

packing butter was in using a pine package, which is the most objectionable kind you can use as to material; it imparts a very offensive odor, and while the odor of pine is exceedingly agreeable in itself, when the odor of pine is mixed with the odor of any food product it becomes exceedingly offensive. Now a package that is built like this (McKinnon package) with a cover close on top and left that way will in half an hour become full of heat, say all around as low as that piece (half way down the side). The hot air won't go down and run up that way, and if you have cold air all around that, it will take a very long while for the cold air to be diffused through this warm air. If there be an opening at the top to enable it to rise it will cool the package very quickly. But the safety of that package, I should judge, is that you have just enough of a spread there at the top to let the warm air out, whereas in this package each specimen of fruit becomes a small slow-drawing stove, the fruit being the fuel and the generation of heat going on; so that you may have a thermometer outside the package down to 38°—where it is held down at ship—and the thermometer inside the box is 68°.

Mr. McKINNON: May I ask if the fruit in the upper part of the cases was found to be more decayed than the fruit in the lower half of the cases?

Prof. ROBERTSON: In those I examined in Montreal, yes. From England I have no report, but some packages that landed in Montreal in a very warm condition we kept there and sold there. I had these opened, and counted the peaches out myself. I had these cases at one time in Montreal kept in a large cold storage room where the thermometer was 36° all the time, and with a 600 h.p. plant there was no trouble in having that cooling power, and after the fruit being there for forty-eight hours the fruit inside here I should say was something over 65°, whereas the ventilated package that would allow an escape of the air like that would get cooled down in less than twelve hours. We have so much of fragmentary information on this part of it that this I may say to you: not grudging the cost the department was at last year in this matter, we are going to have a cold storage building in Ottawa this summer just to find out these things, and we will know exactly, having it under our eye all the time so as to learn precisely how long it takes to cool certain packages, and the temperature at which the different kinds of fruit can be kept in the very best way. There is no way of knowing except doing it ourselves that way, and we are doing it in that way so that the public at large can profit from it. Meantime make sure of ventilation near the top where there is none, and let the hot air escape. What I have to say next in the way of suggestion, and also perhaps a text for somebody's remarks afterwards, is not on the package but on the packing. Now there is a wide difference between the two. You may have an excellent package and so pack fruit as to make the fruit spoil quickly. The packing includes first the handling. Now while I do, I know very little about the handling of tender fruits—at least I have this knowledge from my general knowledge of the causes of decaying substances, that it is far better to handle the tender fruit like the peach once than six times in packing, and it is much safer to handle the fruit when in cold condition than in a warm condition, even the one time, when you can manage it. So if in the handling of peaches they could be picked from the trees and then put in a cool place at once in baskets before any attempt was made to sort or pack them they would not suffer, whereas I could see marks of fingers showing where they were pulled or handled over, causing them to spoil at this place first. I think that is a matter that should be looked into as to whether it would not be better to have a place to put the fruit directly from the orchard, and leave it there for say twelve hours before any sorting or wrapping was done at all, and then it would be wrapped when cooled, and the fruit would be protected. Then in packing a good deal of care must be taken as to the temperature when the fruit is packed so as to keep the outside temperature from touching it. I say this by way of explanation and also by way of getting as much information as possible. If I put fruit in a case like this—thoroughly close and padded all round with excelsior or with peat moss, and each separate fruit wrapped in paper—and then put a tight cover on and have a tight box, if each separate fruit was quite cold when put in the ice, I could send that quite safely to England without cold storage at all; the cold fruit being insulated by the thickness of this box and the half-inch of excelsior lining of paper would keep the moisture from getting at the fruit. Now, if I pack that fruit in a box warm I do precisely the

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be cooled would co plan of c dian fruit I repeat t There is a from its p able kind Now, I th do its bes and there, what is to spread the gives a m then most to the stea preservati clearer tha of decay. ing germs, of trying t matter to cold storag one has to For want o have an ag agent will destroy fru changes th molds and form. No in paper w protection to prevent dition that where the rapidly in a form of rain Canadian fr they are fu should be s goes to Eng all fruits th