June, 1910

the swarm 1, if plenty n is given. ony boiling per full of we to do and allow m the balmeans. To ut off any d nest as joing to be ir crop of our queens rough the queen raisno use for either are but simply est honey. brood and put on the of empty elow. Put and honey 1 cut his frames by I do not understand 1g who do ars experi-1 that has

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HONEYDEW

Not An Exudation from the Leaves of Trees.

W. White.

Both in America and Europe the opinion appears to be growing that honey-dew is largely, if not chiefly, an exudation from the leaves of various trees. In England especially, a good deal has recently been said and written on the subject and several prominent bee-men there have declared emphatically in favor of that view. The honey crop in many parts of the Old Country was a complete failure last year owing to the excessive quantities of honey-dew collected by the bees, and some apiarists appear to have found consolation in the belief that the undesirable substance was largely of vegetable origin. Early notions ascribed to honey an origin both exalted and poetical, and we have met with ancient skeppists who positively rejoiced at the sight of the glistening drops descending from the clouds. Those gentle minds that shudder at the idea of honey-dew being an aphidian excretion appear to be comforted by the assurance of its being at the very worst a mere secretion, comparable with cow's milk. We are surprised, however to find that men of great skill and knowledge like Mr. T. W. Cowan and Mr. D. M. Macdonald, whose writings are known almost as well on this side of the Atlancic as in Great Britain, should argue in favor of honey-dew being chiefly a purely vegetable produce. We have read most carefully what both these two writers have said recently on the subject and feel that they have taken the wrong side. Their statement that honey-dew is chiefly produced without the agency of insects is contrary to the experience of careful ohservers, and is not difficult to disprove ; but D. M. M's. contention that honey-dew is really the cause of aphids visiting the plants is really grotesque. Fruit growers know only too well that aphids are not surface feeders. Yet D. M.M. with all the emphasis he can express in italics in a recent issue of the British Bee Journal declares "Aphids do suck up the already exuded juice"!

Perhaps it would be well for us to present as fully as we are able the various arguments put forward by the "nonaphidian" men. When Buckton wrote his magnificent monograph on Aphides the case appeared to stand entirely in favor of those who attributed honey-dew to the agency of insects. Since then various pamphlets and articles have appeared. Of these the two most important are those by Professor Büsgen and M. Gaston Bonnier. Büsgen after profound study and long investigation of the subject of honey-dew takes the orthodox view as to its production, whilst on the other hand M. Bonnies makes out a strong care for its secretion under certain circumstances independently of the agency of The French writer described aphids. with a certain degree of minuteness now he conducted a series of experiments, taking branches of trees and placing them in the artificially saturated atmosphere of a bell glass, in which manner he claimed to have induced a sweating of honey-dew from the leaves. We have not this pamphlet by us as we write, but we believe Bonnier omitted to state whether the sweating occurred on the upper or the lower surfaces of the leaves. As is well known, the stomata of leaves are found almost entirely on the under sides, and we should naturally expect that any exudation would take place through these pores, but who has ever witnessed honey-dew anywhere else than on the upper sides? Mr. Cowan appears to have referred to Bonnier's experiments when he stated at the recent conversazione of B.B.K.A. that anyone could prove the production of honey-dew by leaves. "If you take a branch of a tree and put it in an atmosphere saturated with moisture, after carefully examining the leaves to see that

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