

SOME NOTES

ON

KANSAS COCCIDÆ.

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Outline

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b. Definitions of technical terms used in Descriptions

Descriptions
and drawings

II. of five
species of
Aspidiotus.

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Some Notes on Kansas

Coccidae.

The Coccidae (scale-insects) constitute a very large, important and common but little known family of Homopterous insects. I say they are a large family, because they are found practically everywhere, though most abundantly in the tropics and less abundantly as one approaches the colder regions. We are all more or less familiar with them, from the specimens we have noticed on our cultivated plants, both in the house and in the garden. They are very important from an economic standpoint, because many of the farmer's worst enemies belong to this class of insects. The notorious San Jose scale and the numerous other scales that infest the grasses and fruit trees (particularly the latter), will readily occur to the mind as examples. In spite of its being so common and of such importance, this family of insects has been rather slighted by entomologists; for the reason, probably, that they are small and uninteresting to the average eye. In 1895,

a---Chitinous Processes.
 b---Plates.
 c---Spines.
 d---Skinnerets.

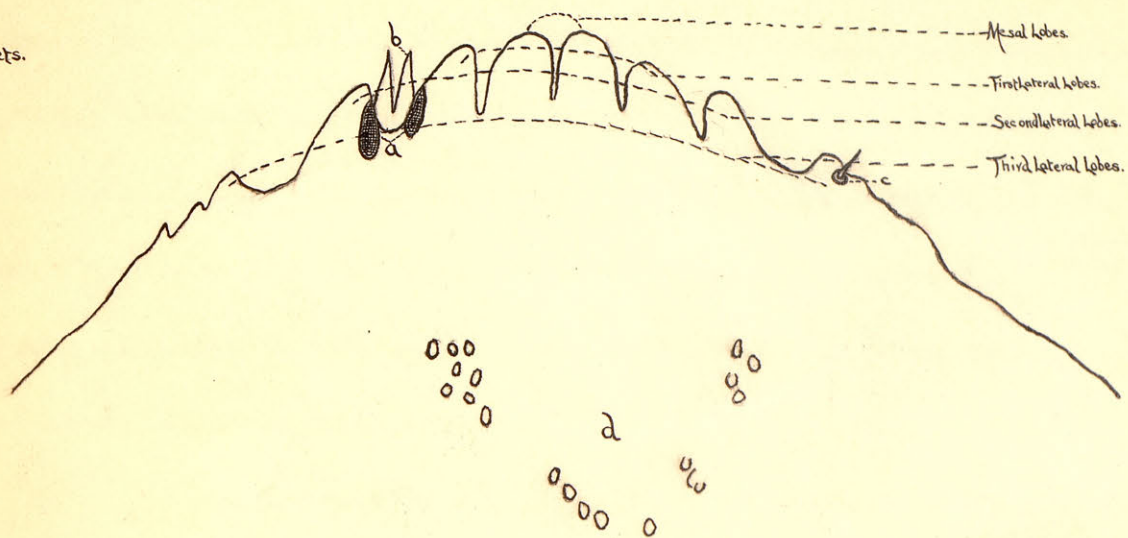


Fig. I.

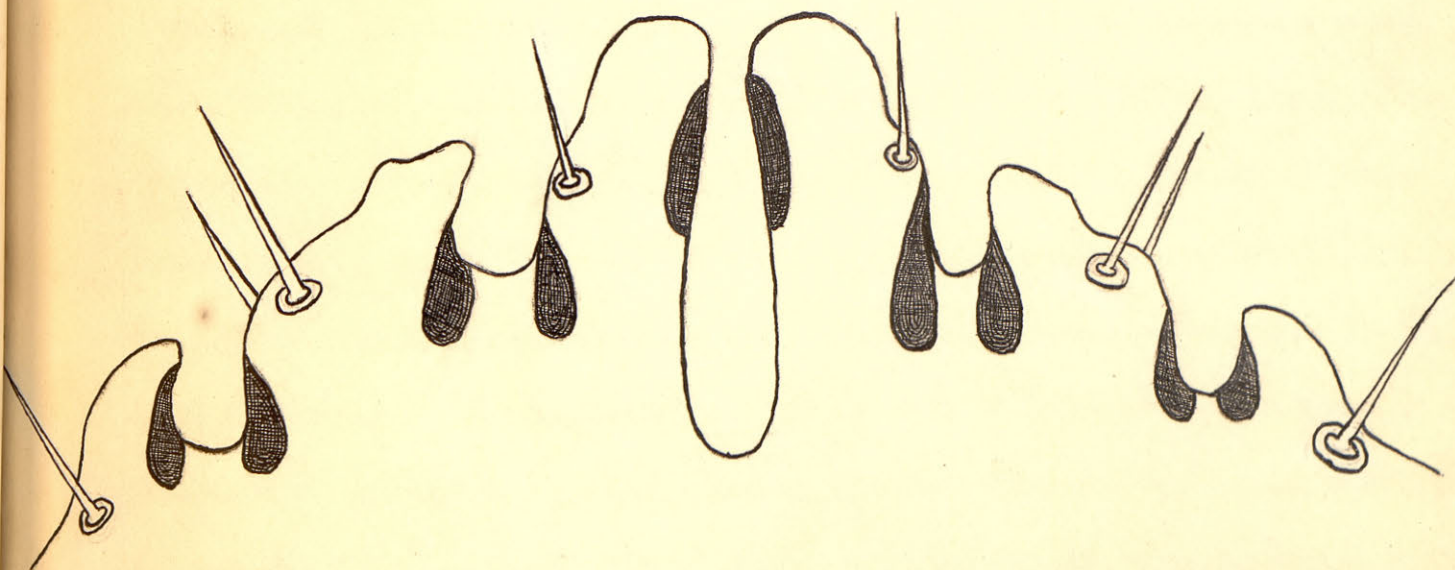


Fig. II. A. Ostreaeformis.

between seven and eight hundred species had been described, whereas there are probably several times that number in existence. Few localities have been well searched for them, and many places have been entirely overlooked. There is, consequently, a big field of activity open to the entomological student along this line.

The insects differ very widely in appearance, habits and metamorphoses. Not only do the families differ, but there are great variations within the family itself, and even the sexes sometimes differ so widely in appearance, as to be mistaken for different species.

The genus *Aspidiotus* belongs to the sub-family Diaspidinae, whose life history in brief, might be given as follows:-

The newly hatched insect is oval in outline, much flattened, provided with six legs, a pair of antennae and apparatus for sucking the juices from plants. At this early stage, it is very small and hard to detect without a glass. After wandering over the plant for a time, the young insect locates on some part, inserts its beak and commences to grow on the juices which it sucks in. In a short time there begins to appear a cottony exudation of wax which in time entirely envelops the insect. Before long, the larva begins to excrete a pellicle and as it appears, the cottony secretion disappears, except in certain species of *Aspidiotus* where a portion

remains as a white spot in the middle of the scale. After a period which varies with the different species, the larva sheds its skin. This molt is something of a degeneration, as the legs and antennae are shed also. The young scale insect is now a helpless grub-like creature, with no organs of locomotion, and firmly attached to the host plant by the highly developed mouth parts through which it draws its nourishment. From this point, the development of the sexes differs. In the female, the second and last molt is not accompanied by any radical change. The second cast skin is merely joined to the first and forms a part of the scale under which the insect lives. Shortly after this molt in the female has taken place, the males appear and impregnation probably takes place at this time. From now on, the body of the female increases in size with the development of the eggs. As the eggs are deposited, the body shrinks, leaving room for them. After the second molt, the male differs widely from the female. Even before the molt takes place, rudimentary limbs can be seen developing beneath the thin transparent skin. After the skin is shed, the male, now in the pupal state, exhibits marked points of difference from the female, having long antennae and large, rudimentary legs and wings. The pupal state ceases in a few days, and after a third molt, the adult male appears.

The following descriptions of characters and a

study of Fig I will explain the technical terms used in describing the insects.

Scale. This term is applied to the thin pellicle which covers the dorsal surface of all the Diaspinae.

Ventral Scale. A pellicle between the body of the insect and the bark of the plant to which it is attached.

Exuviae. The molted larval skins which form a part of the scale.

Spinnurets. Simple or tubular glands in groups about the anus, from which there exudes a pollinose substance for dusting the eggs.

Meral Group. } These terms are applied to groups of spinnurets, the
Cephalo. Laterals. } Meral Group being cephalad of the vaginal open-
Caudo. Laterals. } ing and the Cephalo and Caudo. Laterals being
on either side respectively.

Lobes. These are the most conspicuous of the appendages of the ventral segment.

Incisions. The name applied to the incisions on each side of the lobes in the caudal margin of the ventral segment.

Spines. Very similar to plates. There are usually two of these on each lobe; one on the dorsal and one on the ventral surface.

Plates. Usually long, flattened, and more or less notched or toothed appendages; never have the globular base of spines.

Aspidiotus Ostreaformis. (Fig II.)

♀ scale, circular, flattened, quite convex, very dark gray, with white on margin and at centre; exuviae sub-lateral, often marginal, bright orange, covered with whitish secretion; ventral scale a mere film, whitish, leaving a white spot on bark.

♀ bright yellow, varied with white, oval, with posterior lobes a dark yellow, chitinous. Boiled in caustic potash, becomes transparent with the exception of the thickened margin and the region on and about the mesal lobes. Has the following characters:-

Lobes two pair, not prominent, short, broad basally, mesal lobes broad, little extended, somewhat angular apically, notched on lateral margin; second lobes scarcely apparent, extending a little above margin; mesal half angular, little extended.

Groups of spinules three, median, four to six, cephalo-lateral, seven to eleven, caudo-lateral, seven to nine.

Chitinous processes small, inconspicuous, one pair to each incision, those anterior of first incision more prominent, parallel with mesal margin of mesal incision, club shaped, the remaining processes small, hardly discernable.

Plates, small, rarely visible, not extending above margin, one pair to each incision when present.

Found by writer on imported peach and pear budding sticks.

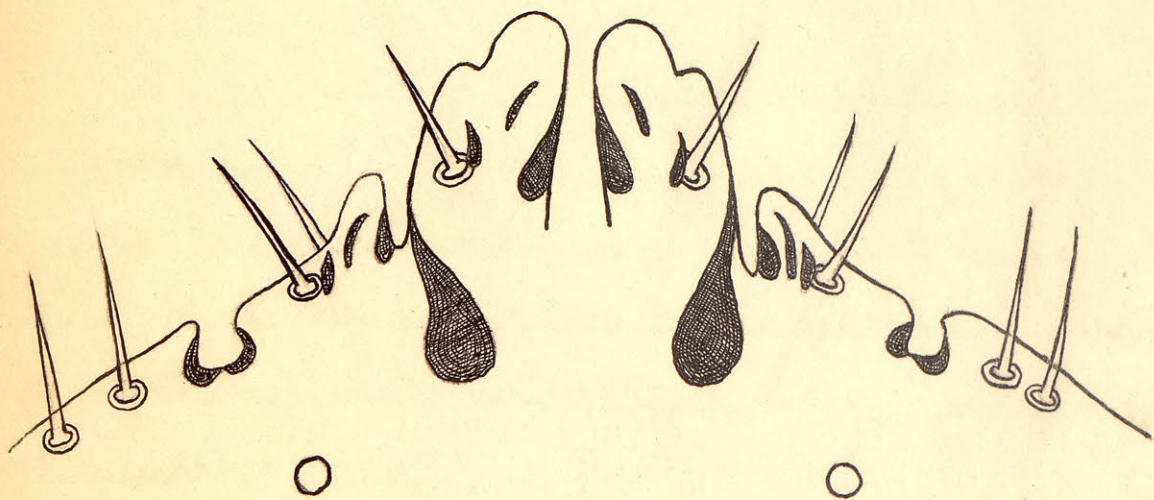


Fig III. A. Forbesi.

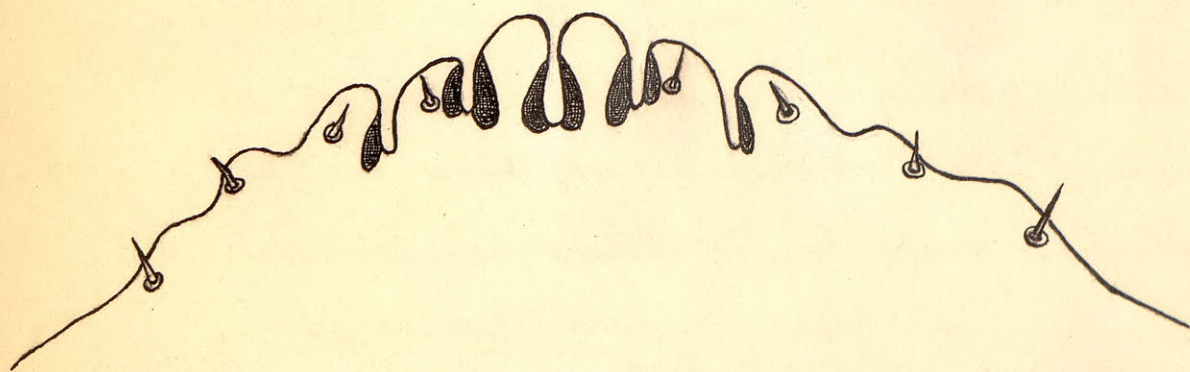


Fig IV. A. Obscurus.

Aspidiotus Forbesi (Fig III.)

♀ scale nearly circular, quite flattened, slightly convex, smooth or slightly felt-like, dark gray on margin, lighter around exuviae; exuviae large, prominent, orange, shining when rubbed, sub-lateral, sometimes covered with grayish secretion; ventral scale, very delicate, white, film like, leaves a white mark on bark.

♀ whitish, with yellowish marks or spots, anal extremity a dark yellow, boiled in caustic potash, becomes transparent with the exception of the caudal extremity and region about proboscis, oval in form, broadly rounded anteriorly, more angular posteriorly, possesses the following characters:-

Spinnersets, five groups, mesal group from one to three, cephalo-laterals from three to seven, caudo-laterals from three to five.

Lobes, two pairs, broad at base, more angular at apical end, with one incision on apical margin, second lobes scarcely apparent, extending but little above margin, outer margin serrate.

Chitinous Processes, one pair at each incision, at base of first incision on lateral margin of mesal lobes, one irregular, large, club-shaped process, the rest smaller and irregular.

Spines, small, situated as follows: one on lateral

margin of mesal lobes, two on lateral margin of
second lobes, from one to three on margin
lateral of second lobes.

Found by writer on apple, plum, cherry, crab-apple at
Manhattan Kansas.

Aspidiotus Obscurus. (Fig IV.)

♀ scale three m.m. in diameter, nearly circular, slightly convex, almost flat, slightly roundish, somewhat granular, dark gray, with white margin around exuviae; exuviae large, prominent, black, shining, central; flen covered with a dark gray secretion; ventral scale white, thin, leaves a white deposit on bark.

♀ oval, yellow, marked with irregular white spots, presenting the following characters:-

Loles three pair, well developed, broad at base, tapering anteriorly, with the distal margin rounded, with flen a notch in lateral margin; distal margin of second and third lobes serrate.

Spinners five groups, median group six, cephalo-laterals twelve, caudo-laterals eight.

Chitinous Processes prominent, seven in number, club-shaped, situated as follows; one near lateral margin of first lobe, one on each side of second lobe, one midway between second and third lobes, one at each side of third lobe, one near posterior end of the thickened lateral margin.

Found on March 17 by the writer on oak on Mount Prospect Wabunsee Co. county Kansas.

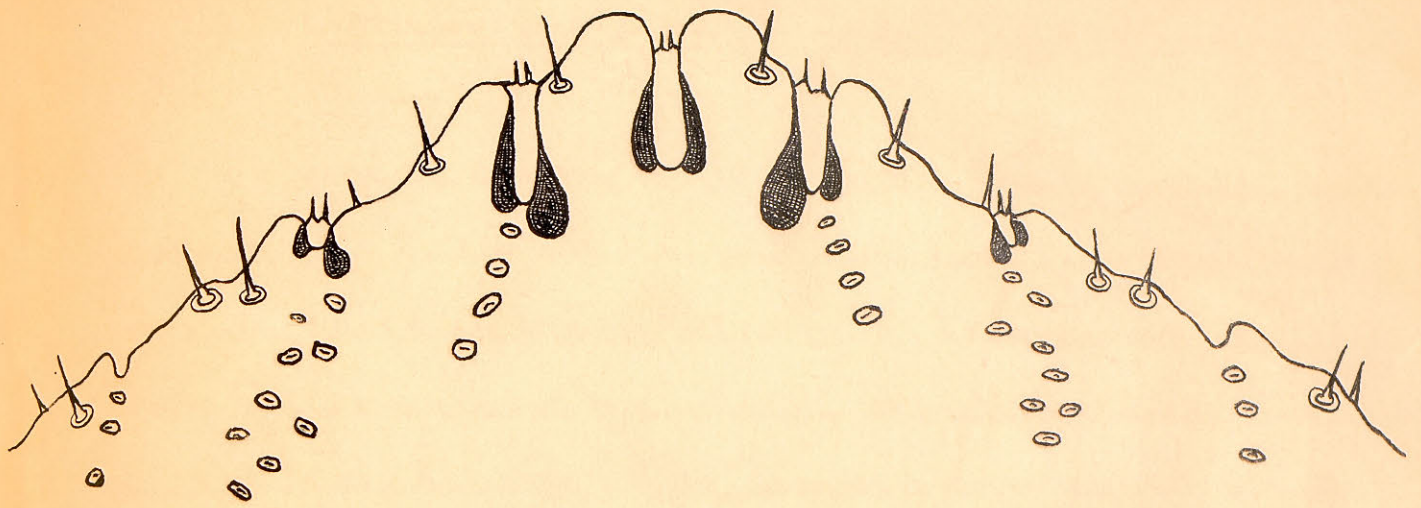


Fig V. *A. Fernaldi*, Sub-sp. *Cockerelli*.

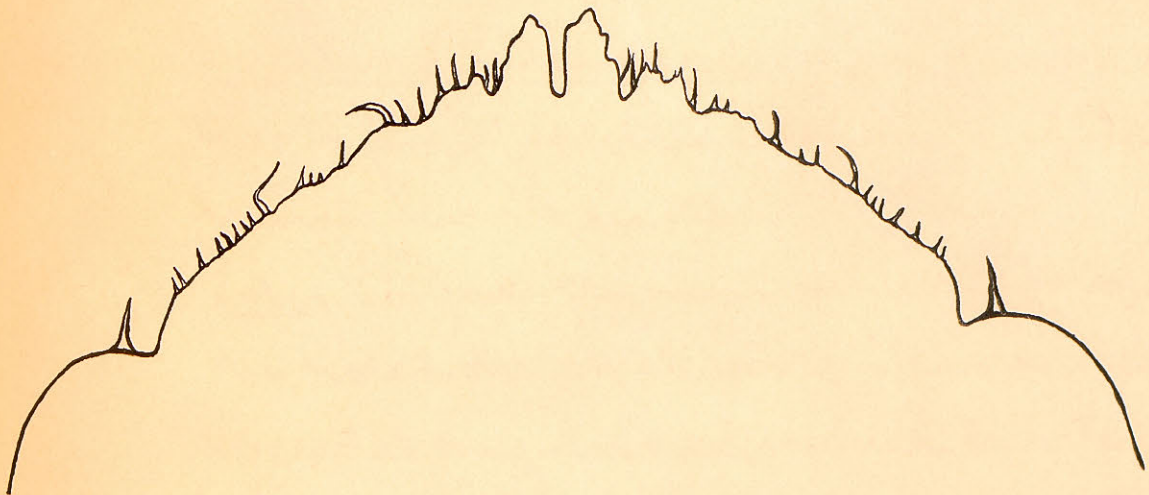


Fig VI. *A. Uvae*.

Aspidiotus fernaldi, sub-sp. cockerelli (Fig 8)

♀ scale two m.m. in diameter, nearly circular, quite flattened, but little convex, roughish, dark gray above bark, somewhat reddish brown below bark; exuviae but little exposed, often concealed by a whitish secretion, orange, sublateral; ventral scale delicate, white, leaves a conspicuous white mark on bark; old scales dark brown, often almost black. Scales are thickly massed.

♀ oval, white, marked with irregular light yellow spots; first and second lobes and margin of last segment yellowish. Boiled in caustic potash, the last segment presents the following characters:-

Circumgenital glands in five groups; median, two to five, cephalolaterals eleven to eighteen, caudolaterals seven to eighteen.

Lobes, two pairs, the mesal somewhat oblique, with one notch on lateral margin, the second pair somewhat angular and inclined towards the mesal lobes, notched on margin, dark, unequal; chitinous processes, mesal of mesal lobes and sides of incisions, those mesal of first incision, large and conspicuous. Spines, either small or large, one small spine on lateral of mesal lobes, two conspicuous ones on margin of second pair of lobes, and lateral of second pair

Incisions respectively.

~~States~~ simple, often undiscernable, when present,
from one to two *Scutellaria* each incision.

Very common under the rough bark on the trunks of
maples at Manhattan Kansas. Collected September 18th, 1898.

Aspidiotus Uvae. (Fig VI.)

♀ scale one and a half to two m.m. in diameter, circular, slightly convex, a light yellowish brown, somewhat lighter than, but resembling the bark of the vine; exuviae moderate in size, bright yellow, often covered with a thick whitish secretion; ventral scale thin, white, adheres to the bark which is indicated by a white spot.

♀ nearly circular, white, varied with yellow, with the margin colorless, more or less transparent; last segment presents the following characters:-

Circumgenital glands in either four or five groups, the mesal group either present or absent, when present, from one to four glands, cephalo-laterals from four to seven, caudo-laterals three to eight.

Loles, one pair present, sides parallel, broad basally, more narrow anteriorly, notched at distal end on lateral margin; two incisions on margin on each side of the mesal lobes and one lateral of second spine. At base of each incision, one pair of chitinous processes, rather small, not conspicuous, the dorsal ones of each pair the largest.

Statis serrate and simple, one pair generally caudad of each incision.

Spines, long, sharply pointed, one on lateral margin of the mesal lobes respectively, one lateral of each

incision.

Collected on grape and hickory at Topeka Kansas
and Manhattan Kansas, very numerous on lower parts of vine
from ground to shoots of the second year's growth.