

# “Only the Brave Dare Eat the Fare”: The Poison Squad Revisited



by Suzanne White Junod, Ph.D.

The infamous “Poison Squad” studies, initiated on December 20, 1902, will pass their centennial mark this year. The “hygienic table studies” as Harvey Wiley, Chief of the Bureau of Chemistry, preferred to refer to them, were a crucial prelude to enactment of the Pure Food and Drugs Act of 1906. As discussions of a pending federal food and drug law began to revolve around the safety and suitability of many chemicals used to preserve foods for distribution to distant places, some bold early 20<sup>th</sup> century chemists thought that the logical place to start their assessment was with man himself. Although the language was vague, there is little doubt that Congress approved the protocol of the study. In 1902, Congress appropriated funds for a major investigation on “whether preservatives should ever be used or not, and if so, what preservatives and in what quantities.”

No animal studies, no carcinogenic, mutagenic, or teratogenic studies, no institutional review board oversight or informed consent forms preceded this study. The young men who volunteered for the study, many of whom were young chemists themselves, agreed to eat nothing outside what was provided

during the study, except for water, which had to be measured. They also agreed to submit their bodily waste for analysis. Somewhat paradoxically, although they reported temporary noxious effects from megadoses of some of the preservatives they tested, as a group, the young men emerged in fine health, which in time came to be attributed to the regular meals and nutritious fare fed them during the course of the study. In spite of the inconveniences, the studies attracted scores of eager volunteers who, once selected, worked in teams of 12 to test the effects of large doses of borax, salicylic acid, formaldehyde, sulphuric acid, sodium benzoate, and copper salts on the human body. Sanctioned by Congress, implemented by Bureau scientist F.C. Weber, and overseen by Harvey W. Wiley, these human table trials attempted to discern the effect of chemical preservatives on human physiology. The experiments made the daily papers and the results were controversial. Later, Johns Hopkins professor Ira Remsen led efforts to reproduce the studies, and eventually called into question some of Wiley’s conclusions.

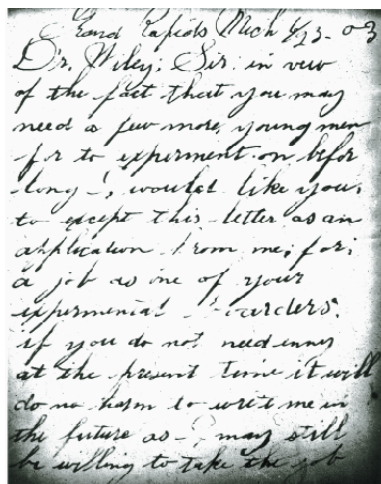
The historical value of the Bureau’s studies, however, lay in their appeal to



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*Dr. Junod is a Historian with the Food and Drug Administration, Rockville, MD.*

the public. George Roth Brown from the *Washington Post* christened the group the “Poison Squad,” and the public fancy was aroused. Wiley learned to work with the media after newspapermen, shut out of formal interviews and forever in search of a new angle, took to interviewing the cook through a basement window. Minstrel shows exaggerated the dangers and bantered about the humorous aspects of the study, while bad doggerel proliferated:



Many applicants beseeched Wiley to join the preservative experiment. Few were selected.




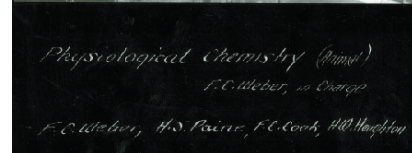
The “Poison Squad” was not static, however. The dozen volunteers changed many times over through the years that the study continued.

*Oh we're the merriest herd of hulks that ever the world has seen;  
We don't shy off from your rough on rats or even from Paris green;  
We're on the hunt for a toxic dope that's certain to kill, sans fail;  
But it is a tricky, elusive thing and knows we're on its trail;  
For all the things that could kill we've downed in many a gruesome wad;  
And still we are gaining a pound a day for we are the Pizen Squad!*

The staid Bureau scientists learned a totally unanticipated lesson from their studies. They watched in amazement as the public, lackadaisical at best for nearly two decades as draft food and drug legislation had been under discussion, was suddenly drawn into the debates over food safety. The studies also changed Wiley’s mind about the safety of chemical preservatives. Alarmed at the adverse effects he witnessed from large doses of the preservatives, his concerns became quantitative ones. If one manufacturer were allowed to use a substance, all had to be allowed to use it. Because diets were constructed from many sources, Wiley concluded it would

be a formidable, if not impossible, job to control the number and amount of preservatives consumed in an individual’s diet.

Recently, the Surgeon General has expressed genuine alarm at what he has deemed an “epidemic of obesity” in our country. With the 20/20 hindsight of history, it appears that one of the most important lessons that should have come from the Poison Squad studies is one that has been consistently overlooked. It is a common sense lesson, validated by mothers since time immemorial: a moderate, high-quality, well-balanced diet, that includes a wide variety of foods, taken in meals consumed three times a day, with water in-between meals, protects and contributes to good health. Such a diet may even have helped the Poison Squad volunteers prevail over what were then unknown and untested preservatives. 



Physiological Chemistry (Animal),  
F.C. Weber in charge.

**\*Pictures courtesy  
of  
FDA History Office**