of an acid re-action upon litmus paper. The next question to be examined was, in what manner is the fertilizing influence of the male organs communicated to the ovule? After quoting the opinions of Amici, Brown, Fritzche, Corda, Treviranus, Brongniart, and others, the author came to the conclusion that the *boyaux*, or intestine-like protrusion from the pollen grains, was the result of the action of acids upon the fluid which contained the fovilla in the pollen grain; and he inferred this from the fact of this tube, or *boyau*, never being formed when the pollen grain is placed in water, but being constant when the grain is placed in acid. After describing and explaining the anomalous character of the pollen grains in Orchidaceæ, Fumariaceæ, Asclepias, &c., the author presented the following conclusions as the result of his researches:—1. The stigma is invariably acid; 2. It is in consequence of this acidity that the pollen bursts; 3. That by the same means the fluid contents of the pollen become coagulated, enveloping the fovilla, and assuming, according to the method of dehiscence, different and very remarkable forms. (The memoir was illustrated by an extensive series of drawings.)

Dr. W. Arnott stated, that Prof. Mohl had lately made an extensive series of observations on the forms of the pollen grain. He thought Dr. Aldridge's explanation of the nature of the *boyau* satisfactory, although it increased the difficulty of explaining the mode of impregnation. The triangular pollen grains mentioned would, he believed, in most cases, be found to be square, or four-cornered, their triangular appearance being a deception.—Dr. Balfour said it had been observed, in some cases, that the pollen was alkaline; if this were correct, it was remarkable, taken in connexion with the acidity of the stigma.—Prof. Link, of Berlin, thought Dr. Aldridge correct as to the nature of the *boyau*. He believed it was formed of a glutinous matter, like that of which the spider made its web.

Mr. Babington mentioned, that he had found the *Cuscuta epilinum*, or the Flax-dodder, at Burrishoole, in the county of Mayo, Ireland; and also in a field near to the Crinan Canal in Scotland. He also stated that it had been introduced into this country with the seed of the flax from the north of Europe; and that there was no doubt of its being distinct from the *C. Europæa* of Linnæus.—Dr. W. Arnott thought that it might be got rid of, by using seed from America instead of from the north of Europe. Plants frequently brought with them parasites from other districts,—of this he had seen an instance in France, where a species of Orobanche, which grows abundantly in Barcelona, had been conveyed with the seed of the plant on which it grew. The mode of getting rid of it would be to substitute seed from some other district.

A Committee was appointed at the last meeting of the Association, to examine various parts of the Coasts of Great Britain by the Dredge. The Report of this Committee was read by Mr. Forbes, and the results were as follows:—Mr. Forbes dredged the east and west coasts of the Isle of Man. The species taken are recorded in the dredging papers, which will be hereafter published. A great bank or bed of scallop and other shells runs from opposite Peel to the point of Ayre, a distance of seventeen miles or more. The dead and living shells were equal. It varies in distance from the shore from half a mile to five miles. From most parts of the coast it is distant four miles. Between it and the shore is a great tract of sand, in which animals are rare. The coast with which this bed runs parallel, is of pleistocene marl and sand, in places exhibiting traces of a similar shell bank to that existing in the sea. The characteristic shells of the fossil bed are, however, altogether wanting in the recent. Echinodermata abound in the recent bed. The east coast presented a different character. Off Laxey there is an oyster bank apparently of small extent. The rest of the sea bottom is milleporinæ. The most abundant shell is the *Pectunculus pilosus*. Scallops are very scarce, and shells of the Venus tribe not abundant. Sponges are plentiful, but Echinodermata scarce. A sub-committee dredged the west coast of Ireland. The testacea usually regarded as characteristic of the southern districts of Britain, were found on this coast, and extended as far as Donegal Bay. The province of Connemara must be excepted; the marine lough there presenting a northern Fauna similar to that found in the Highlands of Scotland and the Hebrides. In Clew Bay a deep-water Fauna was observed on a shallow bottom, accompanied by the geological phenomenon of a raised coast and islands presenting beds of shells *in situ*, at some elevation above high-water mark. The species of testacea were very generally distributed. Ascidian mollusca were abundant, but radiata were much more scarce than on the east coast. No instance of a true shell bank was observed. Dead shells were generally more abundant than living. Mr. Patterson dredged a portion of the east coast of Ireland, in the neighbourhood of Belfast. In the course of his researches he found dead shells usually more abundant than living; and with the exception of one or two species, the number of individuals of each form but limited. *Nucula margaritacea* was found in great abundance,—in many places much more abundant than the other species, which fact illustrates the circumstance of the nucula being characteristic of the newest tertiary formation. Papers filled up with the species taken, as well as the list of queries drawn up for the use of the dredgers, were laid before the Section.

Mr. Smith, of Jordan Hill, had been in the habit of dredging for years, and believed there were not so many new species to be found as was generally supposed, and therefore the labour would not be so great as might have been expected. Labours of this kind, although they might not be important to the conchologist, were very much so to the geologist.—Mr. Forbes had been much surprised at the result—not a single new testaceous mollusk was found on the west coast, and only a few new species of the naked mollusca. This was opposed to the prevailing opinion that our seas contained many new species.—Dr. Fleming thought it desirable that, in order to prosecute dredging with success, more should be known of the nature of the coast. Government coast surveys had now been going on for years, and it was most desirable that what had been done should be accessible to the naturalist. He was not surprised at the few new species found. Frequently rare species were widely scattered; whilst those that were abundant might be local. He once found the *Ciderella cristata* in great abundance, in one locality, and although he had often sought it again there, he had never found it; and the few he brought away the first day, he believed were the only British specimens that existed. He mentioned other instances in which he had found shells only once in abundance in the same place, although repeatedly visited again for the same purpose.

Mr. Patterson then read the Report of the Committee on Radiate Animals, which concluded as follows:—"Respecting the state of our knowledge of two divisions of the radiate animals, the Committee feel it unnecessary to furnish any report, these departments being undertaken by individual members of the Committee, whose researches are either published, or are now in course of publication (Johnstone's 'Zoophytes' and Forbes's 'Echinodermata'). With regard to the remaining portion, the Acalepha, they are persuaded it cannot be effectually investigated and illustrated, except when the artist and the naturalist are combined in the person of one individual. The Committee therefore beg leave to discontinue the further prosecution of their subject."

SATURDAY.

Sir William Jardine in the chair.

The Chairman exhibited the roots of a beech-tree, which had been sent to the Section by Sir Thomas Phillips. They were remarkable from having been produced in a tank of water, through the crevices of which they had penetrated, and they had thus become divided in an extraordinary manner.

Dr. Neill remarked, that the spongioles here were acicular, and that he had observed this to be the case in a plant of *Leuecio Jacobæa*, whose roots had been produced in water.—Dr. Walker Arnott said, all plants growing in the water have pointed extremities at their roots, and in many cases they possessed a distinct case or calyptra at the end; and he believed it would be found that roots in water terminated by acicula, and those in the earth by knobs.

The Secretary read a communication 'On an anomalous form of the Plum, observed in the gardens of New Brunswick,' by Prof. Robb.

After some general remarks on the character of the fruit-bearing trees of New Brunswick, which is not favourably situated for the developement of Rosaceous fruits, the author stated—In the summer of 1839 I had an opportunity of observing the progress of destruction among the plums. Before, or soon after the pieces of the corolla had fallen, the ovarium had become greenish yellow, soft, and flabby; as the fruit continued to grow, its colour became darker and of a more muddy yellow, and, at the end of a fortnight or three weeks, the size of the abortive fruit was fully greater than that of a ripe walnut, and resembled, in appearance, apricots. When examined, they were hollow, containing air, and consisting of a distended skin, insipid and tasteless. By and bye, a greenish mucor or mould is developed on the surface of the blighted fruits, which becomes black and shrivelled, and, at the expiration of a month from the time of blowing, the whole are rotten and decomposed. The flower appears about the beginning of June, and before August there is hardly a plum to be seen. The changes producing these anomalous forms of the fruit, were explained on the admitted principles of morphology. The differences from a normal form of the fruit would be found as follows:—The exocarp is yellow and wrinkled, not smooth and red or black; while the mesocarp is as little developed as if the protophyllum had become a leaf. Its cells are loose and dry, while the vessels, large, and very prominent, are discerned passing through it. The two largest sets of vessels run up along the inner surface of the groove or suture, corresponding to the line along which the edges of the protophyllum are united, and those which correspond with the radicle in the protophyllum. They all anastomose and converge towards the apex, where all contribute to form portions of the style and stigma. The endocarp was small; it was attached by vascular fibres, but sometimes adhesions existed between it and the mesocarp, on which it lay. Sometimes it was attached near to where the style was given off, in other instances it was midway between that point and the peduncle. In some cases it was empty; mostly one or two ovules might be seen; and one was generally smaller than the other, indicating its deficient nutriment. Each ovule was made up of three transparent shut sacs, the innermost of which (the tercine) contained a transparent fluid, and nothing more. The author supposed this anomalous form of fruit to be influenced in its production by cold winds and long-continued rains at that season at which the flower is open, and the reproductive organs the most exposed to atmospherical vicissitudes. It was popularly attributed to insects; but, from not having observed any, he did not think this could be the cause.

Dr. Walker Arnott thought the author wrong when he stated that the endocarp of the fruit represented the epidermis or epiphyllum of the normal leaf. The real fact was, that the shining membrane on the interior of the endocarp was the true representative of the epiphyl. He believed that these plums were produced by the attacks of insects, as he had frequently seen anomalous forms of fruit produced in that way. An early examination of the flower would probably have detected them. Moist weather produced a contrary effect on vegetation, and was favourable to the developement of leaves rather than fruit.—Dr. Lankester related some instances of abnormal developement of leaves and other parts from the attacks of insects, especially from the deposition of ova in the tissues.

Mr. James Wilson exhibited a series of specimens illustrating Mr. Shaw's (of Drumlanrig) views on the developement and growth of Salmon-fry. Mr. Wilson read a portion of an article on this subject by Mr. Shaw, which appeared in the 14th volume of the Transactions of the Royal Society of Edinburgh. The series of experiments last performed by Mr. Shaw seem to have satisfactorily settled the question, that the fish called the parr is but one form of the fry of the salmon, and that the differences of opinion on this point have resulted, 1st, from the varying time which the young fish remain in the rivers—from fifteen months to two years; and, 2ndly, the different dress or colour which they assume during their growth.

Sir W. Jardine thought the question of the nature of parr was set at rest by Mr. Shaw for ever. He had witnessed the places in which the experiments had been performed, and, from the care which had been taken to make the ponds as much like their natural haunts as possible, he had no doubt of the