"It is now clear that Mr. Dadant, and others, who contend that a temperature of 140° to 212° is sufficient to sterilize wax, are mistaken." And further: "From all that seems to be known at present, wax kept at from 284° to 290° for 3 hours, might be sent out *without any qualms of conscience* (italics are mine) as to its being the means of spreading foul-brood.

In answer, I will say that Mr. Corneil has made a great mistake in thinking that wax melted with water, as we do, is heated in *hot air*. During the melting, and long before the boiling of the water, we see the steam produced passing through the melted wax. Our object in melting wax with water, is to wet all particles of extraneous matter, to get rid of them. These particles, when soaked with water, are heavier than liquid wax, and even the smallest and lightest substances sink to the bottom.

Sometimes we find bits of paper, which, soaked with wax, are so transparent that it seems impossible to separate the two substances, yet when our cakes of wax are cold, we find the paper altogether clear of wax. Suppose that, instead of paper, we have a spore of foul-brood, will this spore remain dryer than the paper? Consequently, we are right when we hold that all the spores of foul-brood are killed by the temperature of boiling water, since we maintain this temperature in our boiler for more than 4 minutes.

Besides, although we have certainly worked wax from foul-broody combs by the thousand pounds, and as our bees, which have free access to our wax bins, and to the barrels in which we put the refuse of our meltings, have never been affected with foul-brood, can we not, without any qualms of conscience, continue to manufacture comb-foundation by the same methods that we have used so far?

In calling our attention to this prejudice, as it is entertained by some bee-keepers, Mr. Corneil has done a service to our community; for it seems that I have well demonstrated that foul-brood cannot be scattered by comb-foundation, as the beeswax is sufficiently heated.

CHAS. DADANT.

Mr. M. H. Hunt sends us the following in reply to Mr. Corneil:

All my beeswax is now refined in a wooden tank, and the steam goes directly into it, which must raise the temperature to a very high point—so much so, that after shutting off the steam the wax will remain liquid all night. It is necessary to have the steam go directly into the wax to heat it above the boiling point. Water cannot be heated above the boiling point, unless it is confined. This great heat kept up through the day, and again remelting the wax to sheet, must, according to Mr. Corneil's own figuring, be all that is necessary to destroy the germs.

M. H. HUNT.

Mr. E. R. Root gives his views of the matter, and replies to Mr. Corneil in the following words:

Mr. Corneil is, I think, magnifying a mole hill into a mountain. All history of foundation making, and its use, is against his argument as above stated. Permit me to say that I have tried the experiment repeatedly, of putting foundation, made from diseased combs, into our hives, and I never noticed any disease that ought to have developed later, according to Mr. Corneil's argument. Has our Canadian friend tried the experiment himself?

In the next to the last paragraph he intimates that the wax should be kept at a temperature of 284° or 290° for *three hours*, before running into foundation. Does not Mr. Corneil know that this would very nearly ruin wax for foundation making? Experiments in our own factory have shown that we could not go much above the boiling point. If I am correct, Mr. Corneil's remedy, then, is beyond the reach of application.

Our friend makes a distinction between dry heat and moist heat for killing germs. I have no doubt he is right; but I somewhat question his grounds, that melted wax has only a dry heat effect upon any possible germs that may be present in it.

I do not say that this *is* so—I simply raise the question. If this is true, it will not disprove the figures which Mr. Corneil gives from the eminent scientists whom he quotes, nor will it prove that foundation may be the means of propagating foul-brood; because, if 211° is sufficient to sterilize wax at a *moist* heat: then we apprehend no danger.

Allow me to repeat, by way of emphasis, that all history of foundation is against Mr. Corneil's position.

ERNEST R. ROOT.

[On page 448, Mr. Corneil approvingly quoted this remark: "An exposure of 1½ hours to a temperature of 212° appeared to be equivalent to an exposure of 15 minutes at 228°"—just one-sixth of the time. The difference between 212° and 257°, the point at which spores are surely killed, is 45°. If that 1½ hours are reduced to one-sixth of that time by the increase of 15° in temperature, then 1½ hours at 212° equals 5 minutes at 257°. And Mr. Corneil affirms that "it has been ascertained that a low