

<b>Supporting Question 1:</b>	What did the “Poison Squad” experiments reveal?
<b>Source 1C:</b>	Excerpts from Dr. Wiley’s Borax Adulteration Report that was submitted to Congress and published by the Bureau of Chemistry.
Wiley, H. W. <i>Influence of Food Preservatives and Artificial Colors on Digestion and Health</i> . 1904.	

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H. W. WILEY, CHIEF OF BUREAU.

## **INFLUENCE OF FOOD PRESERVATIVES AND ARTIFICIAL COLORS ON DIGESTION AND HEALTH.**

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### **I. BORIC ACID AND BORAX.**

The necessity for an investigation of this kind is found in the very general use of certain chemical compounds for preserving foods and of certain coloring matters for imparting to foods a tint resembling that of nature, which they may have lost, or of producing in food products certain colors which are attractive to the eye of the consumer. [...]

The use of preservatives in food products is as old as civilization, and there is no occasion in these investigations for adding to the studies already made of the long-established preservative agents. [...] However, one of the chief characteristics of the modern chemical preservative is that it is often almost without taste or odor, and for this reason its presence in a food product, unless specifically proclaimed, would not be noticed by the consumer.[...]

Legislation has been enacted concerning the use of preservatives and coloring matters in foods in foreign countries and in the various States of the United States. This legislation is of varying character, prohibiting in some countries what is allowed in others, establishing rules and regulations which are local in character, and, in general, producing a state of affairs which is annoying to the manufacturer of food products and the dealers therein, and which, by the diversity of laws and decisions relating thereto, does not secure to the consumer the full benefit which was intended. The desirability of some investigation, therefore, is apparent, in order to establish certain principles concerning the use or prohibition of these substances, which, by reason of their more general applicability, may influence local and general legislation in a manner tending to secure a greater uniformity and efficiency. It is also evident that if these investigations are conducted under some direction not particularly interested in the construction of

any law nor associated in any commercial way with the interests of either manufacturer or consumer, they will have a greater weight.

The Secretary of Agriculture is manifestly the proper official to undertake and direct such an investigation. The interests of the Department over which he presides are associated alike with producers, manufacturers, and consumers of food products, and thus any bias which might exist in other quarters in favor of any particular interest would be eliminated. For this reason the investigations conducted under his direction, even if no more thorough, painstaking, or reliable than if carried on under other auspices, would be commended more generally by reason of their freedom from influences which might tend to divert them from their intended purposes.

### **EFFECT OF BORIC ACID AND BORAX UPON GENERAL HEALTH.**

The most interesting of the observations which were made during the progress of the experiments was in the study of the direct effect of boric acid and borax, when administered in food, upon the health and digestion. When boric acid, or its equivalent in borax, is taken into the food in small quantities, not exceeding half a gram ( $7\frac{1}{2}$  grains) a day, no notable effects are immediately produced. The administration of boric acid to the amount of 4 or 5 grams per day or borax equivalent thereto continued for some time results in most cases in loss of appetite and inability to perform work of any kind. In many cases the person becomes ill and unfit for duty. Four grams per day may be regarded, then, as the limit of exhibition beyond which the normal man may not go. The administration of 3 grams per day produced the same symptoms in many cases, although it appeared that a majority of the men under observation were able to take 3 grams a day for a somewhat protracted period and still perform their duties. They commonly felt injurious effects from the dose, however, and it is certain that the normal man could not long continue to receive 3 grams per day.

In many cases the same results, though less marked, follow the administration of borax to the extent of 2 grams and even of 1 gram per day, although the illness following the administration of borax and boric acid in those proportions may be explained in some cases by other causes, chiefly grippe.

It appears, therefore, that both 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.