he weather conditions are such that " Ex here is a month of cold weather ms in anging from 10° above to 10° below

ero, then a warmer spell a little bove the thaw-point, followed by 3 Hut r 4 days of weather at that tempera-"How me, followed again by freezing of the reather, such weather continuing Beams lear up till actual springtime, then I ould still advise the indoor method.

H. G. ut if, on the other hand, the winters re somewhat open, there being perteriopticaps a month of zero weather, follow-Root d by a month of warm open weather, ulture, patinuing thus through the winter, epers he bees should be wintered outdoors visited a double-walled hives. We may or of the ave in our locality a month of real s of the old weather, but two weeks is about long as it lasts at a time, when we Pape ill have a general breaking-up, a Exper aw, and perhaps rains. This will Exper st for 3 or 4 weeks, when we will we another cold spell, lasting pos-

Fletche ly a month. This kind of weather t at the in continue in alternation till along , Ottam April. In such a climate the rchards erage beginner will do far better new bus th the outdoor method.

## rious Forms of Diseases Among Bees-Cause and Cure.

By Dr. W. R. Howard, Fort Worth, Texas.

er read at the National Bee-Keepers' Convention, Chicago.

n 1881 and 1882 I undertook the estigation of bee paralysis and entry. As laboratories for original earch were then crude compared h those of the present day, my cess was not pronounced. Since ave been better equipped with oratory appliances, and become er acquainted with the technic essary for such investigations, I e, again, partially investigated e diseases.

dysentry, I have succeeded in iture abo ing several forms of fungi and recomme er bacteria, none of which were

isolated or determined; neither were the experiments made with cultures capable of reproducing the disease in prosperous colonies I have quite a number of times repeated these experiments without arriving at any satisfactory conclusions. I have found as many as a dozen forms of fungi, besides numbers of algids, water bacteria, etc., growing in cultures made from bees of a single colony; this, at first, was somewhat strange. but further investigation showed that the pollen (bee-bread) found in these combs furnished many of the same forms which, on suitable media, grew luxuriantly. Cultures made from the excreta and body contents gave similar results.

Here allow me to mention a point worthy of attention, since it has been taught and is very generally believed. that old bees do not consume pollen when in a normal state; that they may be successfully wintered without it; that they do not require it except for brood-rearing, etc. I have always found more or less pollen in the stomach of all bees, both old and young, whether suffering from disease or in a healthy condition. I have always found pollen more abundant in the bees during confinement, especially in the spring months, but I have examined them during all the months with the same results. Climate may have something to do with it, as bees here are usually not confined over a week at a time during the winter months. In all bees suffering from dysentery, that have fallen under my observations, they have had an abundance of pollen, heavily charged with various forms of fungi in their excreta.

outbreaks of These dysentry usually follow a period of activity closed with a few days of confinement, on account of showers or cold weather sufficient to prevent daily

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