

REAL BRANCH O.

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wide-spread species on this continent—that "the richness of this genus in America, and its extreme poverty in the Old World (where only a single species is known), lead to the presumption that the genus had its origin in our own country, and that temperate North America is its proper metropolis." I have examined and compared specimens of *Pamphila comma* of Europe, and *P. Manitoba* of America, and cannot discern the slightest difference in their forms and markings. Even in the forms of abdominal appendages there is but slight differences in these two forms. It may be further stated, as it has been by others, that *P. comma* was introduced into this country from Europe. Moreover, like other introduced species, it had perhaps to feed on a different food-plant to that on which it fed in the Old World. This, in my opinion, produces at least external changes, and in connection with the wide spread of the form, we must as a natural result have varieties, the latter unfortunately being evidently considered species. The *HESPERIDÆ* intermix to some degree, and it is extremely difficult to trace the true form from its variety. Mr. Scudder is the chief authority on the *HESPERIDÆ* of the country, having made extensive research among this difficult class of butterflies; therefore he has greater facilities to prove differences between them, but I cannot look upon these two butterflies and discover the slightest deviation more than we find in the examination of a number of specimens of any particular species. A well-known European and American butterfly, *Vanessa Antiopa*, has a wide range and undoubtedly holds its metropolis on this continent. The colour of the wing-margins of this species has changed since its introduction into temperate America. All of us have seen the change which numbers of *Pieris rapæ* has gone through since its introduction into Canada, but after all it is nothing but the rape butterfly of Europe, slightly altered by change of food and climate, and it is just possible, by like influences, that the abdominal appendages of *P. rapæ* may in twenty years hence show differences in wide-spread varieties, as we have now shown to us in *Pamphila comma* of Europe, and *P. Manitoba* of Scudder. When *Pieris rapæ* came to us at Quebec, it changed and spread gradually, and although it lingers before the pressure of a parasite, yet it seems to hold against the enemy. This shows that there is something in this diversified climate favouring its spread which is southward and westward, and it is now a permanent insect of the United States. In these days there are so many ways by which insects are carried from place to place, that we cease to wonder when a strange species turns up in a locality wherein it was hitherto unknown.

It is a notorious fact, that almost all the insects which annoy our agriculturists and horticulturists came to us from the Old World. For instance, we have a saw-fly, which is found in our woodlands. It has lived there from time immemorial on wild gooseberries, and perhaps on the wild red currant, and we cannot find many instances of this species having attacked the domesticated gooseberry or currant to any extent. But the species introduced some twelve years ago from Europe has almost put a stop to the cultivation of the gooseberry and red currant throughout many parts of the United States and Canada. We have also a native onion-fly (*Ortalis arcuata*), which, although parasitic on the onion, does not appear to affect the crop generally, but the imported onion-fly (*Anthomyia ceparum*), an allied species, is a terrible pest to the onion-growers throughout the extent of the Dominion. Indeed, we have had an alarming number of insect foes imported into this country from the other side of the Atlantic. Another species of the latter genus has been destroying the cabbage in the neighbourhood of this city. This *Anthomyia* was also imported from Europe. The question may be asked, did these insects follow the introduction of certain plants from the same quarter? If *Antiopa* followed man to this country, its migration benefits the species, as the willows on which it feeds are far more abundant here than in Europe; but man has been instrumental in carrying noxious plants as well as insects, there being now distributed in America upwards of TWO HUNDRED AND THIRTY-THREE distinct species of plants from the Old World, all of which have run wild. It would seem that the climate of America is very conducive to the acclimatization and extension of European species. No doubt a number of North American insects have been, and will be from time to time, introduced into the Old World, but it appears that those already detected as coming from this country have not spread and become common there. These statements are made on the authority of British Entomologists and from the pen of C. V. Riley, the State Entomologist of Missouri, U.S., who accounts for the cause as follows:—"Since, then, it can be demonstrated by hard dry facts that American plants and insects do not become naturalized in the Old World with anything like the facility with which the plants and insects of the Old World are every day being naturalized in