture is not required under the pure-food law, except in the case of compounds, mixtures, imitations, or blends.

The inspection legend "U. S. Inspected and Passed under the act of June 30, 1906," and the establishment number in plain characters of uniform size, which shall be in proportion to the general lettering of the label, must be separately and prominently embodied in all trade labels; except that until October 1, 1907, the supply of trade labels now on hand, which bear no false or deceptive names of the product in the container labeled, may be used; provided that the present reference to inspection thereon is obliterated, and a sticker approved by the inspector in charge and bearing the statement "U. S. Inspected and Passed under the act of June 30, 1906," and the establishment number, is firmly affixed to the package in connection, with the label used.

In the case of meats contained in cartons, or in wrappers of paper, cloth, or other similar substance, the inspection legend and establishment number may be embodied in a sticker or seal of proportionate size, prominently displayed



with the trade label but not necessarily a part of the trade label, such stickers or seals to be approved by the Department of Agriculture. When a package is fastened by a seal, or other device, embodying the establishment number and the inspection legend, such seal shall also be approved by the Department.

The wording of all trade labels and the inspection legend embodied therein, and the wording on stickers or seals, must be in English; except that, if so desired, the name of the product may be inserted also in a foreign language as an explanation or translation of the English name; for example, "Loin Roll" or "Lachschenken."

*Export labels and brands.*—While labels to be affixed to goods for foreign shipment may be printed in a foreign language, the same rules shall apply with reference to false labeling and naming of ingredients as shall apply to goods prepared for domestic use. The meat-inspection law does not require boxes or barrels, except such as contain lard, to be stenciled or labeled, as these containers will be marked with an inspection stamp; but if they are labeled or stenciled it must be in accordance with the rules pertaining to labeling and stenciling domestic meat food products. The inspection legend and establishment number must in all cases appear in English; but if desired they may, literally translated, appear in the language of the country to which the package is destined.

*False or deceptive names.*—No picture, design, or device which gives any false indication of origin or quality shall be used upon any label. Any statement, design, or device regarding the virtues or properties of the materials contained in the package that is false in any particular is prohibited by law; for example, the picture of a pig appearing on a label which is placed upon beef product; the picture of a chicken appearing upon a label placed upon product composed of veal or pork; the picture of a leaf or leaves appearing in connection with the word "Lard" is considered deceptive, except that when used on packages containing leaf lard it may appear separately from the word "Lard" as a brand; e.g., "Maple Leaf Brand." Such words as "Special," "Superior," "Fancy," "Selected," etc., placed upon products which are more inferior than implied by the term used are false and deceptive.

*Geographical names.*—Geographical names may be used only with the words "Cut," "Type," "Brand," or "Style," as the case may be, except upon foods produced or manufactured in the place, State, Territory, or country named; for example, "Virginia Ham" not produced in Virginia must be marked "Virginia Style Ham;" "English Brawn" must be "English Style Brawn;" "English Sausage" should be "English Style Sausage;" "Bologna Sausage" should be "Bologna Style Sausage;" "Frankfurter Sausage" should be "Frankfurter Style Sausage;" "Cumberland Middles" should be "Cumberland Cut Middles;" "Winchester Sausage" or "Winchester Ham" should be "Winchester Brand Sausage" or "Winchester Brand Ham," etc.

*Names of breeds of live stock and names of persons.*—Names indicative or imitative of distinctive types or breeds of live stock can not be used unless the product is actually made of the meat from animals of those breeds; for example, "Berkshire Pork" can not be used unless the product is from the Berkshire breed of hogs.

Names of persons when used as brands or applied to cuts will not be considered deceptive.

*Products prepared for another establishment.*—When an article is prepared by an establishment for another firm or individual, if the name of the said firm or individual is to appear upon the label, the statement must be made that the article was “prepared for” or “manufactured for” the firm or individual. Names of subsidiary companies which have legal entity may be used without the prefix “prepared for” or “manufactured for”; and such subsidiary companies must make application for inspection under the establishment number of the parent organization. The name of a firm or individual may appear as the distributor of the product.

*Ham.*—The word “Ham” without a prefix indicating the species of animal is considered to be a pork ham. Trimmings removed from the ham and used in the preparation of potted or prepared meats or sausage, or when used alone, may be known as “Potted Ham” or “Ham Sausage.” The word “Ham” can not be used on any prepared ham product without some word clearly and truthfully indicating the method of preparation; thus, “Potted Ham,” “Deviled Ham,” “Minced Ham,” “Ham Sausage.”

*Tongue.*—No species of animal need be indicated; but if the species is specified, the statement must be true. In connection with the preparation of tongue products, the rulings will be the same as those in connection with the preparation of ham products; for example, “Potted Tongue” must be made of tongue or tongue trimmings.

#### EXAMPLES.

##### HAM, TONGUE, SHOULDER, ETC.

*Potted, Deviled, Minced, or otherwise prepared Ham.*—Name considered false or deceptive unless product is actually made of ham or ham trimmings. If any other pork is used the mixture can be called “Pork Meats” or “Potted Meats.”

*Potted, Deviled, Minced, or otherwise prepared Tongue.*—Must be made only of tongue or tongue trimmings.

*Picnic Hams.*—Can not be called “Hams;” may be called “Picnics” or “Picnic Shoulders.”

*California or Cala Hams.*—Can not be called “Hams;” may be called “Calas.”

*Boneless Hams, as applied to shoulder butts.*—May be called “Boneless Picnics” or “Boneless Butts.”

*Cottage Hams.*—May be called “Cottage Style Ham Sausage,” if made from ham or ham trimmings.

*Dewey Ham.*—Is a loin. May be called “Dewey Loin;” can not be called “Ham.”

*Westphalia Ham.*—May be called “Westphalia Style Ham.”

*York Ham.*—May be called “York Cut Ham” or “York Style Ham.”

*New York Shoulder.*—May be called “New York Style Shoulder.”

*English Cured Ham.*—May be called “English Style Cured Ham.”

##### SAUSAGE.

*Pork Sausage.*—Can not be so called unless made from pork meat only.

*Little Pig Sausage.*—May be called “Little Pork Sausage” or “Pigmy Sausage.”

*Farm Sausage.*—Call “Farm Style Sausage.”

*Bologna Sausage.*—Call “Bologna Style Sausage.”

*Oxford Sausage.*—Call “Oxford Style Sausage.”

*Vienna Sausage.*—Call “Vienna Style Sausage.”

*Frankfurt Sausage or Frankfurter Sausage.*—Call “Frankfurt Style Sausage” or “Frankfurter Style Sausage.”

*Liver Sausage or Blood Sausage.*—Names of other ingredients must be shown.

## LARD, ETC.

*Pure Lard.*—Must be made of sweet, clean, clear hog fat. The addition of not to exceed 5 per cent of clean, sweet lard stearin is allowed.

*Leaf Lard.*—Must be made wholly from leaf fat of hogs, without the addition of fat from any other portion of the carcass.

*Kettle Rendered Lard.*—Must be actually rendered in an open or closed kettle, without the addition of pressure or contact of live steam with the product.

*Open Kettle Rendered Lard.*—Must be actually rendered in an open kettle, as above.

*Country Lard.*—Must be made in the country in an open kettle; can be called "Country Style Lard," if rendered in an open kettle.

*Home Made Lard.*—Call "Home Made Style Lard."

*Lard Compound.*—The pure lard must be equal to or greater than any other one ingredient.

## OTHER PRODUCTS.

*Roast Beef or Roast Mutton.*—May be used provided a description of the method of preparation appears in letters of prominent size in connection with the words "Roast Beef" or "Roast Mutton."

*Rump Steak.*—Can not be so called unless made from rump steak only.

*Minced Steak.*—Clearly a misnomer, unless made from steaks.

*Brawn.*—Can not be so called unless made from pork only.

*Veal Loaf.*—Can not be so called unless the meat used is veal only.

*Extract of Beef.*—Must be actually made from beef.

*Mixtures and Compounds.*—Mixtures, when the name plainly indicates a mixture, such as "Sausage," "Hash," "Mince," etc., need not be marked "Compound." Other mixtures not so indicated by their names must be marked "Compound." In the case of compounds containing lard, stearin, or other fats, or cotton-seed oil, and in compounds containing stearin and cotton-seed oil, the names of the ingredients must appear upon the label. If the compound has a distinctive name, such as "White Cloud," "Cottolene," "Cottosuet," etc., the word "Compound" need not appear, but the ingredients must be stated upon the label. When the word "Compound" is used it can not be qualified by any adjective either before or after, nor can the name of any product be attached to the word "Compound," unless that product is the principal ingredient of the compound.

Unless mince-meat, or pork and beans, or soups contain a considerable proportion of meat, they will not be considered meat food products.

*Sausages and Chopped Meats.*—The word "Sausage" without a prefix indicating the species of animal is considered to be a mixture of minced or chopped meats, with or without spices. If any species of animal is indicated, as "Pork Sausage," the sausage must be wholly made from the meat of that species. If any flour or other cereal is used, the label must so state. If any other meat product is added, the label must so state; for example, "Pork and Beef Sausage;" "Pork, Beef, and Flour" (or other cereal); or "Pork and Beef Sausage, Cereal Added."

Meat loaves, without a prefix indicating any particular kind of meat, are held to be mixtures of meats, flour (or other cereal), milk, eggs, butter, or other ordinary loaf ingredients. If any particular kind of meat is indicated, that kind must be the only meat used; for example, "Veal Loaf" must be made from veal and loaf ingredients only. If any other meat is used the label must so state; for example, "Veal and Pork Loaf;" "Veal, Beef, and Pork Loaf."

The word "Paté" is synonymous with "Loaf."

*Flour* or other cereals may be used in the preparation of loaves, gravies, or soups without being stated on the label.

*Canned Products.*—If flour or other cereal is used in any canned product which is not labeled "Loaf," "Paté," or "Soup," or which is not prepared with gravy, the label must clearly show the presence of the flour or other cereal.

#### LARD, LARD COMPOUNDS, AND LARD SUBSTITUTES.

All tins, pails, tierces, or other true containers of lard, lard compounds, or lard substitutes must be so marked as to clearly indicate the ingredients from which made.

*Leaf Lard.*—Leaf lard must be made from the leaf fat only, and no other part of the hog fat can be added thereto.

*Kettle Rendered Lard.*—Kettle rendered or kettle lard may be rendered in either open or closed kettles, not under pressure, and no live steam must come in contact with the product. When labeled "Open Kettle Rendered," it must be rendered in an open kettle.

*Lard and Lard Stearin.*—Pure lard, made from sweet, clear, and clean hog fat to which not to exceed 5 per cent of pure, sweet lard stearin has been added, may be labeled "Pure Lard." If lard contains more than 5 per cent of added lard stearin, or any per cent of other stearin, the addition must be so stated on the label, with the name of the kind of stearin used; for example, "Pure Lard with Lard Stearin Added," or "Pure Lard with Oleo Stearin Added," or "Lard with Oleo Stearin Added," or "Lard with Tallow Added." When the word "Pure" is used in connection with the word "Lard," the lard must be made only from sweet, clean, clear hog fat. In all such cases the lard must equal or exceed in quantity the added animal fat. The words "Pure Lard with . . . . . Added" can not be used when any ingredient other than pure, clean animal fat is added. The percentage of added stearin or other animal fat may be given if desired.

*Lard Compounds.*—A substance composed of lard, stearin, or other animal fat and a vegetable oil may be labeled "Lard Compound," but in such case the names of all the ingredients must be shown upon the label; and in all cases the proportion of lard must be equal to or greater than any other one of the ingredients.

*Compounds, or Lard Substitutes.*—In compounds, or lard substitutes, if the compound has a distinctive name, the distinctive name may be used without the word "Compound," and in all cases the ingredients must be stated on the label. In all cases only sweet and clean edible stearin and sweet and clean edible fats shall be used.

The prepuces, bladders, etc., shall not be used in edible food products.

Manufacturers are warned that the above rulings do not exempt them from the enforcement of State laws.

A. D. MELVIN,  
Chief of Bureau.

Approved:

JAMES WILSON,  
Secretary of Agriculture.

UNITED STATES DEPARTMENT OF AGRICULTURE,

BUREAU OF ANIMAL INDUSTRY.

MEAT INSPECTION RULINGS—1 A.

DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., October 29, 1906.

The following rulings under the Meat Inspection Law and the Regulations made thereunder are announced by the Department of Agriculture.

TRANSPORTATION.

1. No shipment of meat or meat food product shall be accepted for transportation in interstate commerce by any carrier until the carrier has received from the shipper a certificate in one of the forms prescribed in the regulations.

2. When it is desired to divert a shipment of inspected and marked meat or meat food product from the original destination, such diversion may be made without reinspection if a new certificate showing the changed destination be given to the carrier by the owner or shipper, who may or may not be the original shipper. In case of wreck or other extraordinary emergency, the carrier may divert the shipment without waiting for a new certificate, but in all such cases of diversion or reloading full information regarding the same shall be sent promptly to the Chief of the Bureau of Animal Industry, together with full information regarding the change of cars, etc.

3. The right of the farmer to ship in interstate or foreign commerce the carcasses of animals slaughtered on the farm is a right personal to the farmer, and applies to the shipment of carcasses of such animals in interstate or foreign commerce only when such carcasses are shipped by the farmer or his agent. The carcasses of animals slaughtered by the farmer on the farm, which are shipped by the farmer to a commission man for sale, may be reshipped by the commission man, by signing a farmer's certificate as agent for the original shipper. It is incumbent upon the commission man to know that the carcasses covered by the certificate he issues are those of animals slaughtered by a farmer on the farm, and to have authority to sign for the farmer in making the reshipment. Wholesale dealers, who are not acting as agents for farmers, but who own carcasses of animals slaughtered by a farmer on the farm, may not reship said carcasses in interstate or foreign commerce.

4. Reshipments of inspected meat and meat food products which are sound and wholesome at the time of reshipment may be made without reinspection,

when the meat or meat food products, or the containers thereof, are marked "U. S. inspected and passed," and the meat or meat food products have not been processed, other than by smoking, since they were originally shipped under Regulations 53 or 54. If these conditions do not obtain, reshipments without reinspection can not be made.

5. The transportation of meat or meat food product from one point in a State or Territory to another point in the same State or Territory, when in course of shipment the meat or meat food product is taken thru another State or Territory, is interstate commerce, and brings the said transportation within the scope of the meat inspection law and regulations.

#### CASINGS.

1. Unfilled "casings" shall be regarded as containers and not as meat food products, but when such casings are to be exported to a foreign country which requires a certificate showing that the casings are products of animals which were free from contagious disease at time of slaughter the necessary stamps and a certificate will be issued by the inspector in charge.

#### LABELS.

1. Labels or stickers, bearing the inspection legend, separate and apart from the trade label, may, under the supervision of a Department employee, be used on inspected and past meats which are wrapt in paper or cloth or which are placed in pasteboard containers. But no such label or sticker, bearing an inspection legend, can be used in establishments where inspection is not maintained.

2. Products not classed as "meat food products," which are prepared at establishments where inspection is not maintained, and which contain small quantities of meats which have been inspected and past under the meat inspection law, and no other meats, may bear a label with a personal statement of the manufacturer that the meat contained therein has been inspected and past at an establishment where inspection is maintained. In each such case, however, the label before being used must be submitted to the Chief of the Bureau of Animal Industry for approval.

3. No label will be approved for use after January 1, next, which contains an incorrect or false statement of the weight of the package; or which does not show that the weight, if given, is net or gross.

#### DEFINITIONS.

1. When the words "meat" or "meat food products" are used in the regulations or rulings of the Secretary of Agriculture they mean meat or meat food products of cattle, sheep, swine, or goats, and do not include meat or meat food products of other animals.

2. Nonedible grease and nonedible tallow, derived from cattle, sheep, swine, or goats, are not considered meat food products. However, when nonedible grease and nonedible tallow are to be exported to a country for which the requirement of a certificate has not been waived, the collectors of customs,

under instructions from the Secretary of Commerce and Labor, will require an affidavit from the exporter that the grease and tallow to be exported are non-edible and not intended for food purposes. Carriers in interstate commerce should require a written statement from shippers that the tallow or grease is nonedible, and that it is so marked.

JAMES WILSON,  
*Secretary.*

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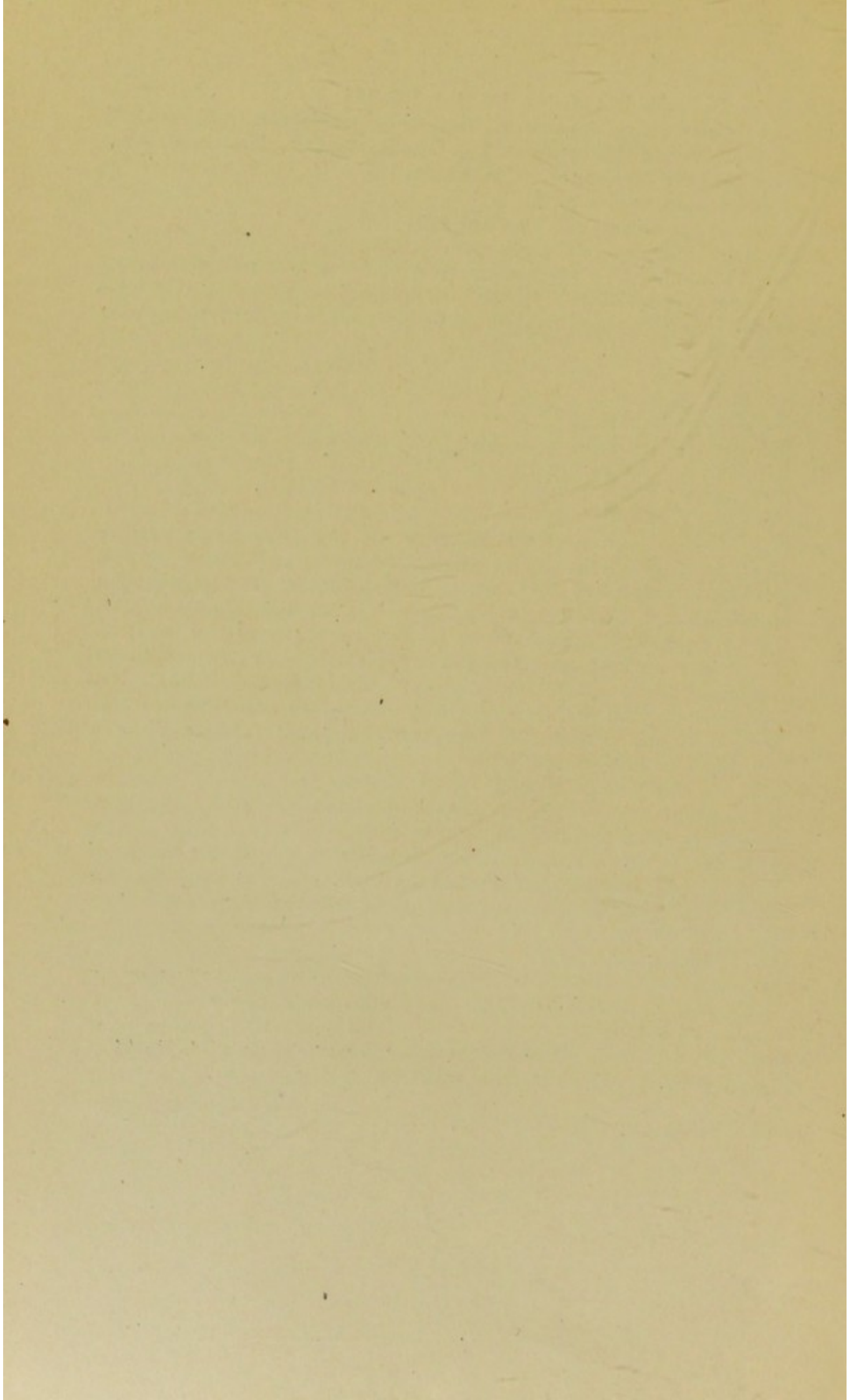
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