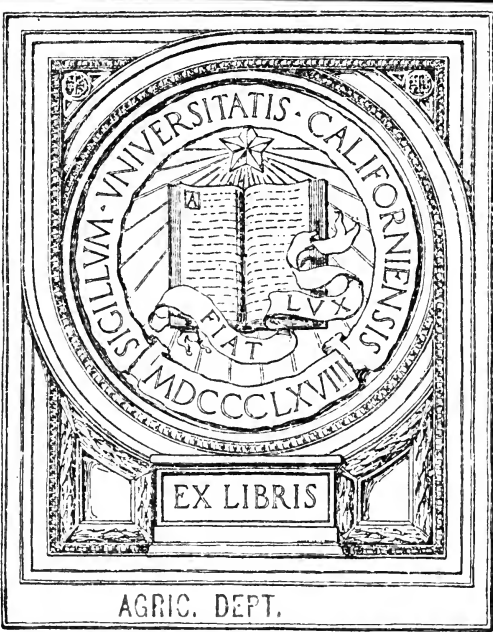


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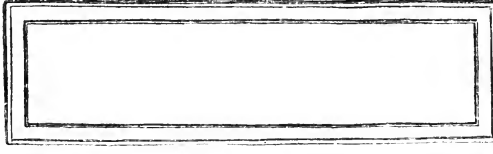
Sulphured Fruit and Its
Relation to the National
Pure Food Law
A. R. Briggs

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SULPHURED FRUIT AND ITS RELATION TO THE NATIONAL PURE FOOD LAW

By Mr. Arthur R. Briggs, President California State Board of Trade, at the Riverside Fruit Growers' Convention, April 30, 1908.

The people of no State in the Union were more zealous advocates of a National Pure Food Law than were the people of California. Adulteration of food products in other States suggested the need of statutory regulations in the interest of life and health and as a protection to manufacturers of pure food products. Therefore, gratification and general approval were expressed on the part of producers in this State, when Congress on June 30, 1906, passed the "National Food and Drugs Act." One of the principal features of the Act was to prevent the manufacture or sale of adulterated or deleterious food products, and it prescribed the method under which adulterated foods and drugs might be sold.

How comprehensively the term "deleterious foods" was to be interpreted, how a determination was to be made in respect to them, and the status of manufacturers and producers pending a determination were matters too remote for immediate consideration, and excited little interest. Later, as the law was put in operation and its scope was brought to their attention, manufacturers and distributors of food products were much exercised over the particular features of the law which affected their business.

The Law.—Under the Act, three Cabinet officers were charged with the duty of making rules and regulations for carrying out its provisions, the specific terms being set forth as follows:

"Section 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 or 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. * * *"

The Bureau of Chemistry of the Department of Agriculture, by the Act, is made the agency for examination of products, and the head of that branch of the department, therefore, occupies a position of much importance. The point of safety seemed to be, that it rested with the Secretary of Agriculture,

jointly with the Secretary of the Treasury and the Secretary of Commerce and Labor, to promulgate rules and regulations for carrying out the provisions of the Act. It was further provided:

“Sec. 7. That for the purpose of this Act an article shall be deemed to be adulterated * * * In the case of food:

“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.”

The Regulations.—No special concern on the part of those interested in fruit was felt, as to the effect of the law as expressed in the Act. It was not until the “Board of Food and Drug Inspection” suggested, and the Secretary of Agriculture promulgated, on July 13, 1907, “Food Inspection Decision 76.” This decision was deemed drastic in its terms and made a large portion of the fruit dried in, and marketed from this State, contraband under the law. It says:

“It is provided in Regulation 15 of the rules and regulations for the enforcement of the Food and Drugs Act, that the Secretary of Agriculture shall determine by chemical or other examinations those substances which are permitted or inhibited in food products; that he shall determine from time to time the principles which shall guide the use of colors, preservatives, and other substances added to foods; and that when these findings and determinations of the Secretary of Agriculture are approved by the Secretary of the Treasury and the Secretary of Commerce and Labor, the principles so established shall become a part of the rules and regulations for the enforcement of the Food and Drugs Act.

“The law provides that no food or food product intended for interstate commerce, nor any food or food product manufactured or sold in the District of Columbia or in any Territory of the United States, or for foreign commerce, except as hereinafter provided, shall contain substances which lessen the wholesomeness or which add any deleterious properties thereto. It has been determined that no drug, chemical, or harmful or deleterious dye or preservative may be used. Common salt, sugar, wood smoke, potable distilled liquors, vinegar, and condiments may be used. Pending further investigation, the use of saltpeter is allowed.”

“Pending the investigation of the conditions attending processes of manufacture, and the effect upon health, of the combinations mentioned in this paragraph, the Department of Agriculture will institute no prosecution in the case of the application of fumes of burning sulphur (sulphur dioxide), as usually employed in the manufacture of those foods and food products which contain acetaldehyde, sugars, etc., with which sulphurous acid may combine, if the total amount of sulphur dioxide in the finished product does not exceed 350 milligrams per liter in wines, or 350 milligrams per kilogram in other food products, of which not over 70 milligrams is in a free state.”

The label of each package of sulphurated foods, or of foods containing sodium benzoate or benzoic acid, shall bear a statement that the food is preserved with sulphur dioxide, or with sodium benzoate, or benzoic acid, as the case may be, and the label must not bear a serial number assigned to any guar-

anty filed with the Department of Agriculture nor any statement that the article is guaranteed to conform to the Food and Drugs Act."

The Sulphur Question.—It is well known that sulphur is almost universally used in this State in drying peaches, apricots and pears and to quite an extent in drying plums and apples. It is admitted that the fruit when dried, in its raw state, contains a greater percentage of "sulphur dioxide," produced by the fumes of burning sulphur, than 350 milligrams per kilogram, or an equivalent of thirty-five-one-thousandths of one per cent. Experience has shown that the use of sulphur is a necessity, in order to produce dried fruit of the color and quality required for consumption in any market. It has also demonstrated that at the unit fixed by ruling 76, viz: thirty-five-one-thousandths of one per cent, the fruit would not keep for storage nor for shipment to distant markets, nor could it be dried without serious loss from decay during the drying process. A large part of the dried fruit cured in this State did not come within the limit prescribed in Decision 76 and was therefore contraband, subject to seizure and confiscation as unwholesome and deleterious product. The decision provided that "pending investigation of conditions attending processes of manufacture and the effects on health" * * * that the Department of Agriculture would institute no prosecutions against fruit containing sulphur dioxide when prepared in the usual manner.

This provision did not furnish sufficient assurance of safety, for the reason that the time of immunity granted was indefinite and very uncertain.

Strong representation was made to Secretary Wilson setting forth in forcible manner the disastrous effect Decision 76 would have, from this indefinite feature as to time, on the fruit interest of the State. The Secretary visited California during the curing season of the year 1907, and afforded opportunity, both public and private, for any representations or demonstrations in respect to fruit drying in the State, that were sought to be made. Under assurances given by Secretary Wilson, the business of drying, packing and distributing fruit during 1907 went forward without much interruption.

At the beginning of the year 1908 Decision 76, by reason of limitation as to qualification for the previous year, was in force as a part of the rules and regulations for the enforcement of the "Food and Drugs Act." Uncertainty as to the future policy of the Department and the apparent attitude of hostility on the part of the Bureau of Chemistry, in charge of Dr. H. W. Wiley, excited apprehension, caused a stagnation in the fruit industry in the State, and made further effort on behalf of growers and distributors necessary.

During the season of 1907 large sums had been expended by the Bureau of Chemistry, under direction of the Agricultural Department, in obtaining samples of fruit cured by use of sulphur, in studying the processes of manufacture, in making scientific tests and in supplying information on which the department might be able to fix a permanent safety unit of sulphur dioxide, in fruit, and thus restore confidence to the fruit industry. It was presumed when the Bureau of Chemistry began its investigations in California that the findings would be made public, through the Department, and that producers and distributors from the knowledge thus gained, could act in future with intelligence. It is a disappointment that no information has been given out in reference to these examinations.

Another effort was made early in the present year to obtain a modification of or amendment to Decision 76, in order that fruit drying, preparing it for market and the distribution, might be pursued with safety on a practical basis. This renewed effort was made necessary, because producers were unable to

guarantee that the product cured by them would come within the limit prescribed in Decision 76, and buyers were unwilling to stand in the breach between producers and distributing merchants. The burden of responsibility rested on producers and they did not feel able to bear it. They claimed that fruit of the color and quality required for consumption, could not be produced in this State which did not show on chemical examination, if the test was made while in the raw state, an excess of sulphur dioxide, over thirty-five-one-thousandths of one per cent. The unit fixed by Decision 76 was, in their opinion and in the opinion of distributors, prohibitive.

A New Regulation.—The Department of Agriculture, appreciating the situation as it was presented to Secretary Wilson, issued a new decision on February 28th, this year, known as “Food Inspection Decision 89,” as an amendment to Decision 76, the full text of which may be interesting:

“Amendment to Food Inspection Decision 76, relating to the use in foods of benzoate of soda and sulphur dioxide:

“The question of the addition to food of minute quantities of benzoate of soda and of sulphur dioxide will be certified immediately by the Secretary of Agriculture to the Referee Board of consulting scientific experts.

“Pending determination by the Referee Board of the wholesomeness or unwholesomeness of these substances, their use will be allowed under the following restrictions:

“Benzoate of soda, in quantities not exceeding one-tenth of one per cent, may be added to those foods in which generally heretofore it has been so used. The addition of benzoate of soda shall be plainly stated upon the label of each package of such food.

“No objection will be made to foods which contain the ordinary quantities of sulphur dioxide, if the fact that such foods have been so prepared is plainly stated upon the label of each package.

“An **abnormal** quantity of sulphur dioxide placed in food for the purpose of marketing an excessive moisture content will be regarded as fraudulent adulteration, under the Food and Drugs Act of June 30, 1906, and will be proceeded against accordingly.

“Food Inspection Decision No. 76, issued July 13, 1907, is hereby amended accordingly.”

The Referee Board.—The fruit industry was by this amendment still left in a position of uncertainty and in a demoralized condition. Growers held meetings, made appeals to the Department through the delegation in Congress, and finally to President Roosevelt. Acting with his accustomed promptness, the President took steps to create what was denominated a “Referee Board” to which matters connected with the dried fruit industry, theretofore left with the “Bureau of Chemistry and the Agriculture Department” for determination, were to be submitted.

The Referee Board was constituted by appointment of five eminently scientific men, of extensive experience in chemistry and pathology. Its personnel is:

Dr. Ira Remsen, chairman, president Johns-Hopkins University, Baltimore; Prof. Russell H. Chittenden, Yale University, New Haven; Prof. John H. Long, Northwestern University, Chicago; Prof. Alonzo E. Taylor, University of California, Berkeley; Dr. C. A. Harter, Special Inspector of Foods, New York City.

The high character and standing of this board gives confidence to those engaged in the fruit industry. It is believed that the importance of the

industry, as it relates to the welfare of the large number of people interested in it, as well as the deleteriousness of dried fruits cured with the use of sulphur, will be carefully and broadly considered. It is felt that the conditions under which "sulphur dioxid" renders dried fruit deleterious, if it is rendered so at all by the present method of drying and handling, will likewise be considered. The hope is entertained that the findings of the Referee Board and its determination, will furnish the Agricultural Department, independent of the Bureau of Chemistry, a basis on which to issue a new decision that will enable fruit growers and fruit dealers to pursue the occupation of drying and distributing fruit in a lawful and satisfactory way.

It is hoped also that the Referee Board in its investigations will come to California during the curing season. By having opportunity to observe climatic conditions, and by following the fruit from the tree to the packing house and until it is ready for distribution, the Board will be better able to decide what is essential to the fruit industry in this State, than if its findings and recommendation were based on purely technical examination.

Following closely on the issuance of Decision 89, at the request of the fruit growers of the State, I went to Washington to get, if possible, a modification of that decision. The State Board of Trade had been active in efforts to protect the fruit industry of the State, and on account of my familiarity with it and the intimate connection had with the subject at issue, I consented to undertake the task.

Definite Postponement.—As a result of the mission to Washington the following official declaration was obtained:

"Hon. J. C. Needham: In response to your personal inquiry made this date, when you called upon me in company with Messrs. Arthur R. Briggs and W. H. Brailsford, now here representing the fruit growers in the State of California, in regard to Food Inspection Decision 89, I beg to advise you that, in my opinion, it will be impossible for the Referee Board of consulting scientific experts to arrive at a determination of the question of the wholesomeness or unwholesomeness of sulphur dioxid in fruits cured by the ordinary sulphur process for a number of months, and perhaps for a longer time than that. In any event, you and the fruit growers of California may rest assured that no decision adverse to the use of sulphur will be promulgated so as to affect the curing or marketing of the 1908 crop.

"The curing and marketing of the 1908 crop should be done under the terms of Food Inspection Decision 89, and if the terms of that decision are complied with, there will be no governmental interference with the curing or the marketing of said crop.

"JAMES WILSON, Secretary of Agriculture."

"Washington, D. C., March 11, 1908."

This was the status of the matter until April 24th, when Congressman Needham telegraphed to the State Board of Trade, as follows:

"Washington, D. C., April 24, 1908.

"Sulphur question will not be taken up till one year from next August. Dr. Taylor has gone to Europe and this was agreed upon before he left. Growers will have two years more before any finding is made."

The Present Situation.—Postponement of a consideration of this matter by the Referee Board as told in Congressman Needham's telegram, affords opportunity for a campaign of education in respect to the fruit interests that may very properly be taken advantage of. Fruit drying in California is done under conditions unlike those in other States. The fruit is generally larger and juicier than that grown elsewhere. It ripens fast after coming to maturity and must be handled quickly. The size of the fruit and its richness in juice render it necessary, when it is placed on the trays to dry, that some means of arresting oxidation be used. Sulphur, which arrests oxidation and prevents

the fruit from turning dark, also assists the process of drying and has come to be looked on as beneficial as well as effective.

What is described as the sulphur process is probably known to every delegate in this convention hall, but even if this is so, it may not be out of place to say, the process consists in subjecting the undried fruit, when freshly cut and placed on drying trays, to sulphur fumes formed from burning raw sulphur in a closed house or box. The house or box is filled with trays loaded with fruit. A small quantity of sulphur in an iron pan, is placed on the floor and ignited, when the door is closed and the fumes from the burning sulphur pass over the fruit and leave the sulphur dioxid, which is found by chemical examination in the dried product. Sulphur is a sterilizing agent and a germicide. By its use the insect germs, if any exist, are made dormant or they are destroyed. The fruit is also rendered less attractive to insects during the process of drying than it would be if not sulphured. This is the first process in sulphuring, and if the fruit is intelligently handled only a small per cent of sulphur dioxid remains after the fruit is dried.

The dried product goes then to the packer. The fruit is purchased by packers and dealers throughout the district in which they operate, and is put in merchantable condition by them. Taken from the growers promiscuously, the fruit is of many shades of color, kinds and qualities, and before it is ready to be marketed requires sorting, grading and packing. Direct from growers it is mainly unsuited for distribution in either domestic or foreign markets.

In the packing house, before it is put in boxes for distribution to the trade, the fruit is again sulphured. In being prepared for packing it is dipped quickly in hot water, which moistens the surface and softens the fruit, after which it is subjected to the sulphur process. This again prevents a change in color and with the hot water plunge kills the germs there may be in it. This is the process called resulphuring, and which has led to considerable criticism, chiefly from persons not familiar with the requirements of trade. While dipping and resulphuring adds somewhat to weight, it has little, if any, merit from the point of profit to the packer. This is taken into account in making purchases from growers, so that **they** really derive the benefit, whatever it is.

The Right Use of Sulphur.—If abuses have occasionally crept in under the custom of resulphuring, this is not sufficient ground for general condemnation of the use of sulphur in curing or putting up dried fruit for market. No branch of business is entirely free from abuses, and no community is free from wrong-doers. The packing of fruit is as legitimate and well conducted as any other branch of commercial business. If excessive use of sulphur has occasionally been resorted to in the dried fruit business, it does not seem necessary to apply a remedy so drastic as to imperil the entire industry. Fruit growers, and dealers generally, recognize the merit of the National Pure Food Law and are ready to uphold it. They, however, want the law wisely and justly interpreted and administered. Abundant scientific testimony is obtainable to seemingly establish the wholesomeness of dried fruit cured in the manner usual in this State. If examination by local chemists and pathologists is insufficient there may be added to it testimony of high authority from other States and other countries. Professor Hofman, "Honorary Medical Adviser and Director of the Hygiene Institute of the University of Leipsig," Germany, in the year 1903, in an action brought in Germany to determine whether apricots said to contain a larger percentage of sulphur dioxid than was permitted in that country, testified that "neither in the literature, nor in the practice of physicians, nor in the records of the Royal Medical College, was one single case

known or reported where sulphur dioxid consumed in dried fruit had caused injury to health."

Against the attitude of Dr. Wiley, of the Bureau of Chemistry, and his opinion stands the opinions of eminent chemists both in the United States and foreign countries. If there exists a doubt in respect to the effect of sulphur dioxid in fruit dried by the use of sulphur, fruit growers should be entitled to the benefit of it, until the fact is indubitably established, particularly as the custom of drying fruit by the use of sulphur has been almost universally followed in this State for many years, without any known injurious results.

But laying aside the matter of opinions and preference, the National Pure Food Law it seems has clearly set forth a condition under which examinations of dried fruit should be made. The Act of June 30, 1906, in reference to food, says:

"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 package, the provisions of this Act shall be construed as applying only when said products are ready for consumption."

It has been fully and satisfactorily demonstrated that by washing, soaking and cooking, the sulphur dioxid contained in dried fruit almost entirely disappears, at least the percentage is very greatly decreased. If ruling 76 had prescribed how tests of fruit should be made, as producers and packers claim was clearly intended, according to the language of the Act, viz., by examination of the cooked product, "when ready for consumption" no controversy would have arisen and no doubt would have been entertained of the intent of the Bureau of Chemistry or of the justice of the Act.

Another feature of Decision 76 open to fair criticism is, that it fixed an arbitrary unit of sulphur dioxid as permissible, viz., 350 milligrams per kilogram, or thirty-five-one-thousandths of one per cent, prior to a determination of the unit of safety, or without attempting, so far as any public utterance of the Bureau of Chemistry is concerned, to establish such safety unit.

If the unit fixed is made to apply after an examination of the cooked product, it is entirely reasonable and satisfactory. If it is applicable only to the uncooked product it is manifestly too low. The unit of .035 of one per cent appears to reflect a theory rather than a determination on examination and inquiry based on a comprehensive view of conditions incident to actual use of the product as food.

I am satisfied that reference to the Referee Board of the issues involved in the sulphur question, and the action of that Board, have the approval of Secretary Wilson, who has exhibited a disposition to protect the fruit industry of this State. Dr. Wiley maintains a defiant attitude. His endeavor seems now to be to demonstrate that sulphur is an unwholesome ingredient and should not be used, because its use produces sulphur dioxid, "an added substance which may render the fruit deleterious." He openly says it is the fight of his life to maintain the position he has taken in the use of sulphur.

Aside from all scientific considerations it may not be out of place to consider the sentimental question involved. It is no exaggeration to claim that there is in the disturbance over the use of sulphur a serious menace to the present prosperity and future development of California, which only those

who know our industrial processes intimately and accurately can appreciate it is, therefore, important that the question now agitating fruit growers should be wisely, speedily and permanently settled. For the crop year 1908 the matter seems to be fixed with reasonable assurance of safety on the part of all concerned, but the interpretation of the National Pure Food Law in its application to California dried fruit products is of vital and very general interest.

DECISION 89 MORE EXPLICITLY INTERPRETED

Food Inspection Decision 89 amending Decision 76, in regard to the use of benzoate and sulphur in foods in the case of the latter commodity designated no specific amount of sulphur dioxide that might be used in curing fruit, merely stating that no objection would be made to foods that contain the "ordinary quantities," and that an "abnormal quantity" would be regarded as fraudulent adulteration. The term "marketing" as used in the decision is also considered by some as not quite plain as to its comprehension. Mr. Arthur R. Briggs, chairman of the Committee of California Fruit Growers, under date of April 22d, wrote to Secretary of Agriculture Wilson on these matters, as follows:

"San Francisco, Cal., April 22, 1908.

"Hon. James Wilson, Secretary of Agriculture, Washington, D. C.

"Dear Sir: Since my return from Washington I have had occasion to give considerable thought to the purport of your official declaration, made March 11, 1908, through a letter addressed to Hon. J. C. Needham, respecting the use of sulphur in drying fruit and in preparing the same for market. A proper understanding is of such interest that both producers and distributors have sought from me an interpretation of the meaning of the term 'abnormal quantity' as employed in F. I. Decision 89.

"In view of the fact that the methods of curing and of preparing dried fruits for market are well known to your department, as well as to distributors and consumers, the proper interpretation of the terms referred to, viz.: 'marketing' and 'abnormal quantity' seems to me quite plain. The further fact that it is known also that producers are not except to a very limited extent, distributors of the cured product, and that it is put in merchantable form by packers and large dealers before it is marketed, for either domestic or foreign consumption, simplifies the term 'marketing.'

"As chairman of the Growers' Committee, I have therefore presumed to explain to you who have sought my opinion, that my understanding is as follows:

"First, that 'marketing' as employed in your letter covers the entire realm of distribution from the growers to consumers, and its meaning is not confined to any narrow limit as it would be if applied only to the change in ownership from producers to distributors.

"Second, that 'abnormal quantity' as used in Decision 89 means unusual quantity, out of the ordinary.

I have also expressed it to be my understanding of your letter, that if the business of curing, preparing and marketing dried fruit of the crop grown this season—1908—pursued with prudence and care, having in mind the Pure Food Law, there would be no governmental interference with the crop of 1908.

That I may have confirmation of the correctness of my views, I address you on this subject, and solicit an early response thereto.

"With assurance of high regard, I beg to subscribe myself,

"Your obedient servant, (Signed) "ARTHUR R. BRIGGS,

"Chairman Committee of California Fruit Growers, rs

To this communication Secretary Wilson replied:

"Washington, D. C., April 30, 1908.

"Mr. Arthur R. Briggs, California State Board of Trade, San Francisco, Cal.

"Dear Sir: I have your favor of the 22d inst. in regard to the sulphuring of fruit. If all the people who grow fruits in the United States had been using the same amount of sulphur, it would have been a very easy matter to have spoken more definitely, but they do not; they vary, and vary widely. We have left the matter to a considerable extent pending inquiry, to them. I think your letter is a fair interpretation of our communication on the subject,

"Very truly yours,

(Signed) "JAMES WILSON, Secretary."

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