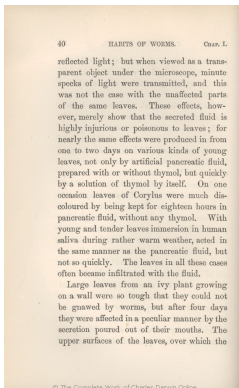
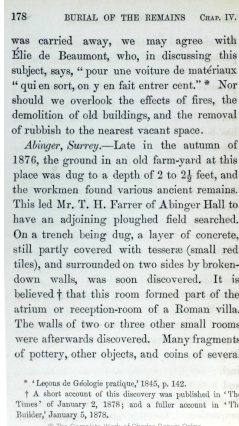


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CHAP. II. THEIR MANNER OF PREHENSION. 57

seen on one occasion, when a large worm lying beneath a flaccid cabbage leaf tried to drag it away; for the surface of the leaf directly over the end of the worm's body became deeply pitted. On another occasion a worm suddenly lost its hold on a flat leaf; and the anterior end of the body was momentarily seen to be expanded. Worms can attach themselves to an object beneath water in the same manner; and I saw one thus dragging away a submerged slice of an onion-bell.

The edges of fresh or nearly fresh leaves afford to the ground were often silted by the worms; and sometimes the epidermis and all the parenchyma on one side was gnawed completely away over a considerable space; the epidermis alone on the opposite side being left quite clean. The veins were never touched, and leaves were thus sometimes partly converted into skeletons. As worms have no teeth and as their mouths consist of very soft tissue, it may be presumed that they consume by means of suction the edges and the parenchyma of fresh leaves, after they have been softened by the

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52 HABITS OF WORMS. CHAP. I.

"going on in the contents themselves. . . .
 "In Curviera the contents of the cocoon
 "are acid to the alkaline, and naturally the
 "amount of fermentation will depend largely
 "on the nature of the food."⁸

With worms not only the contents of the intestine, but their ejected matter or the castings, are generally acid. Thirty castings from different places were tested, and with three or four exceptions were found to be acid; and the exceptions may have been due to such castings not having been recently ejected; for some which were at first acid, were on the following morning, after being dried and again moistened, no longer acid; and this probably resulted from the lumen acids being, as is known to be the case, easily decomposed. Five fresh castings from worms which lived in mould close over the shell, were of a whitish color and abounded with calcareous matter; and these were not in the least acid. This shows how effectually carbonate of lime neutralizes the intestinal acids. When worms were kept in pots filled

⁸ N. Pater, 'A Text-Book of Physiology,' 2nd edn. 1879, p. 243.

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CHAP. I. MENTAL QUALITIES. 55

They perform a few actions instinctively, that is, all the individuals, including the young, perform such actions in nearly the same fashion. This is shown by the manner in which the species of Perichæta eject their castings, so as to construct towers; also by the manner in which the burrows of the common earth-worm are smoothly lined with fine earth and often with little stones, and the mouths of their burrows with leaves. One of their strongest instincts is the plugging up the mouths of their burrows with various objects; and very young worms act in this manner. But some degree of intelligence appears, as we shall see in the next chapter, to be exhibited in this work,—a result which has surprised no more than anything else in regard to worms.

Food and Digestion.—Worms are omnivorous. They swallow an enormous quantity of earth, out of which they extract any digestible matter which it may contain; but to this subject I must revert. They also consume a large number of half-decayed leaves of all kinds, excepting a few which have an unpleasant taste or are too tough for them;

p. 2

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CHAP. III. BROUGHT UP BY WORMS. 147

von Haast has described * a section near the coast, consisting of mica-schist, "covered by "5 or 6 feet of loess, above which about 12 "inches of vegetable soil had accumulated." Between the loess and the mould there was a layer from 3 to 6 inches in thickness, consisting of "cores, implements, flakes, and "chips, all manufactured from hard basaltic "rock." It is therefore probable that the aborigines, at some former period, had left these objects on the surface, and that they had afterwards been slowly covered up, by the castings of worms.

Farmers in England are well aware that objects of all kinds, left on the surface of pasture-land, after a time disappear; or, as they say, work themselves downwards. How powdered lime, cinders, and heavy stones, can work down, and at the same rate, through the matted roots of a grass-covered surface, is a question which has probably never occurred to them.†

* 'Trans. of the New Zealand Institute,' vol. vii. 1866, p. 152.
 † Mr. Eadney Kermack, in a letter (June 1893) to Sir C. Lloyd, remarks that Scotch farmers are afraid of putting lime on pastures and said just before it had done for pasture, from a belief that it has some tendency to do so. He adds: "Essex
 L. 2

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