

AN ESSAY ON COLIC AND BOTS IN HORSES.

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I have associated the subject "Colic" with that of Bots, because it often happens that when a horse is tortured with either flatulent or spasmodic colic, and stands with his head turned towards the flanks, some persons are apt to conclude that he is tormented with "bots," and in view of giving the so-called "bots" their "ticket of leave," the animal is compelled to swallow a juvenile apothecary shop, including *pounded glass*, more likely to kill than cure. I must confess, however, that the subject of bots brings me into "deep water," as the saying is, for very many horse-men, and farmers, too, have always entertained an idea that the bot is a mortal enemy to the equine race and is always injurious, and I often fail to succeed in convincing men of the real facts in the case. I hope, however, on this occasion to convince some of our readers that bots are not quite so destructive to horses as many persons have been led to suppose.

Mr. Bracey Clark, who has paid considerable attention to the subject, informs us that "bots are not, properly speaking, worms, but are the larvæ of the gadfly, which deposits its ova on the horse's body in such a manner as that they shall be received into his stomach, and then become bots. When the female fly has become impregnated, and the ova are sufficiently matured, she seeks among the horses a subject for her purpose, and approaching it on the wing, she holds her body nearly upright in the air, and her tail, which is lengthened for the purpose; she approaches the part where she designs to deposit the ova, and suspending herself for a few seconds, suddenly darts upon it, and leaves the ova adhering to the hair by means of a glutinous fluid secreted with it. She then leaves the horse at a small distance, and prepares the second ova, and poising herself before the part, deposits it in the same way; the liquor dries and the ova become firmly glued to the hair. This is repeated by various flies, until four or five hundred ova are sometimes deposited on one horse; they are usually deposited on the legs, side and back of the shoulder; those parts most exposed to be licked by the animal. In licking, the ova adhere to the tongue, and are carried into the horse's stomach, and are sometimes though less frequently, found in the first intestine. The number varies considerably; sometimes there are not half a dozen, at others, they exceed a hundred. They are fixed by the small end to the inner coat of the stomach, by which they attach themselves by means of two hooks."

Let us now, briefly, inquire into the history, habits, &c. of some of the lower orders of parasites, and we shall perceive

that the presence of bots in a horse's stomach is no deviation from the general rule which seems to obtain in all created beings.*

In the study of animal physiology, we discover that animals and insects require the operation of certain forces in order that their peculiar vital properties shall be manifested. They all require food, water and oxygen; food, for the development of organized tissues; water, to maintain an equilibrium between the solids and fluids, and oxygen, for promoting various changes, uniting some particles of the fabric for special purposes, and disengaging others destined for excretion. These agents have to be obtained under varied circumstances. The number of the different species of reptiles known to naturalists is about thirteen hundred, and there are at least one hundred and sixty thousand species of insects. Among this vast assemblage of animate forms, a great proportion of them obtain food, water, and oxygen in a situation and at a temperature which is most congenial to each species; each one of which exhibit great variety in organization and habits—hence the necessity for that diversity in their geographical distribution which seems to surprise some of us.

Each species of reptile and insects, or at least very many of them, carry about with them, in their own organization, the fertile embryonic habitation for successive increase and development, and all are, to a certain extent, dependant on one another for vitality and food. It has been truly said that there is "life within life." Begin, for example, with the body of man, and we shall find that it is occasionally infested with thirty-nine distinct species of entozoa. These are not confined to a local situation, like the bots in the stomach of a horse, but some are to

*"It is a curious fact that numerous parasites do crawl over the surface of our bodies, burrow beneath our skin, nestle in our intestines, and riot in propagating their kind in every corner of our frame, producing oftentimes such molestation and disturbance as to require the interference of medicine. Nearly a score of animals that have their dwelling place in the interior of the human body, have been already discovered and described, and scarcely a tissue or an organ but is occasionally profaned by their inroads. Each, also, has its special or its favorite domicile. One species chooses the heart for its place of abode; another inhabits the arteries; a third, the kidneys. Myriads of minute worms lie coiled up in the voluntary muscles or in the areola tissue that connect the flesh fibres. The guinea-worm and chigobore through the skin, and reside in the subjacent reticular tissue. Hydatids infest various parts of the body, but especially the liver and brain. A little fluke, in general appearance much like a miniature flounder, lives, steeped in gall, in the biliary vessels. If you squeeze from the skin of your nose, what is vulgarly called a maggot (the contents of one of the hair pellicles), it is ten to one that you find in that small sebaceous cylinder several animalcules, extremely minute, yet exhibiting, under the microscope, a curious and complicated structure. Even the eye has its living inmates; but it is in the intestines that we are most infested with these vermin."—WATSON.

be found in the eye, bronchial tubes, glands, kidneys, urinary bladder, gall bladder, liver, intestines, muscles, blood, &c. There are also several species of entophytæ to the number of ten, inhabitants of the skin and mucous surfaces. So that man can boast of a greater number of living parasites, often without much inconvenience, and he being the weaker of the two, why should not the horse, who is the strongest, be able to endure the presence, and furnish nutriment, for the few bots that occasionally locate in the stomach, and be able to perform ordinary work without inconvenience?

Some of the inferior orders of creation are the receptacle of immense masses of parasites. The grasshopper, for example, is sometimes infested with a parasite known as *gordius*—a sort of hair worm—which some persons have erroneously supposed to be a transformed horse-hair. Several of these coil themselves in the digestive cavity of the former, often penetrating its abdomen, thorax and cranium; the weight of the parasites often exceeding that of the body of the grasshopper, yet we often see and hear the latter skipping, jumping and chirping, notwithstanding this parasitic mass, just as freely, perhaps, as others not so infested.

But the bot is a creature that does not multiply nor increase in bulk at this rapid rate; he may be set down as a "slow coach," and when once located in the only domicile that he ever inhabits, (the stomach of a horse) it becomes his abiding place for a period of nearly twelve months. The bot is a sort of aristocratic entozoa; he lives in the upper region of the stomach; he seldom intermixes, or associates with the common parasites of the intestinal tube. The little creature seems to exercise considerable tact in selecting his abiding place, although he has but a "squatter's" title to it, yet his location is the best and safest in the whole "diggings." He is in the upper and anterior part of the stomach, where the fluids—poison or medicines—with which you are about to coax or drive him off, are inoperative—for they merely act as a shower bath—and pass immediately through the stomach into the intestines, where all the fluid a horse drinks is generally found; therefore such remedies do not disturb the bot. Then, again, the bot is usually located on the *cuticular* part or coat of the stomach; a "membrane as insensible to pain as that which gives an anterior lining to the gizzard of a chicken. This part possessing but very little vascularity is not susceptible to the action of medicine or any of the ordinary bot remedies, and the bot being within his own castle, his suctional disk, or mouth, imbedded in this non-absorbing membrane of the stomach, can refuse to imbibe the proffered dose, which, however, often succeeds in destroying the horse.

Another reason why medicine does not act on the bot; the external surface of