

# Canadian Bark-beetles.

## PART II. A PRELIMINARY CLASSIFICATION, WITH AN ACCOUNT OF THE HABITS, INJURIES AND MEANS OF CONTROL.

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### INTRODUCTION.

This bulletin has been written with the object of assisting students and practical foresters in determining the bark-beetles of Canadian forests. The majority of the species occurring in the northern regions of the United States have also been included, since nearly all may eventually be found in Canada.

The bark-beetles of this country have thus far received but little attention from most collectors and students of the Coleoptera. There were until recently so many common species undescribed, and the older descriptions were so incomplete, that their determination was frequently given up as a hopeless task. Furthermore, while many of the species may be obtained in quantity, when the collector knows their habits, most of the bark-beetles are taken only in the bark or wood of their host trees, and then only by those who seek them. Owing probably to these two causes our literature shows a lamentable dearth of biological papers on North American bark-beetles. While the life-histories and habits of the European species have been discussed in scores of papers, the habits of very few of ours have been published, excepting the species of the genus *Dendroctonus*.

There are still numbers of our species undescribed. Some have been received or collected since these keys were finally revised. Others are represented in our collection by one or two specimens, and may prove to be only marked variations, and there are many other species, undoubtedly, that have not yet been collected.

The study of a group of beetles containing so many destructive enemies of forests and shade trees is of particular importance. Careful and detailed studies of the structural characters and habits must be made so that the injurious species may be readily determined and practical remedies perfected. A single dying pine or spruce may contain many species of bark-beetles working in the bark and wood. The entomologist must be able to determine all the different species he meets and must have a working knowledge of the habits of all of them so that, with the assistance of the evidence before him in the trees themselves, he may be able to select the species responsible for the primary injury to the timber. It is evident, therefore, that intensive laboratory studies upon the morphology and classification of the beetles are absolutely necessary, and that time spent upon even the species of apparently minor economic importance may give decidedly practical results.

Mr. A. E. Kellett, Artist Assistant in the Entomological Branch, has drawn the illustrations which bear his signature, under the supervision of the writer, and has prepared many of the photographs. The writer is indebted to many students of the Coleoptera and to several institutions for the privilege of studying their collections. This assistance will be acknowledged more fully in later publications dealing with the biology of the species.