

February 21, 1938

Mr. R. H. Parsons
Leavenworth Fruit and Cold Storage Co.
Leavenworth, Washington.

Dear Mr. Parsons:-

I have your letter of February 15th with its discussion of the difficulties imposed upon apple growers by the regulations of the Pure Food and Drug Bureau of the Department of Agriculture. I realize these difficulties and I am somewhat sympathetic with the problem of the apple grower. On the other hand I think you are going rather beyond the implications of our work in believing that they justify the relaxation of the activities of the Food and Drug Bureau. A great deal more experimental work will be required before one can present any reasonable evidence that the present tolerance on lead is too low. Obviously in a matter of this sort, if there is to be any error, it should be on the side of safety. I can not see at present where there is any more logical basis for setting the tolerance at 0.025 grains per pound than at, shall we say, 0.01 grains per pound. My own opinion is that the present situation is not an especially dangerous one, and if I were responsible, I would not change it without adequate evidence.

You may be interested in knowing that we are engaged in some studies which bear rather heavily on this problem. Sometime we may be able to obtain evidence which will prove that the tolerance could be increased. If so, we shall publish our results and point out such conclusions.

With regard to your question as to the absorption or neutralization of lead by some substance in the apple, I can say only one or two things. First, the lead is not absorbed by the apple to any very large extent. Practically the entire surface lead remains upon the surface, while that which is found within the substance of the apple is imparted to it by the physiologic processes which go on within the tree and which permit some of the lead in the soil to be incorporated in every part of the tree, including its fruit. Such lead is only present in minute traces and so far as I know there is nothing in or on the apple

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insoluble compounds of lead are absorbed to some degree from the alimentary tract so that any lead compound in an apple must be regarded as capable of some degree of absorption. The extent of the absorption of various compounds, even of lead arsenate itself, has not been determined, but it seems highly improbable that any less soluble compound is formed as a consequence of the contact of lead arsenate with the apple. Rainfall washes away the compound to some degree and removes more arsenic than it does lead, presumably leaving a somewhat less soluble compound of lead behind. This fact may have some significance from a toxicologic point of view, but I doubt it.

Very truly yours,

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Robert A. Kehoe, M.D.

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