

# Proceedings of the Iowa Academy of Science

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Volume 8 | Annual Issue

Article 30

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1900

## Pure Food Laws

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### Recommended Citation

Bates, C. O. (1900) "Pure Food Laws," *Proceedings of the Iowa Academy of Science*, 8(1), 206-210.

Available at: <https://scholarworks.uni.edu/pias/vol8/iss1/30>

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top of the terrace, several rods in width, renders it impossible that such fragments dropped off from some overhanging bank. If we assume that the terrace was deposited by the river while at its present size and that it has since cut down its valley leaving the terrace above it, we are at a loss to account for the soil-covered loess immediately under the terrace deposits. It seems evident, therefore, that the terrace in question was formed by a very brief and great rise in the waters of the Turkey river.

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## PURE FOOD LAWS.

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C. O. BATES.

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The demand for cheap goods and the intense strain produced by commercial competition has induced many dealers and manufacturers to adulterate their products. This practice enables them to satisfy the buyer and outwit their competitors, not to speak of the immediate financial advantage.

Many and wonderful have been the schemes to cheapen and multiply food and drug products. Some of them have been along the lines of honest scientific investigation and discovery. And their triumphs remain as perpetual monuments to such thought and enterprise. It is not to this side of the subject that we wish to give attention in this paper, but to the other side of the subject, viz.: the schemes for cheapening and multiplying food products by fraud and deception.

There is no law until there is an infringement of rights. Pure food laws, like the common laws of England, are the outgrowth of the just and righteous demand of an honest, prosperous and progressive people. It is not a "King John" that they have to contend with, but a more subtle, selfish and powerful "King Mammon." While the question of Pure Food Laws is in its incipient stage in this country, it should receive the hearty support of every thoughtful

person. Such laws are based on sound principles, and when properly brought to light, will be sustained by an intelligent public sentiment.

It was the dream of Napoleon to obtain food direct from the elements and their ordinary compounds without the aid and intervention of life force, but he did not resort to mixing ground cigar boxes with cinnamon, or pulverized cocoanut shells with pepper in order that each soldier of his army might receive his full weight of rations.

A greater army than Napoleon's striving for greater conquests exists on the American continent to-day, viz.: The American people, striving not only to establish good government and individual protection, but also to extend this good government and individual protection to the very food we eat and drink. In order to do this it is necessary that the government call to its aid all the light that science is able to give; and as chemistry is the most fundamental and exact of the sciences, to begin with, the work will be largely one of chemical investigation.

Among the many subjects that may come before the Academy of Sciences of the State of Iowa, none would be of more interest or of greater value to the public than the investigation *first*, of food products, and *second*, their effects on the human system.

The wholesale adulteration of food products, is a great evil, injurious alike to the reputable dealer and to the public. A drug is adulterated when it differs in strength, quality of purity, from that laid down in the Pharmacopeia.

A food is adulterated: *First*, if any substance has been mixed with it so as to lower or depreciate or injuriously affect its quality or purity; *second*, if any inferior substance has been wholly or in part substituted for it; *third*, if any valuable or necessary ingredients have been abstracted from it; *fourth*, if it is an imitation, or sold under the name of another article; *fifth*, if it consists wholly or in part of deceased or decomposed animal or vegetable substance; *sixth*, if it is colored, coated, polished or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than

it is; *seventh*, if it contains any added substance or ingredients which are poisonous, or injurious, or deleterious to health, or if it contains any deleterious substance not a necessary ingredient in its manufacture.

Candies are adulterated with chalk, or baryta, to give them weight; adulterated with flour to give them bulk; and adulterated with analine to give them color, and adulterated with saccharine to give them sweetness.

Strained honey is adulterated by dropping into a half-pound glass jar of glucose, a small piece of highly flavored honey in the comb, with an occasional fragment of the body of the bee. In some instances this might with propriety be called the adulteration of glucose instead of the adulteration of honey.

Syrups are adulterated with glucose and colored with analine colors, soured syrups are neutralized and reboiled, thereby producing compounds that are very deleterious to health.

Flavoring extracts, such as lemon and vanilla, are as a usual thing adulterated, containing an exceedingly small amount of the essential reagent, and are colored with coal tar products or caram'l. In some instances there is absolutely none of the essential reagents in the so-called extracts.

And so on we might mention almost the entire list of the grocer's goods and many of the druggist's stock of goods.

Second. As to the effects on the human system, foods may be divided into three classes: *First*, those that are wholesome; *second*, those that are questionable; *third*, those that are harmful.

The unsuspecting public has a right to be protected from harmful and questionable foods; the public also a right to be protected in the case of adulterations, whether or not they are injurious to health.

Greed for gold in America is doing what malice in barbarous and semi-barbarous countries is doing, viz.: putting poison even in the foods we drink. The law lends a helping hand in the case of burglary and piracy, but is

slow to declare against the man who robs your food of its nutritious qualities. The man who steals your purse is punished by the law; the man who steals your health is protected by the law; the man who counterfeits your money is imprisoned; the man who counterfeits your food is not molested in his nefarious practice. As Congressman Cousins has said: "It is about time in this country when it should not be necessary to hold a coroner's inquest or have a chemical analysis before asking a blessing."

All the state food laws that have thus far been enacted are of a similar character, and are based on the laws of Massachusetts or upon the laws of Ohio, which are the same as those of Massachusetts made more specific. The National food law proposed and known as the "Brosius Bill," affects only interstate commerce and the territories of the United States. It is similar to the laws of Massachusetts, but has been greatly weakened by the insertions that manufacturers have smuggled in.

As far as I can ascertain the pure food laws are well in force in some of the states, while in others, aside from the dairy laws, they are a dead-letter.

In New York, and Massachusetts, and Indiana, the enforcement of the food laws has been delegated to the the State Board of Health, and not to special commissioners whose sole duty is to see that the laws are enforced, and if necessary, prosecute the offenders. The result has been that the State Board of Health in each instance has been exceedingly lax.

In Connecticut the Food Commissioner has charge of the enforcement of the laws, the analytical work being done at the State Agricultural Experiment Station, and the result has been that the laws have been well enforced.

In Michigan, Ohio, and Wisconsin, the laws have been quite well enforced by a somewhat similar arrangement, but in each instance the battle is fought along one or both of two lines, viz.: *First*, the definition and application of the words "mixture" or "compounds"; *second*, proving guilty knowledge on the part of the vendor.

In regard to the first, the law usually permits the sale of mixtures or compounds, provided they are labeled "mixture" or "compound," but the end of the law is defeated in some instances. For example, such goods as compound pancake flour, compound syrups, etc., are perfectly legitimate articles of food. But when it comes to compounding spices, it is evidently a different matter. The consumer may know, in a sense, what he is getting, but a label that confesses the crime, is evading the law in a bold manner.

In regard to guilty knowledge on the part of the vendor of adulterated foods it is difficult to convict. It will be claimed in his behalf that intent is the essence of crime. But if a saloon-keeper unintentionally sells to a minor, still he offends, and may be prosecuted successfully for his offense.

It will work no hardship in the long run to hold the grocer responsible for the purity of his goods. It is successfully done both in Michigan and Wisconsin. The grocer takes pains to buy his goods from a reliable house under written guarantee, then if he is prosecuted he can fall back on the wholesaler, likewise the wholesaler can fall back on the manufacturer.

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#### NOTES ON THE EARLY DEVELOPMENT OF ASTRAGALUS CARYOCARPUS.

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F. W. FAUROT.

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While a student at the University of Nebraska the writer became interested in plant embryology, a subject which has attracted much attention during the past few years, especially since the remarkable work of Strasburger<sup>1</sup>, Guignard<sup>2</sup>, and other European botanists. Many American botanists, however, have since done much work along embryological and cytological lines, viz.: Chamberlain, Webber, Schaffner, Harper, Coulter, and others. Most of the work that has been done is of a purely technical and botanical character, excepting that done in the