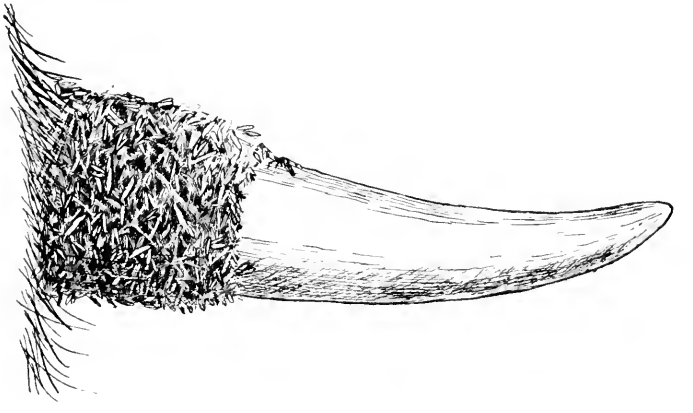
UNIVERSITY OF KANSAS.

DEPARTMENT OF ENTOMOLOGY.

FRANCIS H. SNOW, PH. D.
VERNON L. KELLOGG, M. S.

THE HORN FLY OF CATTLE.

(*Hæmatobia serrata* R. Desv.)



MAY 1893.

JOURNAL PUBLISHING COMPANY.
LAWRENCE KANSAS

UNIVERSITY OF KANSAS.

DEPARTMENT OF ENTOMOLOGY.

FRANCIS H. SNOW, PH. D.
VERNON L. KELLOGG, M. S.

THE HORN FLY OF CATTLE.

(*Hæmatobia serrata* R. Desv.)

MAY 1893.

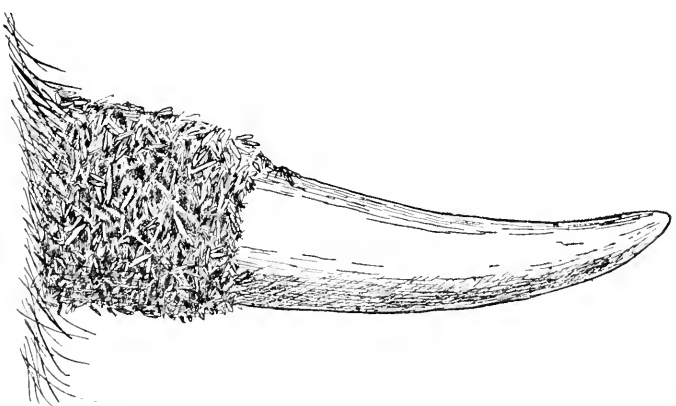
JOURNAL PUBLISHING COMPANY,
LAWRENCE, KANSAS

THE HORN FLY OF CATTLE.

(*Hæmatobia serrata* R. Desv.)

An account of "the Horn Fly of Cattle" was given as an appendix to Mr. Kellogg's pamphlet on the "Common Injurious Insects of Kansas" published by the State for free distribution in Kansas. This account of the Horn Fly was written in the belief that this rapidly-spreading pest would soon come to be one of the conspicuous injurious insects of the State. Since writing the account so many reports of the pest's certain presence in Kansas have been received, pointing to its probable local occurrence in serious numbers this summer, that it has been considered desirable to issue a special bulletin of warning, information and inquiry regarding this cattle pest.

The horn fly is a small, black, two-winged gnat, about one-sixth of an inch long, which derives its name from its habit of clustering around the bases of the horns of cattle. When gathered on the horns the flies are merely resting, and are doing no damage to the horns. When feeding, the flies are found over the back and flanks and on the legs of the cattle, where they are industriously engaged in sucking blood.

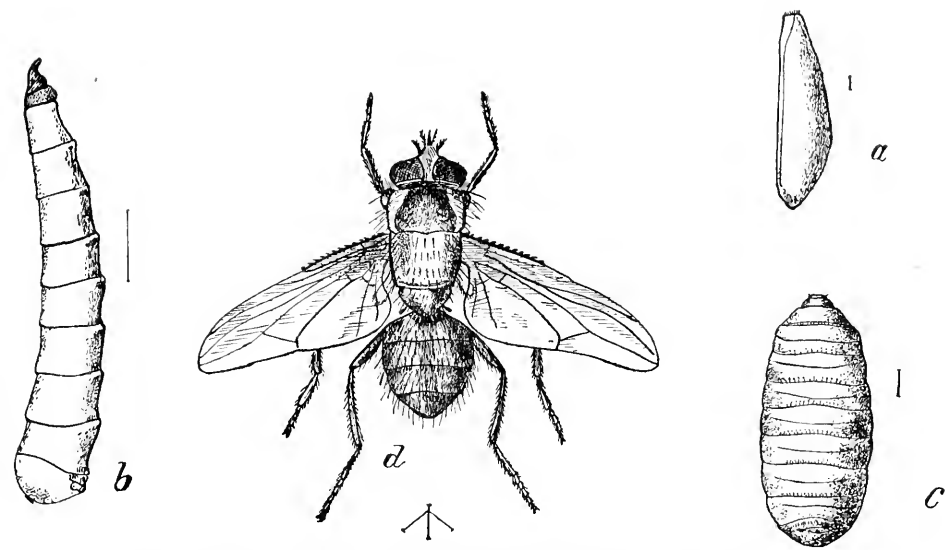


Horn with flies clustered around its base. [After Riley].

The fly was first noticed in America in 1887, being introduced from Europe. It is especially prevalent in France. In September, 1887, horn flies were noticed in New Jersey and Pennsylvania. In 1888 Maryland reported them; and, by the summer of 1889, the pest had extended southward to Virginia. In 1890 it was noticed in Kentucky; in 1891 it was found in Ohio, Florida and Mississippi. In 1892 it was noted in Illinois, and September 19, 1892, it was found at Manhattan, Kansas, by assistant entomologist Marlatt of the Kansas Agricultural College.

The pest has been studied by the Division of Entomology, United States Department of Agriculture, and the observations of Dr. Riley's assistants were published in Insect Life vol. ii, No. 4 (October, 1889). Most of the following notes on life-history and remedies are derived from this account.

The flies appear in May (in Virginia) and remain through the summer and early fall. The eggs are laid by the flies in freshly dropped dung, in the day-time, and are laid singly, never in clusters. The larvæ issue within twenty-four hours after the eggs have been laid, and descend into the dung not very deep. The larvæ are dirty-white maggots, not more than one-third of an inch long. They become fully grown in about five days, and descend into the ground from a half to three-fourths of an inch to pupate. The adult flies issue from the puparіæ in about one week, so that two weeks is about the average time from the laying of the egg to the appearance of the flies. "With four active breeding months, May 15 to September 15, there will be eight generations," so that the large number of the flies is not surprising.



The Horn Fly of Cattle; *a*, the egg; *b*, the larva or maggot; *c*, the pupa; *d*, the adult fly. (The fine black lines at the sides of the figures indicate the natural size of the specimens.) [After Riley.]

Of the amount of damage done by the fly, Messrs. Riley and Howard (Insect Life, *loc. cit.*) say:

The amount of damage done by the fly has been exaggerated by some, and underestimated by others. We have heard many rumors of the death of animals from its attacks, but have been unable to substantiate a single case. We believe that the flies alone will never cause the death of an animal. They reduce the condition of stock to a considerable extent, and, in the case of milch cows the yield of milk is reduced from one-fourth to one-half. It is our opinion that their bites seldom produce sores by themselves, although we have a number of cases where large sores had been made by the cattle rubbing themselves against trees and fences, in an endeavor to allay the irritation caused by the bites; or in spots where they could not rub, by licking constantly with the tongue, as about the bag and on the inside of the hind thighs. A sore once started in this way will increase with the continued irritation by the flies, and will be difficult to heal. Those who underestimate the damage believe that the flies do not suck blood; but such persons have doubtless watched the flies only upon the horns or elsewhere in their resting position, when the beak is not inserted, or have caught them and crushed them when their bodies contained little blood. In reality, the flies suck a considerable amount of blood, however, and it is their only nourishment; if captured and crushed at the right time, the most skeptical will be convinced.

REMEDIES.

The following notes on remedial measures are quoted from Insect Life (*loc. cit.*):

PREVENTIVE APPLICATIONS.—Almost any greasy substance will keep the flies away for several days. A number of experiments were tried in the field with the result that train-oil alone, and train-oil with a little sulphur or carbolic acid added, will keep the flies away for from five to six days, while, with a small proportion of carbolic acid, it will have a healing effect upon the sores which may have formed. Train-oil should not cost more than 50 to 75 cents per gallon, and a gallon will anoint a number of animals. Common axle grease, costing ten cents per box, will answer nearly as well, and this substance has been extensively and successfully used by Mr. William Johnson, a large stock dealer at Warrenton, Va. Tallow has also been used to a good advantage. The practice of smearing the horns with pine or coal tar simply repels them from these pests. Train-oil or fish-oil seems to be more lasting in its effects than any other of the substances used.

APPLICATIONS TO DESTROY THE FLY.—A great deal has been said during the summer concerning the merits of a proprietary substance consisting mainly of tobacco dust and creosote, known as "X. O. Dust," and manufactured by a Baltimore firm, as an application to cattle, and it has received an indorsement from Prof. J. B. Smith, entomologist of the New Jersey Experiment Station. We are convinced that this substance has considerable merit as an insecticide, and know from experience that it will kill many of the flies when it touches them, although they die slowly, and a few may recover. The substance costs 25 cents a pound, and is not lasting in its effects. Where it is dusted through the hair, the flies on alighting will not remain long enough to bite, but two days later, according to our experience, they are again present in as great numbers as before. A spray of kerosene emulsion directed upon a cow would kill the flies quite as surely, and would be cheaper, but we do not advise an attempt to reduce the number of these pests by actually killing the flies.

HOW TO DESTROY THE EARLY STAGES.—Throwing a spadeful of lime upon a cow-dung will destroy the larvæ which are living in it, and as in almost every pasture there are some one or two spots where the cattle preferably congregate during the heat of the day, the dung which contains most of the larvæ will, consequently, be more or less together, and easy to treat at once. If the evil should increase, therefore, it will pay a stock-raiser to start a load of lime through his field occasionally, particularly in May or June, as every larva killed then represents the death of very many flies during August. We feel certain that this course will be found in many cases practical and of great avail, and will often be of great advantage to the pasture, besides.

The effect of the fly's presence in considerable numbers on Kansas stock farms will be to interfere seriously with some of the present methods of feeding cattle. It will prove a serious drawback to late marketing, as little or no flesh will be taken on by cattle constantly harassed by swarms of the blood-sucking pests. It is now the custom of some feeders to rely to some extent upon spring grass for fattening, and this method of feeding is the one which will be most directly influenced by the incoming of the fly. Where cattle are full-fed through the winter and marketed early, the fly will have little chance to work mischief. In fact, early marketing is an obvious means of escaping the pest's attack.

As it is very desirable that stock-growers should be well-informed regarding the local occurrence of the fly in the State, it is requested that during the present spring and coming summer, any one noting the pest should report the fact, with details of occurrence, to this Department. Specimens of the flies should be sent. It may be possible, by this means, that information as to the probable extent and prevalence of the fly next year can be pretty accurately furnished the stock men of the state.

NOTE. Since the above was written and in type the Horn Fly has been noted in considerable numbers about Lawrence. Mr. Coryell Faulkner, a student of the Department, was first to discover it. Mr. W. A. Snow has also made some interesting observations of the fly's habits when infesting dehorned cattle.

Snow, Francis
Huntington, 1840-1908.
The horn fly of
cattle.