INSECTIVOROUS PLANTS.—Last week we noted some curious facts in connection with plants that are supposed to be eaters of flesh. Other facts, equally curious, are brought to light in Mr. Charles Darwin's book (published by John Murray) under the above title.

The first and chief part of Mr. Darwin's observations were made on the common, round-leaved English sundew. When an insect is caught on the glands placed at the ends of the long fingers which cover the upper surface of the leaf, these fingers bend and deliberately place their prey on the disc of the leaf, which must be regarded as its stomach. There is no mastication, it is true, but neither is there any in the great class of *Edentata*, of which the ant-bear is a good instance, and which feed on exactly the same kind of food as does the sundew. For the purpose of catching the flies, the glands are covered with a viscid secretion which seems to have some attraction for them, but when a fly has been caught and swallowed, the nature of that secretion changes very materially. It becomes much increased in quantity, and it becomes acid. It kills the insect, and then digests it, that is to say, it dissolves out of it everything that is soluble, and then it finally absorbs at least some part of what has been dissolved. The acid which is secreted has been investigated by Professor Frankland, who finds that it is probably propionic acid; and the peculiar ferment which takes part in the digestion has been separated by Mr. Lawson Tait from the secretion of *Drosera binata*, and has been found to resemble pepsin very closely, though in some particulars it differs somewhat from that important factor in human digestion. Even so far the occurrence of real gastric digestion in plants would have been an important discovery, and to account for its usefulness Mr. Tait, and Mr. Canby before him in the case of the Dionœa, had suggested that the leaves only prepared manure for the roots. To prove absorption by the leaves seemed almost beyond physiological possibility. But Mr. Darwin has accomplished it beyond dispute, and in doing so he has made a contribution to microscopic research of the utmost importance. He has discovered a series of phenomena occurring in the cell-protoplasm of the plant, to which he has applied the term "aggregation." For the use of this term he does not, it seems to us, give very good reason, beyond that it is partly descriptive. A better might have been found, but, as Mr. Darwin has begun its use, it is certain to be continued. We cannot find space here to describe these phenomena, and, indeed, they would be beyond lay readers; but we cannot dismiss them without saying that their meaning seems to have been completely elucidated by Mr. Darwin, and that his discovery opens the way to a whole series of new facts in cell-physiology. The absorption of the digested food, therefore, by the glands of the sundew, must be accepted as a fact. But still there are certain conditions of the plant which Mr. Darwin has not attached enough weight to, and which seem to support Mr. Tait's view, that the digestion may prove useful by applying food to the absorbent roots. The plant may be seen growing in exposed situations, as near the gap of Dunloe, where showers of rain are frequent, so that in spring, at least, scarely a day may pass without a leaf being visited by a rain-drop or a dew-drop. The digestion of a fly takes many days, from six to ten, to accomplish, so that in the great majority of instances it is probable that some of the products of digestion are washed out of the folded disc of the leaf. When the plant is most actively growing and the whole process most energetic, the leaf is not only folded over its prey at the margins, but the wrist of the leaf is bent towards the axis of the plant, so that if a rain-drop should wash the products of digestion out of the leaf, it will do so directly on to the ground or moss near the root. The plant grows in closely-matted patches, so that an isolated plant is seldom met with, and, in many cases, a number of plants are so closely mixed up that it is difficult to separate them. The drops from the leaves of one plant would, therefore, be of material service to the roots of all those associated with it. Finally, plants placed in silver-sand, and so guarded that nothing can reach their leaves, flourish well when nitrogenous matter is supplied to their roots. Dr. Carpenter has established this also in the case of rye-grass, and indeed it is, of course, the normal condition of all vegetation. Even in the case of Dionœa, where the stomach closes completely, the exuberant products of digestion may sometimes be seen trickling down a channel in the petiole towards the roots. There can be no question but that this is a provision against waste, and that the surplus food thus utilised must prove of great service to the plant. Of the direct primary absorption by the leaf there can, however, be no doubt. Very many of the peculiarities of action of the digestive juice of the sundew on certain substances, as gelatin, chondrin, casein, fibrin, are identical with the actions of our own gastric juice; indeed, it is far more difficult to point to dissimilarities than to resemblances. The closure of the trap of the Dionœa must be regarded as homologous to the act of swallowing, and, like that, it is purely reflex. Thus, after the bolus of food has reached the region of the glosso-pharyngeal nerve in our own tongues, it is beyond our control, and the reflex mechanism closes it within the stomach. When the food of the fly-trap touches one of the nerve filaments, the lobes close by a reflex movement identical in its phenomena with that seen in the animal. Mr. Darwin seems to object to the application of the term "nerve" to the filaments of the Dionœa, but without good reason, as it seems to us. When certain tissue becomes specialised for the conveyance of messages from the periphery to the centre, or *vice versâ*, it goes by the name of *nerve* among animals, and the same thing should have the same name in a plant, in spite of the shock it may give to some human nerves to find such a bond of union established. In the sundew, as indeed in the tissue of the Dionœa beyond the filaments, the nerve-force seems to be conveyed in every direction by the ordinary tissue of the plant. Mr. Darwin's experiments show this conclusively. It is not what we should at first sight have expected, especially in the Dionœa, but deeper consideration shows that it is just what ought to be, and that it is another of our author's great discoveries in support of evolution. In the individual, nerve-tissue is developed from ordinary protoplasm, and in the lower orders of animal life, as in crustaceans, ordinary non-specialised protoplasm must, in greater part, serve for nerve-functions. Thus, when we get to a still earlier phase of the existence of nerve-function, where it has to serve the demand for movements of mere flexion and extension of the most simple and uniform character, specialisation of tissue for the conveyance of currents is not needful, any more than insulation is not needed for a wire when passing through a bad conductor like air. In fact, the analogy is complete. Nerves are only insulated protoplasm, developed when many definite currents are needed, and must not be confused by contact. In the fly-trap only one current is used for one purpose, so it may safely go all over the leaf.