the terminal line. Discal spot large, ringed, and oval in shape. Secondaries with two distinct cross-lines, between which is located the large discal spot similar to that on the primaries. Intradiscal line obsolete on the costa, and with a deep inward angle at the cubital vein. Extradiscal line inwardly scalloped, bending around the discal spot, below which it sweeps inward, and with an outward angle reaches the middle of the inner margin. At all the angles this line is marked with prominent spots, which extend slightly along the veins. Running parallel to this line externally is a diffuse line best marked at the middle and at the inner margin. Subterminal line showing as patches of scales between the veins except in the central portion, where they are absent. Terminal line as in primaries. Beneath rather even pinkish, the fore wings with a faint wash of pale fuscous, and with a large diffuse subapical spot of the same colour. Large discal spots on both wings almost solid. Extradiscal line showing only at costa. Terminal line indicated by intervenular spots.

Types: Three males in the collections of Dr. Barnes, Rutgers College, and the author.

Habitat: Santa Catalina Mts., Pinal Co., Ariz., Aug. 1-7 (Barnes); Yuma Co., Ariz., March.

Distinguished at once from all described species of the genus by the deep flesh-coloured tint of the body and wings.

(To be continued.)

GALLS FOUND IN THE VICINITY OF TORONTO. — NO. 3.

BY DR. WM. BRODIE, TORONTO.

On Stems of Solidago ceasia.

Aug. 20, 1890, collected two galls from upper third of stems of *Solidago ceasia*; these galls appear like swellings of the stem, cylindrical in form, and in structure resembling the galls of *Gnorimoschema asterella*, on stems of *S. latifolia*, and at the upper ends there were prepared and plugged exits, like the two *Gnorimoschema* galls.

Parasites resembling those from galls of *G. asterella* emerged the following spring.

Sept. 23, 1893, collected five galls from upper third of *S. ceasia* stems; galls spindle-form, 8 x 25 mm. long diameter in axis of stem, and the gall of the same colour; in two of these galls there were open exits, and the producers had emerged. Some of these galls were seen July 16, when they appeared to be mature, but were not collected.

May, 1909

Sept. 25, 1893, collected on wooded hill in St. James's cemetery, four galls from upper third of *S. ceasia* stems, immediately below flowering panicle, some galls leaf bearing.

The largest of the four was 9 x 27 mm., and this one had a prepared and plugged exit, from which there emerged next day a badly-deformed little moth, suspiciously like *G. asterella*, the only producer from this gall I have seen. Parasites the following spring.

Sept. 18, 1896, collected on wooded hill, north of Toronto, from stems of *S. ceasia* growing where galls of *G. asterella* were common, on stems of *S. latifolia*. These galls had not prepared exits; were parasitized, parasites emerging the following spring. These galls are very rare about Toronto; in structure they resemble galls of *G. asterella*, but are less in size and not so inflated in form, and as I have always found them where galls of *G. asterella* were common, and as the solitary deformed specimen I had somewhat resembled *G. asterella*, there is a suspicion that the *S. ceasia* gall is produced by *G. asterella*. I regret I have not been able to determine this. It is for some other worker to do. However, in my notes I have entered as a provisional name *Pædisca ceasiella*. These four, *Gnorimoschema gallæsolidaginis*, Riley; *G. asterella*, Kell.; *Eucosma Scudderiana*, Clem.; *Stagmotophora ceanothiella*, Cosens; with two doubtful, one on *S. ceasia*, the other on *A. corymbosus*, are the lepidopterous gall producers I have found in the vicinity of Toronto. But there are at least five species of inquiline moths, more or less common, three from Diplosis galls and two from Cynipid galls.

Stagmotophora ceanothiella, Cosens.—The Ceanothus gall.

In the autumn of 1880 I enjoyed holidays in the township of Carden, Victoria County, where I found the shrub, *Ceanothus Americana* (New Jersey Tea) common. I also found the galls common; they appeared to be from a deformed terminal bud, having some resemblance to a gall terminal on twigs of *Rosa blanda*. I collected a number of the galls, kept them outside during the winter, and on May 20, 1881, the gall producers began to emerge, exquisitely beautiful little plume moths, probably the first time human eyes ever looked upon these lovely little gems.

In September, 1887, a collection of galls was made from the tips of stems and branches of *Ceanothus*, some distance east of Toronto; the producers emerged the following spring, May 25, 1888, and two species of parasites a few days later.

Sept., 1890, the galls were on rank growth of *Ceanothus* in the township of Whitchurch; found also at Grimsby and Essex. From this

collection producers and parasites emerged the following season, June, 1891. The galls were all at the top of branches, as if from a deformed terminal bud; rarely overtopped by a growth of stem a little above the gall, with a few leaves.

Collected in Casci ravine, April 23, 1893, and north of Howard Park, May 8, 1893, where the galls were numerous, a large series of specimens. From May 21 to June 27, 1893, numerous producers emerged, and from May 8 to May 29, 1893, two species of small parasites emerged. July 17, 1893, specimens of the moth were sent to Dr. Riley, and of the parasites to Dr. Ashmead.

July 29, 1893, reply from Riley: "Unknown to me"; "Should be described"; and from Ashmead a few days later: "Doubtless new species"; "Will describe."

August 1, 1893, three specimens of mature moth taken while sweeping with hand net in Howard Park.

August 11, 1893, specimens again taken while collecting in Rosedale.

Collected from March 3 to April 10, 1897, at Grimsby, Mount Dennis and Scarboro heights, 57 *Ceanothus* galls. From May 24 to June 12, 1897, numerous producers emerged.

This shrub, *C. Americana*, and the rather peculiar galls very common this year, 1897, on the ridges of King and Whitchurch townships, from Yonge St. to Uxbridge. Mr. Cosens has described the gall, the larva and mature moth in THE CANADIAN ENTOMOLOGIST, Vol. 40, p. 107.

Diplosis punicea.

Cecidomyiid galls are found on leaves and stems of herbaceous plants, on leaves and twigs of shrubs and trees, and deformed buds and flowers. The Cecidomyiid galls are morphologically as destructive as the producers; this may be said of galls generally, so that a description of the gall may be even more specific than a description of the producer as expressive of the biological relations between the "animal and the plant."

From 1887 to 1902 I found these galls common on *Aster puniceus*, one of our fine vigorous flowers which is very common, growing in wet ravines everywhere around Toronto. From 1890 to 1898 I made annual collections of galls in the spring and in the fall. The galls are on branches, and the flowering panicle; they are spindle-form swellings of the branches, and in size range from 5 x 10 mm., diameter of stem below gall $2\frac{1}{2}$ to 5 x 15 mm. The galls are one-celled, the larvæ of a pale straw

colour; the producers are of the *Diplosis* type, and very similar to the producers of a similar gall on branches of flowering panicle of *Aster diplopappus*. The following is one of the nine annual entries in my note book: "April 9, 1893, collected in Greenwood and Casci ravines, East of Toronto, a lot of over 50 galls from flowering branches of *Aster puniceus*. Galls spindle-form, 5 x 15 mm., diameter below gall 3 mm; another smaller lot measured 4 x 8 mm., diameter of branch below gall 2½ mm. From May 30 to June 5, 1893, *Diplosis* producers emerged. From June 1 to June 11, 1893, two species of parasites emerged.

"June 11, 1893, specimens of gall producers and parasites mailed to Dr. Riley.

"July 29, 1893, note from Dr. Riley: 'Unknown to me.'"

I have found this gall common in Whitchurch, Owen Sound, Fitzwilliam Island, North Bruce, Grimsby, and no doubt they are more or less common wherever this stately host *Aster* is found.

INDEX OF ORTHOPTERA.

The undersigned has undertaken the task of fully indexing the literature of the Orthoptera of the World subsequent to the year 1900. The task is not a light one, but will, it is hoped, ultimately prove well worth the labour involved. Publication is not contemplated for many years, but in the meantime the index should be of much use in various ways. By the constant use of guide cards indicating reductions to synonymy, or the resurrection therefrom, and the transfer of species from one genus to another, it is hoped to make this more than a mere list of names.

In conjunction with the above undertaking, an exhaustive bibliography has been attempted, and geographical and systematic indexes are kept, listing articles treating of the fauna of different places, and citing tables and important discussions of genera and higher groups.

To facilitate the above work, the writer earnestly requests separates of articles from authors writing on the Orthoptera. The importance of this request is considerable, and its maker hopes that it will be favourably considered by all Orthopterists. The writer will be glad to exchange separates so far as possible, and will be ready at all times to transmit facts and data from the index to any one desiring such information. The index is now complete to date so far as it has been possible to secure the literature,—A. N. CAUDELL, U. S. National Museum, Washington, D. C.