

The Farmer's Advocate AND HOME MAGAZINE.

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DOMINION.

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You may make a good bargain by the dollar, but if the drover is "done" he'll likely get even next time and maybe a little more. A fair price per pound and fair weight is all anyone should ask.

In selling breeding stock, cattle and horses, have them well broken to lead. Show them in the stall and out. Describe them as you go. Give all particulars as to sureness in breeding and quality of progeny if any, and do not hesitate to show the stock that is not for sale as well as that offered. You know, it always pays to treat other people well. You cannot afford in business, the live-stock and farming business not excluded, to offend anyone through lack of courtesy or shady dealing. We know that farmers' wives have, in the past, been imposed upon to a certain degree by agents and travellers of one kind and another dropping in for meals or lodgings at an inopportune time. Make a distinction between the man who is of use to your business, and the one who is using you only for the development of his own business. Be a good host to the man who buys your goods or even comes to buy them. It pays.

It is a fair subject for consideration whether or not in planning to meet the future industrial activities of present enemies, industrial efficiency should not deserve equal or greater reliance than a trade-strangulation system, more than likely to be the precursor of another era of blood.

Canada is a big country capable of absorbing great numbers of newcomers, but those in charge should be careful that those coming to our shores are of a desirable class. One Britisher is of more value than a score of foreign enemies.

Judging from some of their essays now coming to this office the boys and young farmers are finding many valuable ways for their fathers to increase the returns from their farms. Keep up the good work boys.

Nature's Diary.

BY A. B. KLUGH, M. A.

Insects which are very troublesome pests of man and cattle over a large part of Canada are the Buffalo Gnats, or "Black-flies" as they are often termed. The damage done by these insects results from their painful bites and the loss of blood which ensues, and when they are abundant they sometimes cause the death of live-stock.

These insects belong to the Genus *Simulium*, the species which is apparently most abundant in eastern Canada being *Simulium venustum*. As is the case with the Mosquitoes and with all the blood-sucking Flies, it is only the female that bites. In the case of the Buffalo Gnats, it has been proved that it is only after the taking and digesting of a meal of blood by the female that the eggs in her ovaries come to maturity.

The eggs are usually deposited on grass-blades which are bent over and trail on the surface of small streams, though they are sometimes laid on sticks, stones and the leaves of herbs just beneath the surface of such streams. The eggs adhere to the leaves, etc., by a creamy viscous matrix entirely covering the eggs. A single female lays about five hundred eggs, depositing them at about the rate of one every two seconds. The eggs hatch in from seven to twelve days, the average time being nine days, and during this period they must be kept continuously moist or they fail to hatch.

The larvæ of *Simulium* are aquatic and require running water for their development. They are cylindrical in form with fan-like organs at the head end. (See Fig 1). These fans act as strainers which catch the micro-organisms on which the larvæ feed and sweep them into the mouth. On the second segment of the thorax is a single pro-leg with a sucker-like disk at its extremity, and at the end of the body is another and larger disk. It is by means of these disks that the larva attaches itself. Respiration takes place by means of what are known as rectal gills which are extensions of the rectal walls. These gills are filled with blood-tubes and air-tubes, and can be withdrawn into the rectum or extended at will.

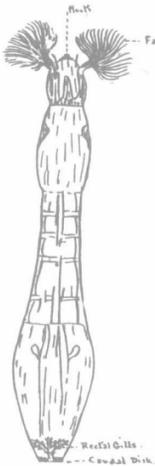


Fig. 1—Larva of *Simulium*.

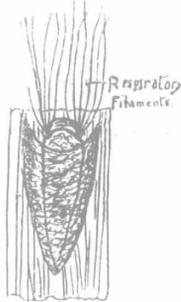


Fig. 2—*Simulium* in its case on a grass leaf.

From twelve to sixteen hours before hatching the young larvæ are in an apparently free condition within the shell of the egg. There are continual convulsive movements of the head and body and the shell suddenly splits open and the larva tumbles out. It immediately attaches itself by its pro-leg to the nearest object, waves its posterior end several times, evidently to clear the rectal gills, and then attaches itself by its caudal disk. It then commences to feed on the matrix surrounding the eggs and on adjacent micro-organisms. By means of the silk glands in the mouth the larva forms a silken thread to hold it in position in the current.

On being suddenly disturbed, or on the diminishing of the current, the larva let themselves be carried down stream steadied by the silken thread which they have attached to some stationary object, and seek a more favorable location. A heavy rain causing a sudden increase in the swiftness of the current will often entirely change the distribution of the larvæ, by washing them down stream to become established lower down, and this fact is of considerable economic importance, as it may account for the sudden appearance of Buffalo Gnats in localities usually exempt.

The food of the larvæ is entirely microscopic and consists of minute Crustaceans, Diatoms and Algae. The time spent in the larval stage is usually seventeen days.

Before changing to a pupa the larva spins itself a pocket-shaped case of strong silken threads, (See Fig. 2), and on pupating the pupa attaches itself to the inside of this case by means of strong hooks on the abdomen. The operation of spinning the pupal case and pupation takes from forty-five to sixty minutes. The pupa breathes by means of long respiratory filaments and the pupal stage lasts from eighty-four hours to nine days depending upon the temperature of the water, the average being five days.

When ready to emerge the adult insect exerts a strong pressure on the head end of the pupal skin, which splits, the adult at once rising to the surface of the water and taking flight.

In Canada there are three or four generations of Buffalo Gnats annually, while farther south there are five or six generations.

The chief enemies of the Black Flies are certain parasitic worms, Caddis-fly larvae, nymphs of Dragon-flies, and small minnows, all of which prey on them in the larval stage.

From this study of the life history and habits of the Buffalo Gnats we can see that they are very difficult pests to control, as the entire elimination of surface running water from a locality would be the only means, so that the best we can do in regions where they abound is to prevent them from biting us by using Nesmuk's Dope (Oil of Pennyroyal, Castor Oil, and Oil of Tar in equal parts) and from biting our cattle by spraying them well night and morning with pine tar and coal oil.

THE HORSE.

Lameness in Horses.

(Concluded.)

General Treatment of Lameness.

In concluding this series on "Lameness in Horses" it may be wise to briefly mention the general principles that should be observed in treating cases of lameness.

The first, and most important necessity, is to make a correct diagnosis. This, in many cases, even to the veterinarian, is a difficult matter, but to the amateur is much more so. At the same time, unless it be done, treatment is practically haphazard, and may be calculated to do harm rather than good. The next step is the removal of the cause, if that be possible, and of every circumstance calculated to aggravate the effect. After these points have been attended to, the position of the limb and foot demand attention, in order that the patient's efforts to remove pressure and tension from the seat of pain may be assisted. If a lame horse stands with the foot of the lame limb flat upon the ground, that is, touches the ground with both toe and heel, and if the feet are good and strong, all shoes should be removed, in order that he may stand upon his feet, and be able to poise his body in the natural way. But if the feet are poor and weak, they should be protected by light, flat shoes. Simple cases of lameness, where recovery is likely to take place in a few days, are exceptions to this method, but in all cases where it is probable the patient will require a considerable period of rest, the plan will give good results.

If, however, the horse is inclined to elevate the heel, to stand upon the toe—the position indicating that the affected parts are thus relieved, and pain lessened, it is well to have him shod with a high-heeled shoe. This will, in many cases, afford some degree of immediate relief; but if, on the contrary, he is inclined to throw his weight upon the heel, a low-heeled shoe should be used. The peculiarity of the position in which the patient endeavors to stand should be carefully noted, and endeavors made to, so far as possible, assist him in assuming this position. In cases where he cannot bear any weight upon the diseased limb, it is generally wise to place him in a sling. It must be remembered that in the use of slings, the patient must not be entirely suspended. The sling must be only sufficiently tight to enable him to put all his weight upon the three sound legs, and so that when he eases weight upon these he will be suspended by the sling, and will have no difficulty in shifting the weight from the sling to the limbs when he wishes to.

When the parts are put in as complete a state of rest as possible, the effects of the primary lesion will command attention. These are inflammation, pain, and, in most cases, more or less swelling. These are the results of the injury, and, except in cases where the tissues involved have been torn, lacerated or badly crushed, they are the only morbid conditions in the early period of the lameness. It is important to appreciate this, as by proper attention to the case, alterations of structure may be prevented; while if it be now neglected, the patient worked for a day or two, or otherwise improperly treated, organic changes may ensue, rendering the lameness incurable, or curable only by a lengthened process of repair.

For the reduction of inflammation, constant or long-continued applications of either heat or cold to the parts are very useful. Opinions differ as to which is the more effective. Probably heat relieves soreness and pain more quickly, while cold, by contracting the blood vessels and thus stimulating circulation, tends to reduce swelling more quickly. There is, however, no definite rule to guide the practitioner in using either heat or cold, and the choice is often a matter of experience. In all very painful affections the writer prefers hot applications, either water or poultices for a few days, and when the pain is subsiding making a change to cold and bandages to encourage absorption of the exudate.

Purgatives are useful during the first stages of lameness in most cases. They tend to aid in reducing the inflammation, and, of course, the diet should be light, consisting of bran and hay, and in cold weather it is good practice to remove the chill from the water taken. After the acute stages of inflammation have subsided, if lameness still remains, the application of counter irritants is rendered necessary. These consist in stimulant liniments, blisters and the firing iron. The action of these remedies differs only in degree, in rapidity and in permanence, not in the nature of the exudation they produce. The theory of counter irritation originally was that "no two inflammations could exist at the same time in the same region." Hence, if inflammation existed in a