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MR DARWIN'S NEW BOOK.

Everyone has observed the slow, quiet, wormlike casts of earth which cover the ground in many parts, and everyone has doubtless a vague idea that they are somehow caused by worms. How, however, we believe, have any clear notions as to how the worms produce these casts and cause still stranger effects to be produced by worms and their casts in modifying the surface of our earth. To shed light on this subject Mr. Darwin has written his latest book—a book which is really the result of something like half-a-century's investigation. "The share which worms have taken in the formation of the layer of vegetable mould which covers the whole surface of the land in every moderately humid country is the subject of the present volume." The subject certainly seems at first a most unpromising one. Worms, as others have regarded almost universally as mere cumberers of the ground, as loathsome creatures, whose sole merit is to make a study for Mr Darwin's book will change all this, and lead the reader to doubt with the author "whether there are many other animals which have played so important a part in the history of the world as have these lowly organised creatures." What, then, is the wonderful work they do? If a paved or stony path is left for any time untended, not only does it get overgrown with grass, but it seems actually to sink in the ground. Every farmer knows that if lime or manure is spread over the ground, or if stones are placed on the surface and left undisturbed, in course of time they disappear below the surface. This the farmer attributes to a natural tendency of things to sink. Very large stones, like those that have fallen at Stonehenge, sink in process of years more or less underneath the earth; and entire ruined buildings, and even towns like the old Roman towns of Silchester and Uriconium, have in the lapse of centuries become buried under several feet of earth. This, no doubt, is partly due to wind-drives dust, and to earth washed down the slope of the ground by rain, but mainly, as Mr. Darwin shows in his interesting book, to the unceasing excavation of myriads of worms. These humble creatures are constantly busied in boring their burrows. They eat their way under the ground, eating the earth as they proceed, and this accounts for the many worm-like casts such as all unattended places where any earth is to be found. Wash nothing else, moreover, is to be had, the worms feed on the earth itself, extracting what nourishment they can therefrom, and throw the refuse out on the surface. The whole earth beneath our feet, from a depth varying from an inch or two to four and even more feet, is riddled with their holes. It is calculated, on a very low average, that there are something like 30,000 worms in every acre of land. These are continually boring their holes and throwing up the earth, with the general result, as is calculated, of adding to the surface earth, brought from beneath and passed through their bodies, a coat all over to the depth of an inch annually, and weighing several tons to the acre. So that, in the course of five years, a fresh layer of earth, one inch in depth, is spread over the surface wherever worms can find shelter, and that is nearly everywhere where there is sufficient moisture. This has been going on for untold ages. Mr Darwin's book almost entirely consists of instances upon instance of the work thus performed by worms in all parts of the world. Experiments he has been making for many years in his own house and grounds, friends have made experiments and observations in various localities for him, and he has sought and obtained information from all quarters. Other investigators besides himself have been working at the subject in recent years, and the result is a mass of evidence that is irresistible. Certainly some of the examples he adduces of the stupendous results achieved by these tiny creatures, such as the entombment of ruined buildings and cities, seem at first incredible enough, but he so surrounds us with evidence that we are shut up to only one conclusion. "When we behold a wide, turf-covered expanse, we should remember that its smoothness, in which so much of its beauty depends, is mainly due to all the inequalities having been slowly levelled by worms. It is a marvellous reflection that the whole of the superficial mould over any such expanse has passed, and will again pass, every few years through the bodies of worms." We have said that Mr Darwin's book is the result of 50 years' investigation. To show how [illegible] of years ago he had a field of his own covered over with chalk for the purpose of observing its results, he visited about it every year, and when the ground was trenched the chalk was found at a uniform depth below the surface, with abundant evidence that the result was the work of the worms. Well may he call them "unconscious agents in the creation of a fertile mould." Probably some think that worms are of no agency save they be the means of fertilising the earth. Not only as we have seen, do they unconsciously renew the soil in the course of a few years, and fertilise it by passing it through their bodies, but they drag down from the surface most of leaves, and scores of all kinds, certainly to feed on food and partly to line their burrows with. For these they construct rude pavements, and ingeniously, bring them sometimes to the bottom of their holes. Worms, moreover, have a most unexpected use in connection with a special class of leaves. Many trees shed their leaves in autumn, and these, if left to themselves, would remain on the ground for years. But worms will not touch them in this state, but wait till they are half rotten, when they draw them down. Worms, moreover, have a most unexpected use in connection with a special class of leaves. Many trees shed their leaves in autumn, and these, if left to themselves, would remain on the ground for years. 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