

find spraying with a syrupy fluid very messy ; but time is needed before one can judge of results. I give his recipe and treatment in his own words :

"To three pints of soft water add one pint of dairy salt. Use an earthen vessel ; raise the temperature to 90° F.; stir till the salt is thoroughly dissolved ; add one pint of soft water, boiling hot, in which has been dissolved four table-spoonfuls of bicarbonate of soda ; stir thoroughly, while adding to the mixture sufficient honey or syrup to make it quite sweet, but not enough to perceptibly thicken ; to one-quarter ounce of pure salicylic acid (the crystal) add alcohol sufficient to thoroughly cut it (about one ounce), and add this to the mixture while still warm, and when thoroughly stirred leave standing two or three hours, when it becomes settled and clear.

"Treatment.—Shake the bees from the combs and extract the honey as clearly as possible. Then thoroughly atomise the combs, blowing a spray of the mixture over and into the cells, using a large atomiser, throwing a copious spray ; then return the combs to the bees. Combs having considerable quantities of pollen should be melted into wax and the refuse burned. If there is no honey to be obtained in the fields feed syrup or the honey which has just been extracted. If syrup is used add one ounce of the remedy to each quart of the syrup fed ; if the honey is used add 2½ ozs. The honey and syrup should be fed warm, and the remedy thoroughly stirred in, and no more should be furnished than is consumed. Continue the treatment by thoroughly and copiously spraying the diseased colonies at intervals of three days, simply setting the frames apart so as to direct the spray entirely over the combs and bees. In order to keep the bees from bringing in fresh pollen, burn old dry bones to an ash, pulverise in a mortar and sift through a fine wire cloth ; make a mixture of rye-flour and bone-flour, adding enough of the syrup or medicated honey to make a thick paste. Spread this paste over part of one side of a disinfected comb, pressing it into the cells with a stiff brush or a thin honey knife, and hang this in the hive, next to the brood. Continue this treatment until a cure is effected. Keep sweetened brine, at all

times accessible to the bees and continue the use of the rye and bone flour paste while the colonies are recuperating."

Microscopic examination of *Bacillus alvei* shows clearly that it is subject to variations in the vigor of its growth. Sometimes the rods are longer and stouter than at others ; but its colony form is quite constant, and the spores and the methods of their production are always the same. In blood serum this bacillus grows with even greater vigor than it does in the body of the bee. Variation, which will account for the disease being sometimes especially virulent is commonly observed in micro-organisms, and forms the very basis of the system of attenuation for inoculation purposes as practised by Pasteur and others. Where the queen is diseased, probably no treatment will be efficacious until she has been replaced. This is a problem which seems to forbid solution, since we have no means of determining the condition of a queen until her life has been sacrificed. Those who believe that the replacement of the queen is all that is needed to effect a cure, will soon get evidence of their palpable error. Pricking a needle into a diseased larva and then touching a larva in a healthy hive with it, is, four times out of six, enough to start a vigorous attack. It could not, however, be supposed that the queen is, in such a case, the cause of the malady. Summer is, without doubt, the best time for treatment, as then the bees can not only more easily bear the necessary disturbance and the chilling, but they can be aroused to rapid brood raising, which involves the application of the remedy.

Bags containing camphor, placed within an infected stock, have been stated to work a cure. They probably are an advantage and might be used in winter ; but, in my own trials, *Bacillus alvei* has gone on developing and extending its ravages, notwithstanding the presence of the camphor. The so-called coffee cure it cannot be uncharitable to regard as a mere silly whim, which does not deserve to be dignified by discussion.

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