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The Canadian Bee Journal

PUBLISHED MONTHLY

JAS. J. HURLEY, EDITOR, BRANTFORD, ONTARIO, CANADA

Vol. 20, No. 12.

DECEMBER, 1912

Whole No. 574

MENDELIAN METHODS APPLIED TO APICULTURE

BY F. W. L. SLADEN, F.E.S.

[We are able, by special arrangement with Mr. Sladen and the publishers of the *British Bee Journal*, to print the following lecture given at the Lecture Hall, Zoological Gardens, Regent's Park, London, on September 10th, 1912, by the new Dominion Assistant in Apiculture, just prior to his departure for Canada. The subject is full of interest, not only to breeders of live stock in general, but also to bee-breeders, and we have no hesitation in advising every reader to peruse the article carefully, and if any doubt upon any point arises in the mind of any reader, we would suggest that an enquiry be addressed to us. We will endeavor to help any such who care to write us.]

The Mendelian method is the method of investigating the laws of variation and heredity in the light of a most important principle of heredity named after its discoverer, Grégor Mendel, monk, and afterwards abbot, of Brunn, in Austria, who announced it in 1865. Although Mendel's conclusions were published in a fairly widely-circulating scientific journal, no notice was taken of them until they were rediscovered and verified by three independent investigators in 1900. Mendelism has thrown a flood of light on the way characters are transmitted, and has formed one of the starting points of the new science of eugenics, or breeding for improvement, which is destined some

day to be one of the most important of the applied sciences.

It is necessary to have a clear idea of what Mendelism is.

Mendel made his classic experiments with the common garden pea. In one series of experiments he crossed a tall pea with a dwarf pea, and found that all the resulting hybrids were tall like their tall parent. He named the character that prevailed in this first generation of hybrids—in this case tallness—the *dominant*, and the character which disappeared, namely, shortness, the *recessive*. He sowed the seeds from these hybrids, and found they produced tall and shorts in the proportion of three to one. He was able to prove that the tall in this second generation of the hybrids were of two kinds, those that produced tall only, and those that produced tall and shorts in the proportion of three to one, like the tall in the first generation of the hybrids, and also that the latter kind of tall were twice as numerous as the former kind, and that the shorts produced shorts only. Mendel showed that this remarkable train of inheritance was true for six other pairs of characters in the pea, namely, shape of seed—whether rounded or wrinkled, position of flowers—whether distributed along the stem or terminal, shape of ripe pod—whether inflated or constricted, and color of seed skin—brown or white, cotyledons—yellow or green, and unripe pod—green or yellow.

The phenomenon of dominance, remarkable as it is, is not the essential