OUR AMERICAN OX WARBLES.

By C. V. Riley.

I desire also to present to the Society a few interesting data in reference to the species of Hypoderma which affect cattle in the United States. I have for some time had figures made of *Hypoderma lineata* with a view of more particularly pointing out the differences in habit between it and the better known *Hypoderma bovis*, and the receipt of Dr. F. Brauer's recent communication * is my excuse for bringing the matter now before the Society. Dr. Brauer makes it clear that *lineata* should be considered a distinct species from *bovis*, though other authors, especially Clarke, have considered *lineata* but a variety of *bovis*. An interesting point brought out by Dr. Brauer, however, is, that through some discoveries of the late Dr. Adam Handlirsch (who, by the way, made some most interesting Dipterological observations and discoveries) he has been enabled to prove that *linaeta* occurs in Europe often in the same regions and sometimes on the same animal with *bovis*. It has in fact been obtained from Brescia, near the Tyrol, in Norway, in the Crimea, in the Balkans, in the Caucasus, in Dalmatia, and in England. In North America Brauer quotes it from Texas, and, on Williston's authority, as ranging to Arizona and Northern California, while Walker described it as *Oestris supplens*, from Nova Scotia. Another interesting fact which he brings out is that it inhabits our buffalo. The material in the U. S. Nat'l Museum includes some specimens actually bred from the larvæ which I received from Dr. Salmon, and ten specimens received from correspondents, as the Heel Fly from various points in Texas, and two by the same name from New Jersey, one of which was reported to have been seen ovipositing just above the hoof of a cow. I have five collected specimens from Colorado, one of which differs from the normal type in having a very scanty pubescence on the face. One of the specimens was collected in Southern Georgia, and three are without any locality label. Of the larvæ of different sizes (all agreeing with Brauer's description of *lineata* and the larvæ which are actually connected by breeding with *lineata*) one is from Arkansas, four without date or locality, two from Texas, and two from Illinois. All these data confirm the reference of the so-called "Heel Fly" to *lineata*.

Another interesting question is brought up in this connection, viz., that so far as the material in the Museum is concerned it indicates that *lineata* is by far the most common

* Verhandlungen der Kaiserlich-koeniglichen Zoologish-Botanischen Gesellschaft in Wien. Wien, 1890. Page 590, "Ueber die festellung des Wohnthieres der *Hypoderma lineata* Villers durch Dr. Adam Handlirsch uud andere Untersuchungen und Boobachtungen an Oestriden."

species with us; in fact, not a single typical specimen of *bovis* is accessible. From these facts Dr. Cooper Curtice has, in conversation with me, expressed the belief that *bovis* does not occur in North America, but this would be in my judgment an unjustified and rather rash conclusion to draw from the specimens and experience which I have referred to. In connection, however, with the question raised in *Insect Life* by Dr. Cooper Curtice as to whether the larvæ are taken through the mouth and subsequently penetrate to the skin, it may be said positively that all his larvæ found in the œsophageal walls are of *lineata*, and this exceptional position of the larvæ of this species may have some connection with the exceptional habit of the perfect fly of affecting and probably ovipositing upon the heels of cattle.

FURTHER NOTE ON CARPOCAPSA SALTITANS AND ON A NEW GRAPHOLITHA PRODUCING JUMPING BEANS.

By C. V. Riley.

In connection with my communication on this subject at a previous meeting of the Society, I present an interesting letter recently received from Professor Sereno Watson, of the Botanic Gardens at Cambridge, Mass., as follows:

"I enclose herein some 'critters' that I found the other day in an envelope containing the fruit of a Euphorbiaceous shrub from Northern Mexico, which we know for the present as *Sebastiania* (?) *bicapsularis*. This fruit is very much like that of a similar shrub which is reported to be the host of *Carpocapsa saltitans*. Now, I am curious to know whether this is that insect or any relation to it, and I would also like to know whether it is probable that these species of insects confine themselves each to a single species or genus of plants, or whether they do not more probably make use without distinction of the several Euphorbiaceous genera, which bear nearly identical capsules. I have not ready access to the literature of the subject, and now that Dr. Hagen is suffering from ill health I am sure that you will pardon my troubling you with my questions."

Prof. Watson's specimens enable me to speak with certainty of the species which was referred doubtingly in my previous communication to *Carpocapsa saltitans* as infesting the capsules of what is marked in the Department Herbarium as *S. bilocularis*, but which is doubtless the same as referred to by Prof. Watson as *bicapsularis*. The specimens which he sends, though rubbed, proved to be not *C. saltitans*, but an undescribed species of *Grapholitha*, the larva of which genus is known to commonly infest seeds. It is not absolutely certain