13th November 1920.

F. P. Kendall, Esq.,

Portland, Ore.

My dear Kendall;-

I must apologize for the delay in carrying out my promise to advise you of the results of the National Canners Association examination of our fish. There were extenuating circumstances however, one of which was waiting for a complete report, (which is not yet available); and another was your trip to San Francisco, report of which had reached me.

Dr Clark's examination of the fish submitted him for inspection showed they contained live bacteria which would have been destroyed by a longer sterilizing period. His opinion - which was also shared by Dr Bigelow - confirmed the conclusion I had arrived at when the trouble first developed, viz., that it was due to the cooling system employed after the cans left the retorts. This cut down the "after cooking" sterilization, with the result that some bacteria survived. Had the cans been air cooled in the ordinary manner no trouble would have been likely to develope.

Dr Clark found however that another sample I submitted him for purposes of comparison, and which while air cooled was processed for the same period as the defective pack, i.e., 65 minutes, also contained living bacteria. The bacteria found in this sample were anaerobic, and would require oxygen before the could develope. From a food consumption standpoint the fish was good, and would remain so as long as the can continued tight. The mere presence however of the living bacteria was evidence of under-processing, and this I wish to overcome.

Therefore, on my return to Vancouver I had samples sent to Dr Clark from the packs of each one of our canneries, and asked him to examine same for bacteria. Three of these lots were ¼ flats processed 65 minutes; one lot was 1b. talls processed 70 minutes; and one lot ½ flats processed 75 minutes. All were air cooled. It is the report concerning these which has not yet arrived, and for which I was waiting before writing you. When it does come to hand I will advise you.

I also sent Dr Clark sample lots of 1917, 1918 and 1919 salmon, and asked him to report if any of them contained living bacteria. The 1918 goods have passed through two winters; the 1917 through three winters, and I wished to ascertain if the varying alternating periods of atmospheric changes which they had been subjected to had had any effect on their keeping qualities. In a soldered tin we know that salmon would keep indefinitely, but we are not sure whether goods packed in sanotary tins will do likewise.

The weeping of the liquid contents through the rolls when goods are re-processed would indicate the possibility that contraction and expansion due to atmospheric changes might corrode or destroy the compound in the rolls. If such action does take place packs carried over for one or more seasons may go bad no matter how well sterilized it might have been in the original processing. I will let you know Dr Clark's report as to this when I hear from him.

In Seattle, I had a talk with Dr Bigelow concerning the plums you opened for me, and asked him his opinion of the possibility of germination of the seed causing the "swells". He did not think your "swells" were caused by this, but were due to hydrogen gas liberated by the action of the acid of the plums on the tin or iron of the can. The most common cause of the swelling of fruit cans, he said, was due to hydrogen produced by the acid contents on the metal of the can. Such fruits of course have normal taste and odor and are entirely suitable for use as food. When spoilage by bacteria or yeasts occurs to a sufficient extent to cause any bulging in the ends of the can, it almost always, perhaps always, betrays itself by taste or odor. He added that if anything the acid action on the container was more pronounced in enamelled than in plain tins, as in the former case all the acid strength was concentrated on any spot laid bare by flaws or cracks in the enamel coating, while in plain tins it was dissipated over the entire surface of the container. In the latter case the action seemed less productive of hydrogen gas.

On the return journey from Portland I interviewed some of the Sound canners about their willingness to contribute funds to privately propagate Fraser river sockeye in 1921. All whom I saw were quite agreeable, and most of the Canadian canners of Fraser sockeye are also willing. I wrote the Alaska Packers Association asking for their co-operation but they replied, declining to join any private undertaking, but were agreeable to donate funds for propagation purposes to Mr Babcock, Provincial Commissioner of Fisheries. This is not feasible, both from a government standpoint and from the unwillingness of all the other interests to put funds in the hands of any upholder of the old system, such as Mr Babcock undoubtedly has been.

Frank Wright has invited me to attend the annual meeting of the Association of Pacific Fisheries in Seattle next week, to explain my proposition to a representative gathering of the Sound canners. If possible I will be there, and I trust you will also. If some one like you could explain to the A. P. A. what is intended they would join with the other interests, and I would like you to take it up with them after learning my ideas.

With kindest regards,

Yours sincerely

HD/P.