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# FOOD ADULTERATION IN TEXAS.

BY

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## TABLE OF CONTENTS.

	PAGE
Introduction . . . . .	4
Adulteration and Misbranding Defined . . . . .	4
The Texas Food Law . . . . .	6
The Federal Food Law . . . . .	6
Scope . . . . .	6
Regulations . . . . .	7
Procedure . . . . .	7
Co-operation with State Officials . . . . .	7
Definitions . . . . .	7
Adulteration Defined . . . . .	7
Misbranding Defined . . . . .	8
How Dealers Can Protect Themselves . . . . .	8
Chemical Preservatives . . . . .	8
Coloring Matter . . . . .	10
Saccharin . . . . .	10
Examination of Samples Collected in Texas . . . . .	10
Publication of Results . . . . .	10
Sausage . . . . .	11
Olive Oil . . . . .	12
Jelly and Preserves . . . . .	12
Catsup . . . . .	13
Grape Juice and Cider . . . . .	14
Soda Water . . . . .	15
Molasses, Syrup and Honey . . . . .	15
Vinegar . . . . .	16
Lemon Extract . . . . .	17
Lard . . . . .	18
Baking Powder . . . . .	18
Chewing Gum . . . . .	19
Salad Dressing . . . . .	20
Canned Goods . . . . .	20
Conclusions . . . . .	21

# FOOD ADULTERATION IN TEXAS

G. S. FRAPS, CHEMIST.

Considerable interest in the subject of food adulteration has of late been aroused in Texas, due, in part at least, to the agitation attending the passage of the Federal Food Law. The time seems propitious for the passage of a Texas law which carries proper provision for its enforcement, and which will, in co-operation with the Federal law, rid the State of all adulterated or illegal food. The present Texas law is a good one, but without money to enforce its provisions, it is ineffective.

The Chemical Department of the Texas Experiment Station has for some time had in mind a study of the foods upon the Texas market, but a favorable opportunity has not presented itself until the past summer. Samples were then collected in Houston, Bryan, Waco, Dallas, Ft. Worth, and Cleburne. These samples were examined for adulteration or illegal additions, and the results are presented in the following tables.

Table I shows the number of kinds of foods examined and the number found illegal or adulterated. It is seen that quite a number of adulterated foods are on the market.

TABLE I.—SAMPLES EXAMINED.

	Total Number.	Number Illegal.
Sausage .....	32	28
Dried Fruit .....	6	5
Olive Oil .....	8	1
Jelly .....	19	12
Catsup .....	10	6
Grape Juice and Cider.....	10	1
Soda Water .....	8	7
Salad Dressing .....	6	2
Maple Syrup .....	2	2
Honey .....	8	1
Molasses and Syrup.....	8	7
Canned Goods .....	34	4
Vinegar .....	16	13
Extract of Lemon.....	16	9
Lard .....	4	2
Baking Powder .....	12	1
Olives .....	1	0
Shredded Coconut .....	1	0

The Federal law will doubtless tend to check adulteration of certain kinds, namely, on goods shipped into the State from other states, but it cannot prevent adulterations intended for home consumption. A State law, and State enforcement is therefore desirable.

## ADULTERATION AND MISBRANDING DEFINED.

The term "adulterated" is applied properly when any foreign substance, not condimental in nature, or properly constituting a portion of the food, has been added. The added substance may be wholesome or unwholesome,

but this property is not indicated by the term adulterated. The term "adulterated" is associated with unwholesomeness in the minds of many people, nevertheless, and for this reason the term "illegal" is used in its place by some food chemists and will be so used in this Bulletin. The idea under the food law is not only to prevent the sale of unwholesome food, but also to ensure that the purchaser shall have true knowledge of the nature of the article he is purchasing.

The legal definition of adulteration under the Texas law is as follows:

"In case of food or drinks:

1. "If any substance or substances has or have been mixed with it so as to reduce or lower or injuriously affect its quality or strength.
2. "If any inferior or cheaper substance or substances have been substituted, wholly or in part, for the article.
3. "If any valuable constituent of the article has been wholly or in part abstracted.
4. "If it be an imitation of, or be sold under the name of another article.
5. "If it consists, wholly or in part, of a diseased or decomposed or putrid or rotten animal or vegetable substance, whether manufactured or not; or in the case of milk, if it is the produce of a diseased animal.
6. "If it be colored or coated or polished or powdered, whereby damage is concealed, or it is made to appear better than it really is, or of greater value.
7. "If it contains any added poisonous ingredient, or any ingredient which may render such article injurious to the health of a person consuming it; provided, that the state health officer may, with the approval of the governor, from time to time, declare certain articles or preparations to be exempt from the provisions of the law; and provided, further, that the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles of food; provided, that the same are not injurious to health and that the articles are distinctly labeled as a mixture, stating the components of the mixture."

The definitions in the Federal law are fuller, and in many respects better. See page 7.

In this bulletin, any food adulterated under the terms of the law just given is termed *illegal*.

The term "misbranded" is applied to foods incorrectly described by the label. No definition of misbranding is made in the Texas law. The following is the definition of misbranding under the Federal Food Law:

"In 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, the quantity of the contents of the package be not plainly or correctly stated in the terms of weight and measure, 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 con-

tained 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,, or offered for sale under the distinctive name of another article, if the name be accompanied on the label or brand with the 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 further provided*, 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 formulas, except in so far as the provisions of this act may require to secure freedom from adulteration or misbranding."

It would be advisable to incorporate a similar section in the Texas Laws.

## THE TEXAS FOOD LAW.

The following is quoted from Bulletin No. 69, Bureau of Chemistry, United States Department of Agriculture:

"Texas authorizes the State health officer to enforce the food laws of the State and to expend for that purpose an amount not exceeding \$2,000.00. This item, however, has not been included in the appropriation bills of the legislature and no serious attempt has been made to enforce the laws that have been enacted regarding the manufacture and sale of food."

The Texas laws provide that no person shall manufacture or sell any article of food, wines, beers, fermented or distilled liquors, or drugs, known to be adulterated within the meaning of the law, and provides a penalty for a violation of this provision.

The definition of adulteration under the law has already been given on page 5. The full text of the law is printed at the end of this bulletin page 22.)

The Federal law differs from the Texas law in this important respect: It fixes a penalty for the sale of adulterated goods, whether the offense is committed knowingly or unknowingly. The burden is not on the prosecution to prove that the offender knew of the adulteration. In case of ignorant violation of the law, no imprisonment can be given, but a fine may be imposed. Other important differences are, fuller definitions of adulteration and definition of misbranding.

## THE FEDERAL LAW.

The Federal law is naturally an object of interest at present. The important provisions of the law as concern this State are briefly as follows.

*Scope.*—The law forbids the introduction into a State or Territory of any article of food or drugs, adulterated in the meaning of the act, from any

foreign country, State or Territory, or the District of Columbia, or its shipment to a foreign country. Any shipper, and any one that receives or delivers or offers to deliver in original unbroken packages, such adulterated food or drug, is guilty of a misdemeanor, and may be fined not more than two hundred dollars for the first offense and three hundred dollars for each subsequent offense, or be imprisoned one year, or both. No one can be imprisoned, however, unless he commits the offense knowingly.

*Regulations.*—The regulations for carrying out the provisions of the act are to be made by the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor.

*Procedure.*—The examinations of specimens of food and drugs are to be made by the Bureau of Chemistry or under its direction. If the sample is adulterated or misbranded the party from whom the sample is secured is to be notified and heard. If it then appears that the act has been violated, the Secretary of Agriculture shall certify the fact to the proper United States District Attorney.

*Co-operation With State Officials.*—It is made 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 or drug officer or agent of any State, Territory or District of Columbia shall present satisfactory evidence of such violation, to cause appropriate proceedings to be commenced and prosecuted in the proper courts of the United States, without delay.

*Definitions.*—“The term ‘drug’ is defined to include all medicines or preparations recognized in the U. S. Pharmacopoeia or National Formulary for external or internal 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’ is defined to include ‘all articles used for food, drink, confectionery or condiment by man or other animals, whether simple, mixed or compound.’”

*Adulteration Defined.*—“That for the purpose of this act an article shall be deemed to be adulterated—

“In case of drugs:

“First. If, when a drug is sold under the standard recognized in the United States Pharmacopoeia or National Formulary, it differs from the standard of strength, quality, or purity, as determined by the test laid down in the United States Pharmacopoeia or National Formulary official at the time of investigation: *Provided*, That no drug defined in the United States Pharmacopoeia 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 Pharmacopoeia or National Formulary.

“Second. If its strength or *purity* fall below the professed standard or quality under which it is sold.

“In case of confectionery:

“If it contain terra alba, barytes, talc, chrome yellow, or other mineral substances or other poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt or spiritous liquor or compound or narcotic drug.

“In 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 an external application applied in such a manner that the preservative is necessarily removed mechanically, or by maceration in water, or otherwise, and directions for removing 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 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."

*"Misbranding Defined.*—"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 in such article, which statement 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 original package 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 the 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 case of food:

These definitions have already been given (page 5).

*How Dealers Can Protect Themselves.*—No dealer can be convicted when he is able to prove a guaranty of conformity with the provisions of this act, signed by the manufacturer or party from whom the goods are purchased, provided they live in the United States. The guarantor becomes thereby amenable to the penalty otherwise attached to the dealer. The law also provides for goods imported into the country.

## CHEMICAL PRESERVATIVES.

The object of chemical preservatives is to delay or prevent fermentation or decay. The chief chemical preservatives are salicylic, benzoic, and boric acids, or their salts, formaldehyde, ammonium fluoride, sulphurous acid, and sulphites.

Preservatives are used to a large extent in certain classes of food products, and there is a difference of opinion as to their effects. Some contend



that all preservatives are unwholesome; others, that in small quantity they are harmless and necessary for the proper preservation of food articles. There is no doubt that preservatives in large quantity, such as may result in food products through carelessness or ignorance, are injurious. It remains to be demonstrated whether there are not some food products which can only be preserved with chemical preservatives, or in which the danger of decomposition products from decay is greater than the possible injury due to minimum quantities of preservatives. The question of preservatives is one of tremendous importance. On the one hand it may affect the health of the community; on the other, the existence of great enterprises. The matter will doubtless be considered most carefully by those in charge of the Federal law, and by the courts. The decisions thus made will probably be adopted by most of the States. It is possible that the use of preservatives may be allowed in certain foods, not to exceed certain quantities, provided proper declaration is made as to their presence. It is also possible that the use of some preservatives may be entirely debarred.

In considering the use of preservatives, their effects must be considered not only with the strong and healthy, but with the sick and weak. In any event, the purchaser should be able to choose whether or not he wishes to consume the preservative in question.

A very careful and extended study of the effect of boric acid upon the health was made by Dr. H. W. Wiley, of the Bureau of Chemistry, U. S. Department of Agriculture. The following is quoted:

"When boric acid or its equivalent in borax is taken into the food in small quantities, not exceeding half a gram (7 1-2 grains) a day, notable effects are immediately produced. The medical symptoms of the case in long continued exhibitions of small doses or in large doses, extending over a short period, show in many instances a manifest tendency to diminish the appetite and to produce a feeling of fullness and uneasiness in the stomach, which in some cases results in nausea, with a general tendency to produce a sense of fullness in the head, which is often manifested as a dull and persistent headache. In addition to the uneasiness produced in the region of the stomach, there appear in some instances sharp and well-located pains which, however, are not persistent. Although the depression in the weight of the body and some of the other symptoms produced persist in the after periods, there is a uniform tendency manifested, after the withdrawal of the preservative, toward the removal of the unpleasant sensations in the stomach and head above mentioned.

\* \* \* \* \*

"It appears, therefore, that boric acid and borax, when continuously administered in small doses for a long period, or when given in large quantities for a short period, create disturbances of appetite, of digestion and of health."

The experiments of the German Imperial Board of Health also demonstrated that boric acid is injurious to health, and Germany has prohibited the use of this preservative.

Preservatives are often sold under coin and brand names and used without knowledge of their properties, claiming to be entirely wholesome and to comply with the pure food laws. Small manufacturers are thereby sometimes led into violation of food laws, and household use is made of preservatives which would otherwise be carefully avoided.

In our examination of Texas food products, preservatives have been considered as illegal, unless statement is made of their presence. There

are now several brands of goods on the market (catsups) which carry the statement that they contain preservatives. Until the use of these preservatives are forbidden, such statement is considered as allowing them to pass. It is then for the purchase to decide whether or not he or she desires food containing a preservative.

### COLORING MATTER.

There is a difference of opinion in regard to the wholesomeness or unwholesomeness of coloring matter. Some colors are no doubt unwholesome.

Artificial colors are used for several purposes. They may be used to render the goods more attractive to the eye, or to produce a color more permanent on the shelves of the grocer. They may be used to prepare imitation products, for example, cheap jellies colored and flavored to imitate the jelly of various fruits. They may be used to cover the use of inferior materials. Some tomato catsup is said to be prepared from the skins or refuse of tomato canning, and colored to make it appear palatable. In other cases its basis is said to be pumpkin. Dr. E. F. Ladd, of the South Dakota Experiment Station, says he has found tomatoes in cans with all the appearance of being ripe, but in reality the cans were filled mainly with green tomatoes, tomato pulp, and coal tar dye.

Whatever the object of using coloring matter, any food is illegal in Texas "If it be colored, or coated, or polished, or powdered whereby damage is concealed, or it is made to appear better than it really is, or of greater value."

### SACCHARIN.

Saccharin is an artificial sweetener, which has about five hundred times the sweetening power of sugar. Saccharin has antiseptic properties. It has no food value, such as is usually associated with sweetness, and its elimination throws work on the kidneys. So far as the writer can see, there is nothing to be said in the defense of its use in any food product. The use of saccharin, or any other artificial sweetener in any food product should be forbidden by law.

### EXAMINATION OF SAMPLES COLLECTED IN TEXAS.

As already stated, during the summer of 1906, samples of foods of different kinds were collected in Cleburne, Ft. Worth, Dallas, Waco, Houston, and Bryan, and were examined for adulteration. The results of the examination are given below. The standards referred to are those proclaimed by the Secretary of Agriculture, under authority of an act of Congress. The author desires to acknowledge some assistance from Mr. J. B. Rather in the analytical work.

### PUBLICATION OF RESULTS.

The tables which follow the discussion in each case contain the results of the examination of the samples. We do not print the name of manufacturers and brands of goods found to be adulterated for the reason that the Texas Food Laws do not provide for the publication of results, and such publication would render one liable to damages under the State's libel laws. This defect in the State law should be remedied, and provision made for full publication in all cases of adulteration. Publicity is an effective measure for prevention.

In cases where the food is stated to be legal, the author does not desire it to be understood that these foods are free from all forms of adul-

teration. The kinds and manner of adulteration are so many that every food sample is not examined for every possible form.

## SAUSAGE.

Sausage is considered as adulterated or illegal if it contains any preservative, artificial coloring, starch, or any other material than condiments and meat. The preservatives found in the samples of sausage collected in Texas are boric acid and sulphites.

Sulphites are used to give the meat a better color, and also to prevent decomposition, although it is a poor preservative. Sulphites are considered to have an injurious effect upon the human system, even in small quantities.

Boric acid is used as a preservative. Consumed occasionally by healthy persons, in small quantities, it may have no injurious effect. Consumed continually, it is liable to be injurious, and especially so to persons of weak physical constitution or low vitality.

Out of thirty-two samples of sausage examined, nineteen contained boric acid, five contained sulphites, and two boric acid and sulphites. (Table II.) Eleven contained starch. Only four samples were found unadulterated. As most of these samples were of domestic manufacture, the Federal law will not stop the adulteration of sausage.

TABLE II—SAUSAGE, ILLEGAL.

Laboratory No.	Sample from	Adulterants.
354	Pork Sausage . . . . .Cleburne. . . . .	Sulphites, Boric Acid.
355	Bologna Sausage . . . . .	Colored, Boric Acid.
511	Bulk Sausage . . . . .Houston. . . . .	Sulphites.
512	Bulk Sausage . . . . .Houston. . . . .	Sulphites.
513	Bulk Sausage . . . . .Houston. . . . .	Borax and much sulphite.
514	Bulk Sausage . . . . .Houston. . . . .	Boric Acid.
515	Bologna Sausage. . . . .Houston. . . . .	Boric Acid, Starch.
516	Frankfurter Sausage . .Houston. . . . .	Boric Acid, Starch.
517	Bologna Sausage. . . . .Houston. . . . .	Boric Acid.
518	Roll Sausage . . . . .Houston. . . . .	Boric Acid, Starch.
519	Sausage in casing . . . .Houston. . . . .	Boric Acid, much Starch.
520	Sausage in casing . . . .Houston. . . . .	Boric Acid.
534	Roll Sausage . . . . .Dallas. . . . .	Borax.
535	Sausage in casing . . . .Dallas. . . . .	Borax, Starch.
536	Sausage in casing . . . .Dallas. . . . .	Borax, Starch.
537	Bulk Sausage . . . . .Dallas. . . . .	Sulphites.
638	Roll Sausage . . . . .Dallas. . . . .	Borax, Starch.
563	Bologna Sausage . . . .Ft. Worth. . . . .	Artificial color.
564	Roll Sausage . . . . .Ft. Worth. . . . .	Borax.
566	Sausage in casing . . . .Ft. Worth. . . . .	Borax.
635	Roll Sausage (Beef) . .Bryan. . . . .	Boric Acid, large amount.
636	Bulk Sausage (Pork) . .Bryan. . . . .	Sulphites.
637	Bologna Sausage . . . .Bryan. . . . .	Starch, Boric Acid.
638	Sausage in Casing . . . .Bryan. . . . .	Starch, Boric Acid.
658	Bologna Sausage . . . .Waco. . . . .	Starch, Boric Acid.
661	Bulk Sausage (Pork) . .Waco. . . . .	Sulphites.
662	Sausage in casing . . . .Waco. . . . .	Boric Acid.

TABLE II—SAUSAGE, NOT FOUND ADULTERATED.

Laboratory No.	Purchased in
520 Sausage in casing . . . . .	Chicago.
522 Sausage in casing . . . . .	Milwaukee.
565 Bulk Sausage . . . . .	Fort Worth.
660 Boneless Boiled Ham . . . . .	Waco.

DRIED FRUIT.

Standard—"Dried fruit is the clean, sound product made by drying mature, properly prepared, fresh fruit in such a way as to take up no harmful substance, and conforms in name to the fruit used in its preparation; sun-dried fruit is dried fruit made by drying without the use of artificial means. Evaporated fruit is dried fruit made by drying with the use of artificial means."

Of six samples of dried fruit examined, five contained boric acid, and are, therefore, illegal or adulterated. (Table III.)

TABLE III—DRIED FRUIT.

Laboratory No.	Purchased in	Adulterants.
567 Prunes . . . . .	Ft. Worth . . . . .	Boric Acid.
568 Prunes . . . . .	Ft. Worth . . . . .	Boric Acid.
634 Dried Apricots . . . . .	Bryan . . . . .	Boric Acid.
663 Dried Apricots . . . . .	Waco . . . . .	Boric Acid.
664 Dried Peaches . . . . .	Waco . . . . .	Boric Acid.
665 Dried Prunes . . . . .	Waco . . . . .	None.

OLIVE OIL.

One sample of olive oil, out of eight examined, was found to contain sesame oil. (Table IV.)

TABLE IV—OLIVE OIL, NOT FOUND ADULTERATED.

Laboratory No.	Purchased in
379 Pure Olive Oil . . . . .	Bryan.
380 Finest Sublime Olive Oil . . . . .	Bryan.
487 Huile D'Olive . . . . .	Houston.
488 Huile D'Olive . . . . .	Houston.
489 Huile D'Olive . . . . .	Houston.
490 Huile D'Olive . . . . .	Houston.
547 Olive Oil . . . . .	Ft. Worth.

TABLE IV—OLIVE OIL, ILLEGAL.

Laboratory No.
491 Olive Oil, adulterant, sesame oil.

JELLIES AND PRESERVES.

Standard—"Preserves is the sound product made from the clean, sound, properly matured and prepared fresh fruit and sugar (sucrose) syrup, with or without spices or vinegar, and conforms in name to that of the

fruit used, and in its preparation not less than forty-five (45) pounds of fruit are used to each fifty-five (55) pounds of sugar.

*Glucose preserve* is preserve in which a glucose product is used in place of sugar (sucrose) syrup."

"*Jelly* is the sound, semi-solid, gelatinous product made by boiling clean, sound, properly matured and prepared fresh fruit with water, concentrating the expressed and strained juice, to which sugar (sucrose) is added, and conforms in name to the fruit used in its preparation."

"*Glucose jelly* is jelly in which a glucose product is used in place of sugar (sucrose)."

Of nineteen jellies and preserves examined (Table V), twelve were illegal. Some of these jellies were artificial, being colored to represent the desired product. Some contained glucose. While glucose is wholesome, its use in a jelly without a declaration to that effect is illegal, since cane sugar is supposed to be used. A number of the jellies were preserved with benzoic acid.

TABLE V—JELLY, ILLEGAL.

Laboratory No.	Purchased in	Adulterants.
479 Raspberry Jelly . . . . .	Houston . . . . .	Boric Acid, slight.
481 Pure Home Made Red Currant Jelly . . . . .	Houston . . . . .	Starch Glucose, Benzoic Acid, artificial Color.
483 Plum Jelly . . . . .	Houston . . . . .	Starch Benzoic Acid, colored, Glucose.
484 Peach Jelly . . . . .	Houston . . . . .	Benzoic Acid, colored.
529 Crab Apple Jelly . . . . .	Dallas . . . . .	Benzoic Acid, Glucose.
542 Red Cherry Preserves.	Ft. Worth . . . . .	Benzoic Acid.
543 Apple Jelly . . . . .	Ft. Worth . . . . .	Benzoic Acid Glucose.
629 Raspberry Fruit Jelly.	Bryan . . . . .	Glucose.
630 Currant Jelly . . . . .	Bryan . . . . .	Glucose, Starch, Benzoic Acid, artificial color.
632 Currant Jelly . . . . .	Bryan . . . . .	Glucose, Benzoic Acid, Starch, colored
633 Blackberry Jelly . . . . .	Bryan . . . . .	Starch, Benzoic Acid, artificial color.
648 Raspberry Jelly . . . . .	Waco . . . . .	Saccharin, Starch, Glucose.
Laboratory No.		
480 Game Jelly . . . . .	Chicago.	
482 Orange Marmalade . . . . .	New York.	
530 Blackberry Jelly . . . . .	Los Angeles, Cal.	
631 Plum Jelly . . . . .	Chicago.	
645 Grape Juice Jelly . . . . .		
646 Currant Jelly . . . . .		
647 Pure Guava Jelly . . . . .	Porto Rico.	

CATSUP.

TABLE V—JELLY, NOT FOUND ADULTERATED.

Standard—"Catsup (ketchup, catsup) is the clean, sound product made from the properly prepared pulp of clean, sound, fresh, ripe tomatoes, with spices and with or without sugar and vinegar; *mushroom catsup, walnut catsup, etcetera*, are catchups made as above described, and conform in name to the substances used in their preparation."

tomato canning. These products are put up with preservatives until they

Catsup should be made from ripe tomatoes with pure spices and vinegar. It is, however, often made from unripe tomatoes, or skin and refuse from can be used, and as they are lacking in color, are usually colored with some artificial coloring matter.

The use of coloring matter is objectionable, in as much as it can mask the use of inferior products, such as above mentioned. or also starch, pumpkin. or other adulterants.

There are some catsups on the market which do not contain a preservative. In considering the samples, we have not classed such catsups as illegal, which contain coloring or preservatives, when the fact is stated on the label. There is one case, however, in which this statement was made in an inconspicuous place, and plainly with the object to comply with the Pure Food Law without doing so.

Ten samples were examined; six were illegal, four were legal. (Table VI.)

TABLE VI—CATSUP, ILLEGAL.

Laboratory No.	Purchased in	Adulterants.
358 Tomato Catsup	Bryan	Benzoic Acid, Starch, artificial color.
359 Oyster Catsup	Bryan	Colored, Benzoic Acid, adulterated.
492 Tomato Catsup	Houston	Colored, Benzoic Acid.
493 Ketchup	Houston	Salicylic Acid, Starch, Benzoic Acid, artificial color.
495 Fruit Catsup	Houston	Colored.
569 Tomato Catsup	Houston	Starch.

TABLE VI—CATSUP, NOT FOUND ADULTERATED.

Laboratory No.
357 Tomato Catsup
494 Tomato Catsup
528 Tomato Catsup
520 Tomato Chutney

GRAPE JUICE AND CIDER.

Ten samples of grape juice and cider were examined. (Table VII.) One was found to be illegal. The statement was made on the label that it contained .0028 per cent of sulphur dioxide due to the usual custom of burning sulphur in the casks. On analysis it was found to contain .0048 per cent sulphur dioxide, and the fact that this quantity of sulphuric acid is not due to the burning of sulphur in the casks is shown by the other nine samples of grape juice containing no sulphur dioxide.

TABLE VII—GRAPE JUICE AND CIDER, NOT FOUND ADULTERATED.

Laboratory No.	Purchased in	Solids	Ash	Sugar.
356 Grape Juice	Cleburne			
500 Grape Juice	Houston	17.41	.32	12.74
501 Grape Juice	Houston	21.47	.42	19.58
502 Grape Juice	Houston	16.39	.217	11.72

503 Sweet Apple Cider	.....Houston.....			4.04
504 Apple Juice	.....Houston.....			8.68
523 Grape Juice	.....Bryan.....	15.95		12.17
548 Grape Juice	.....Ft. Worth.....	20.05	.44	14.66
549 Grape Juice	.....Ft. Worth.....	17.39	.40	12.14

TABLE VII—GRAPE JUICE, ADULTERATED.

Laboratory No.	Purchased in	Solids	Ash	Sugar.
499 Unfermented Grape Juice	.....Houston.....	18.42	0.34	13.88

### SODA WATER.

Eight samples of soda water were examined. (Table VIII.) Seven contained saccharin. The use of saccharin in any food product is to be vigorously condemned.

TABLE VIII—SODA WATER.

Laboratory No.	Purchased in	Adulterants.
505 Soda Water	.....Houston.....	Saccharin.
616 Cream Soda Water	.....Bryan.....	Saccharin.
617 Soda Water	.....Bryan.....	Artificial color.
639 Soda Water	.....Dallas.....	Saccharin, artificial color.
640 Soda Water	.....Waco.....	Saccharin.
641 Strawberry Soda Water	.....Waco.....	Saccharin.
642 Soda Water	.....Waco.....	Saccharin.

### MOLASSES, SYRUP AND HONEY.

Standards—"Molasses is the product left after separating the sugar from massecuite, melada, mush sugar, or concrete, and contains not more than twenty-five (25) per cent of water and not more than five (5) per cent of ash.

Syrup is the sound product made by purifying and evaporating the juice of a sugar-producing plant without removing any of the sugar.

Maple syrup is the syrup made by the evaporation of maple sap, or by the solution of maple concrete, and contains not more than thirty-two (32) per cent of water and not less than forty-five hundredths (0.45) per cent of maple ash."

*Maple syrup.* Two samples were examined, and both found to be imitation products. (Table XI.)

*Honey.* Of seven honeys examined, one (from St. Louis) consisted of glucose. (Table IX.)

*Molasses and Syrup.* Seven of eight samples are illegal, as they contain an addition of glucose. The eighth also contains glucose, but it is sold under its true name. (Table IX.) Glucose is a sugar, made from starch, and is perfectly harmless and wholesome; nevertheless it is to be considered as an adulterant when added to molasses. If such an addition is made the fact should be stated plainly on the label, and there would then be no objections to its use. One object of the food laws is to prevent the sale of any article under misleading terms.

TABLE IX—MOLASSES, SYRUP AND HONEY, ILLEGAL.

Laboratory No.	Purchased in	Adulterants.
486 Honey	Houston	Glucose.
526 Molasses.	Dallas	Glucose.
544 Table Syrup	Ft. Worth	Glucose.
545 Sorghum	Ft. Worth	Glucose.
546 Syrup	Ft. Worth	Glucose.
654 Molasses	Waco	Glucose.
655 Molasses	Waco	Glucose.
656 Sorghum	Waco	Glucose.

TABLE X—HONEY AND SYRUP, NOT FOUND ADULTERATED.

Laboratory No.
485 Pure Standard Honey
532 California Honey
553 California Honey
554 Beeville Honey
657 Corn Syrup
666 Honey
667 Honey
668 Pure Honey

TABLE XI—MAPLE SYRUPS, ADULTERATED.

Laboratory No.	Purchased in	Ash.	Leav. No.
631 Maple Syrup	Dallas	.147	.005
620 Maple Syrup	Bryan	.107	.000

### VINEGAR.

Standards—1. "*Vinegar, cider vinegar, apple vinegar*, is the product made by the alcoholic and subsequent acetous fermentation of the juice of apples; it is laevo-rotary, and contains not less than four (4) grams of acetic acid, not less than one and six-tenths (1.6) grams of apple solids, of which not more than fifty (50) per cent are reducing sugars, and not less than twenty-five hundredths (0.25) gram of apple ash in one hundred (100) cubic centimeters (20°C) of the vinegar contains not less than ten (10) milligrams of phosphoric acid (P<sub>2</sub>O<sub>5</sub>), and requires not less than thirty (30) cubic centimeters of decinormal acid to neutralize its alkalinity.

2. "*Wine vinegar, grape vinegar*, is the product made by the alcoholic and subsequent acetous fermentations of the juice of grapes and contains, in one hundred (100) cubic centimeters (20°C), not less than four (4) grams of acetic acid, not less than one (1.0) gram of grape solids, and not less than thirteen hundredths (0.13) gram of grape ash.

3. "*Malt vinegar* is the product made by the alcoholic and subsequent acetous fermentation, without distillation, of an infusion of barley malt or cereals whose starch has been converted by malt, dextro-rotatory, and contains, in one hundred (100) cubic centimeters (20°C), not less than four (4) grams of acetic acid, not less than two (2) grams of solids, and not less than two-tenths (0.2) gram of ash; and the water soluble ash from one hundred (100) cubic centimeters (20°C) of the vinegar contains not less than nine (9) milligrams of phosphoric acid (P<sub>2</sub>O<sub>5</sub>), and requires



not less than four (4) cubic centimeters of decinormal acid to neutralize its alkalinity.

4. "*Sugar vinegar* is the product made by the alcoholic and subsequent acetous fermentations of solutions of sugar, syrup, molasses, or refiner's syrup, and contains, in one hundred (100) cubic centimeter (20°C), not less than four (4) grams of acetic acid."

5. "*Glucose vinegar* is the product made by the alcoholic and subsequent acetous fermentations of solutions of starch sugar, or glucose, is dextro-rotatory, and contains, in one hundred (100) cubic centimeters (20°C), not less than four grams of acetic acid.

6. "*Spirit vinegar, distilled vinegar, grain vinegar,* is the product made by the acetous fermentation of dilute distilled alcohol, and contains, in one hundred (100) cubic centimeters (20°C), not less than four (4) grams of acetic acid."

Unless a statement is made to the contrary, vinegar is cider vinegar, that is, the term vinegar without modifications, implies cider vinegar. Any vinegar not true to name, or up to standard, is classed as illegal. Thirteen of the sixteen samples collected are illegal (Table XII.)

TABLE XII—VINEGAR, ILLEGAL.

Laboratory No.	Purchased in	Total acid.	Ash.	Solids.
376 Apple Vinegar	Bryan	3.99	.07	.23
377 Vinegar	Bryan	4.41	.006	.033
378 Vinegar	Brvan	4.38	.087	0.44
525 Vinegar	Dallas	3.87	.08	.54
527 Malt Vinegar	Dallas	3.11	.02	.23
571 Vinegar	Ft. Worth	3.87	.75	2.39
572 Vinegar	Ft. Worth	5.31	.12	1.33
573 Vinegar	Ft. Worth	3.90	.08	.26
574 Vinegar	Ft. Worth	4.02	.06	.24
575 Wine Vinegar, absolutely pure	Ft. Worth	2.29	.05	.29
576 Vinegar	Ft. Worth	12.99	.04	.41
649 White Vinegar	Waco	2.88	.05	.16
650 Red Vinegar	Waco	4.02	.10	2.02

TABLE XII—VINEGAR, NOT FOUND ADULTERATED.

Laboratory No.
491 Apple Vinegar.
497 Vinegar
498 Pure Cider Vinegar.

### LEMON EXTRACT.

Standard—"Lemon extract is the flavoring extract prepared from oil of lemon, or from lemon peel, or both, and contains not less than five (5) per cent by volume of oil of lemon.

"Terpenless extract of lemon is the flavoring extract prepared by shaking oil of lemon with dilute alcohol, or by dissolving terpenless oil of lemon in dilute alcohol, and contains not less than two-tenths (0.2) per cent by weight of citral derived from oil of lemon."

Judged by the standard given, nine of the sixteen lemon extracts examined are illegal. (Table XIII.) A very expensive part of the lemon extract is

the alcohol used for dissolving the oil, and some manufacturers endeavor to economize by using a low grade of alcohol. But lemon oil is not very soluble in low grade alcohol, consequently the result of this economy is the production of an illegal lemon extract.

TABLE XIII—EXTRACT OF LEMON, ILLEGAL.

Laboratory No.	Purchased in	Oil of Lemon.
371	Extract of Lemon . . . . Cleburne . . . . .	None
372	Pure Lemon . . . . . Cleburne . . . . .	None
374	Extract of Lemon . . . . Bryan . . . . .	None
375	Highly Concentrated Lemon . . . . . Bryan . . . . .	None
467	Lemon . . . . . Houston . . . . .	None
471	Regular Lemon . . . . Houston . . . . .	None
541	Extract of Lemon . . . Dallas . . . . .	3.44
618	Extract of Lemon . . . Bryan . . . . .	None
619	Extract of Lemon . . . Bryan . . . . .	None

TABLE XIII—EXTRACT OF LEMON, NOT FOUND ADULTERATED.

Laboratory No.	Oil of Lemon, per cent.	
373	Extract of Pure Lemon . . . . .	6.25
469	Concentrated Lemon . . . . .	6.31
470	Extract Lemon . . . . .	8.75
472	Extract of Lemon . . . . .	7.34
539	Lemon Extract . . . . .	7.34
540	Extract of Lemon . . . . .	6.87
468	Lemon . . . . .	6.00

LARD.

Standard—"Lard is the rendered fresh fat from hogs in good health at the time of slaughter, is clean, free from rancidity, and contains, necessarily incorporated in the process of rendering, not more than one (1) per cent of substances, other than fatty acids and fat."

Four samples of lard were examined. (Table XIV.) Two were found to be adulterated with cottonseed oil.

TABLE XIV—LARD, NOT FOUND ADULTERATED.

Laboratory No.	Purchased in
381	Pure Leaf Lard . . . . . Bryan.
382	Leaf Lard . . . . . Bryan.

TABLE XIV—LARD, ILLEGAL.

Lard . . . . .	Purchased in	Adulterant.
Lard . . . . .	College . . . . .	Cottonseed Oil.
Lard . . . . .	Bryan . . . . .	Cottonseed Oil.

BAKING POWDER.

Baking powder is a mixture of sodium bicarbonate (or baking soda) and some acid salt, or acid, together with a filler of starch, or flour, the object of which is to prevent action in the can. Some baking powders have no filler. In the dough, the acid salt acts upon the sodium bicarbonate, setting free a gas (carbon dioxide), which leavens the bread. All baking

powders leave some residue. The same gas is produced when yeast is used, being formed at the expense of the sugar in the flour, alcohol being produced at the same time. This gas is also produced when sour milk and soda are used, the lactic acid in the milk liberating carbon dioxide from the soda.

There are three classes of baking powders, according to the acid salt used.

*Cream of tartar powders* are composed of cream of tartar, soda, and a filler. When action takes place in the bread, sodium potassium tartrate, or Rochelle salts, is formed, and is consumed when the bread is eaten. Rochelle salts is a well known purgative. Twelve biscuits would contain about one-quarter of an average dose.

*Phosphate powders.* These are composed of soda and acid phosphate of lime; phosphate of soda, phosphate of lime and sulphate of lime remain in the bread. Phosphate of lime and sulphate of lime are not used medically. Phosphate of soda is a mild purgative. Twelve biscuits contain about one-sixth of a dose of phosphate of soda. The residues left in the bread are probably as unobjectionable as those from cream of tartar powders.

*Alum powders.* These are composed of alum and soda. The residue left in the bread is hydrate of alumina and sulphate of soda (Glauber's salt), the alum being largely, if not entirely, decomposed. The hydrate of alumina may be soluble in the gastric juice. Glauber's salt also has medical use. Regarding the unwholesomeness or wholesomeness of alum baking powders there is a difference of opinion. While the alum is decomposed, it may be soluble in the gastric juice and have an astringent action like alum. Alum powders are much cheaper than cream of tartar powders.

*Alum-phosphate powders.* These contain alum, acid phosphate of lime, and soda. The residue left depends upon the composition of the powder, being partly phosphate of alumina, and the residue found in phosphate and alum powders.

A number of samples of baking powder (twelve) were examined as to their constituents, but the results will not be given for the reason that it is useless to name the constituents of the powder without naming the brand. (See page 10).

One package carried contradictory statements, and is therefore to be considered as misbranded.

## CHEWING GUM.

Twenty samples of chewing gum were examined for saccharin. No saccharin was found.

Nine samples of pepsin chewing gum were examined for their digestive action by the following method:

Two sticks of chewing gum were placed in 25cc water with some chloroform. After a time the gum and chloroform were found to have mixed, and were separated from the aqueous solution now about 55cc, received 12.5cc of fifth normal hydrochloric acid, and one gram fresh albumen from boiled eggs, and was kept at 40°C. for three hours. Twenty-five cc of tenth normal sodium carbonate were added, the solution heated to 90°C. and kept at this temperature ten minutes. The liquid was then filtered and nitrogen determined in the residue by the Kjeldahl method

The results were as follows:

- Gum No. 669 dissolved 8.8 per cent of the albumen.
- Gum No. 671 dissolved 6.9 per cent of the albumen.
- Gum No. 488 dissolved 1.6 per cent of the albumen.

- Gum No. 681 dissolved 4.2 per cent of the albumen.
- Gum No. 672 dissolved 0.0 per cent of the albumen.
- Gum No. 679 dissolved 0.0 per cent of the albumen.
- Gum No. 673 dissolved 0.0 per cent of the albumen.
- Gum No. 685 dissolved 3.0 per cent of the albumen.
- Gum No. 678 dissolved 4.4 per cent of the albumen.

If a pepsin is of standard strength, .00335 grams should dissolve 10 grams recently prepared egg albumen in six hours. The maximum amount of albumen dissolved by any of these gums is 0.09 grams for two sticks of gum, or 0.045 grams for one stick, which is equal to 1-63 of an ounce. Yet at least one of these gums is said to contain 1 grain pepsin in each stick, which should dissolve about 200 grams of egg albumen, if it is of standard quality. We must conclude that none of the gums examined contain pepsin in appreciable quantity, and they are therefore misbranded.

### SALAD DRESSING.

We examined six samples of salad dressing (Table XV). Two samples contained saccharin or boric acid, respectively, and are therefore illegal.

TABLE XV—SALAD DRESSING, ILLEGAL.

Laboratory No.	Purchased in	Adulterants.
613 Salad Dressing	Bryan	Saccharin.
615 Salad Dressing	Bryan	Boric Acid.

TABLE XV—SALAD DRESSING, NOT FOUND ADULTERATED.

Laboratory No.
612 Salad Dressing.
614 Salad Dressing.
643 Salad Dressing
644 Salad Dressing.

### CANNED GOODS.

A number of samples of canned goods were examined (Table XVI). Four were found to be adulterated. Three of them contained saccharin, and one formaldehyde. Saccharin is the artificial sweetener already referred to on page 10.

Canned peas are sometimes colored green with salts of copper. Some samples of this kind were found on the market, but as they carried a statement to this effect on the label, they were not collected for examination.

TABLE XVI—CANNED GOODS, NOT FOUND ADULTERATED.

Laboratory No.	Purchased in
362 Sweet Corn	Bryan.
363 Extra French Sifted Peas	Bryan.
364 Cove Oysters	Bryan.
365 River Oysters	Bryan.
366 Tomatoes	Bryan.
367 Tomatoes	Bryan.
368 Potted Ham	Bryan.

369	Red Hot Chicken Tamales	Bryan.
370	Deviled Ham	Bryan.
383	Cream Corn	Cleburne.
384	Cream Corn	Cleburne.
385	Extra Tomatoes	Cleburne.
386	Small May Peas	Cleburne.
387	Sugar Corn	Cleburne.
388	Tomatoes	Cleburne.
473	Sugar Corn	Houston.
474	Cling Peaches	Houston.
475	Early June Peas	Houston.
476	Extra Fine Peas	Houston.
550	Grated Pineapple	Ft. Worth.
551	Choice Asparagus	Ft. Worth.
552	Corn	Ft. Worth.
555	Sugar Corn	Ft. Worth.
556	Sugar Corn	Ft. Worth.
557	Sugar Corn	Ft. Worth.
558	String Beans	Ft. Worth.
559	Early June Peas	Ft. Worth.
560	Early June Peas	Ft. Worth.
561	Early June Peas	Ft. Worth.
562	Early June Peas	Ft. Worth.

#### TABLE XVI—CANNED GOODS, ILLEGAL.

Laboratory No.	Adulterants.
360	Sweet Corn ..... Saccharin.
361	Sugar Corn ..... Formaldehyde.
533	Early June Peas ..... Saccharin.
	Corn ..... Saccharin.

#### CONCLUSIONS.

Our examination of samples of food collected on the markets of Texas leads to the conclusion that there is a considerable amount of adulteration in certain classes of foods. Many of these adulterations are harmless, but are to be condemned, as they deceive the purchaser, and provide him with an article other than what he supposes he is purchasing.

The Federal law will probably prevent adulteration of goods manufactured or prepared in other States, and shipped into Texas, to be sold in original packages. Adulteration of jelly and preserves, catsup, salad dressing, maple syrup, canned goods, baking powder, olives, and similar goods which are shipped into the State will thus be prevented by Federal authority. Co-operation of the State would no doubt ensure more effective prevention, even in this case.

The Federal law will not prevent adulteration within the State. Adulterated sausage, dried fruit, soda water, molasses, vinegar, lard, and other products manufactured in the State or sold in other than unbroken packages, may occur. A state law, with an appropriation for its enforcement, would therefore be advisable. It would be advisable for such law to conform to the Federal law in its definitions of adulteration and misbranding, and it also should carry a provision requiring the publication of all cases of adulteration. Examinations for adulteration should not be confined

to goods manufactured in the State, and sold in bulk, but should include all classes of food products on the Texas market. Such a procedure is clearly within the province of the State, and by co-operation with the Federal authorities, and vigorous enforcement of the State law, adulteration could be almost entirely prevented.

## APPENDIX.

### GENERAL FOOD LAWS OF TEXAS.

426. *Unwholesome foods.* If any person shall knowingly sell the flesh of any animal dying otherwise than by slaughter, or slaughtered when diseased, or shall sell any kind of corrupted, diseased, or unwholesome substance, whether food or drink, without making the same known to the buyer, he shall be punished by a fine of not less than \$20 nor more than \$100.

427. *Penalty for injurious adulteration.* If any person shall fraudulently adulterate, for the purpose of sale, any substance intended for food, or any spiritous, vinous, or malt liquor, intended for drink, with any substance injurious to health, he shall be punished by a fine of not less than \$50, nor more than \$500.

428. *Penalty for selling injurious adulterated liquors.* If any person shall sell any spiritous, vinous, malt liquor intended for drink, knowing the same to be adulterated with any substance or liquid injurious to health, he shall be punished by fine not less than \$50 nor more than \$500.

429. *Drugs and medicines.* If any person shall fraudulently adulterate, for the purpose of sale, any drug or medicine, in such manner as to change the operation of such drug or medicine, or render the same worthless, or injurious to health, he shall be punished by fine not less than \$50 nor more than \$500.

430. *General penalty.* That no person shall within this State manufacture, offer for sale, or sell any article of food, wines, beers, fermented or distilled liquors or drugs, which is by him known to be adulterated, within the meaning of the law. Any person violating this provision, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine not exceeding \$500.

431. *Terms "food" and "drug" defined.* The term food, as used in this law, shall include every article used for food or drink by man. The term drug, as used in this chapter, shall include all medicines for internal or external use.

432. *Adulteration defined.* An article shall be deemed adulterated within the meaning of this chapter: (a) In case of drugs:

1. If, when sold under or by a name recognized in the United States Pharmacopœia, it differs from the standard of strength, quality, or purity laid down therein.

2. If, when sold under or by a name, not recognized by the United States Pharmacopœia, but which is found in some other Pharmacopœia or standard work on materia medica, it differs materially from the standard of strength, quality, or purity laid down in such work.

3. If its strength or purity fall below the professed standard under which it is sold.

(b) In the case of food or drinks:

1. If any substance or substances has or have been mixed with it so as to reduce or lower or injuriously affect its quality or strength.

2. If any inferior or cheaper substance or substances have been substituted, wholly or in part, for the article.

3. If any valuable constituent of the article has been wholly or in part abstracted.

4. If it be an imitation of, or be sold under the name of another article.

5. If it consists, wholly or in part, of a diseased or decomposed or putrid or rotten animal or vegetable substance, whether manufactured or not; or, in case of milk, if it be the produce of a diseased animal.

6. If it be colored or coated or polished or powdered, whereby damage is concealed, or it is made to appear better than it really is, or of greater value.

7. If it contains any added poisonous ingredient, or any ingredient which may render such article injurious to the health of a person consuming it; provided, that the State health officer may, with the approval of the governor, from time to time, declare certain articles or preparations to be exempt from the provisions of the law; and, provided further, that the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles of food; provided, that the same are not injurious to the health, and that the articles are distinctly labeled as a mixture, stating the components of the mixture.

433. *Exemptions; standards.* It shall be the duty of the State health officer to prepare and publish, from time to time, lists of the articles, mixtures, or compounds declared to be exempt from the provisions of this law, in accordance with the preceding article. The State health officer shall also, from time to time, fix the limits of variability permissible in any article of food or drug or compound, the standard of which is not established by any National Pharmacopœia.

434. *State health officer to enforce law; appropriations.* The State health officer shall take cognizance of the interests of the public health, as it relates to the sale of food and drugs, and the adulterations of the same, and make all necessary investigations and inquiries relating thereto. He shall also have the supervision of the appointment of public analysts and chemists, and upon his recommendation, whenever he shall deem any such officers incompetent, the appointment of any and every such officer shall be revoked, and be held to be void and of no effect. The State health officer shall adopt such measures as may seem necessary to facilitate the enforcement of this law, and prepare rules and regulations with regard to the proper method of collecting and examining articles of food or drugs, and for the appointment of the necessary inspector and analysts, and the said health officer shall be authorized to expend an amount not exceeding \$2,000, for the purpose of carrying out the provisions of this law; and the sum of \$2,000 is hereby appropriated out of money in the treasury not otherwise appropriated, for the purpose of this article provided.

435. *Samples for analysis; penalty for refusing to sell same.* Every person selling or offering or exposing any article of food or drug for sale, or delivering any article to purchasers, shall be required to serve or supply any public analyst or other agent of the State, or local health officer appointed under this law, who shall apply to him for that purpose, and on tendering the value of the same, with a sample sufficient for the purpose of analysis of any article which is included in this law, and which is in the possession of the person selling, under a penalty not exceeding \$50 for a first offense, and \$100 for each subsequent offense.

436. *Penalty for obstructing law.* Any violations of the provisions

of this law shall be treated and punished as a misdemeanor; and whoever shall impede, obstruct, hinder, or otherwise prevent any analyst, inspector, or prosecuting officer in the performance of his duty, shall be guilty of a misdemeanor, and shall be fined in any sum not less than \$50, nor more than \$500.

437. *Printing of regulations.* All the regulations and declarations of the State health officer, made under this law, from time to time, and promulgated, shall be printed for general distribution.

The city council shall have power:

Art. 422. *Inspection.* To establish or erect, or cause to be established or erected, markets and market houses, designate, control and regulate market places and privileges, inspect and determine the mode of inspecting meat, fish, vegetables and all produce and every article and thing therein brought for sale.

The city council shall have power:

Art. 437. *Butchers.* To make such rules and regulations in relation to butchers as they may deem necessary and proper.

Art. 438. *Inspection.* To regulate the inspection of beef, pork, flour, meal, salt and other provisions, whiskey and other liquors, to be sold in barrels, hogsheads, and other vessels and packages; to appoint weighers, gaugers and inspectors, and prescribe their duties and regulate their fees.

Art. 439. *Bread.* To regulate the weight and quality of the bread to be sold or used within the city.