

This bird had been shot by Dr. Hinde, Staff Surgeon, on the 21st of January, 1865, a few miles above the so-called Falls of Barraconda. These Falls, which at the time of Dr. Hinde's visit were little more than rapids, are about 500 miles up the River Gambia. The Owl was startled from some trees, which there lined its banks, by the sound of the oars, but shortly re-alighted: on again rising, it was shot. This species was originally described by Prince Buonaparte in his "Conspetus Generum Avium;" and a very beautiful figure of it, by Mr. Wolf, was annexed to a paper on its occurrence in the Gambia district by J. H. Gurney, M. P., in the "Ibis," for 1859. Dr. Wright was able to confirm a remark made by Mr. Gurney, that the transverse markings on the upper part, and the spots on the lower part of the bird, are not of a true black, but are, more properly speaking, of a dark brown, varying from the other portions of the plumage rather in intensity of hue than in actual difference of colour. The tarsi and feet, however, in this specimen are of a slightly yellow hue. This Owl must still be regarded as a rare bird in collections. One in the Leyden Museum is from Rio Boutry; two or three in America are from the River Gambia; that in Mr. Gurney's possession is from the Barra Country, very probably from the very same spot as the specimen now exhibited. Dr. Kirk saw only three pair during his explorations of the Zambesi district, in the Livingstone expedition—of these he succeeded in obtaining five specimens; they were shot at the confluence of the Shire and Zambesi; so that, probably, not more than a dozen specimens exist in the different museums in Europe and America. Dr. Hinde has presented this specimen, with many other interesting Birds, Fish, and Reptiles, to the University Museum. Dr. Wright concluded his remarks by expressing his great regret that Dr. Hinde had found it impossible to be present at their meeting that evening, as he could have told them so very much more about the habits of this bird.

The following paper was then read:—

ON FOSSIL PLANTS FROM THE SOUTH OF IRELAND. PART I. By WILLIAM HELLIER BAILY, F. L. S., F. G. S.

COMMENCING with the oldest fossiliferous strata, I have to remark upon the absence of all reliable evidence as to the existence of vegetable organisms during the Cambrian formation in Ireland. In the Silurian rocks there is, however, clear evidence of the existence of Plants; these were first discovered by Mr. A. B. Wynne, F. G. S. (now of the Geological Survey of India), during the progress of the Geological Survey of Ireland, near Hollyfort, in the county of Tipperary, with many other interesting fossils; and since by Mr. C. Galvan, one of the Fossil Collectors of the Geological Survey, from the N. E. side of the Keeper Mountain—these Plant remains consisting of stems of considerable size, the vegetable matter being converted into coal, and root-like fragments, with depressions resembling *Stigmaria* of the coal formation (also a root), associated with *Graptolites*, and fossil shells of a marine character.

With regard to the Plants of the Old Red Sandstone, allusion must be made to the importance of one fossil locality, that of Kiltorean Hill, in the county of Kilkenny, as presenting by its fossils the only certain evidence of true Old Red Sandstone in Ireland; for at this place Plants are found associated with fish remains of a peculiar character, comparable with those characteristic forms met with in the North of Scotland and the Orkneys; the remarkably fine state of preservation of these fossils being due to the mineral condition of the rock in which they are imbedded, which is fine-grained greenish-yellow Sandstone, readily separating into slabs of uniform thickness. The assemblage of fossils from this locality consists of Plants of several kinds, such as may have vegetated on the borders of a freshwater lake—a large bivalve shell, allied to the river mussel of the present day, named *Anodonta Jukesii*; claws and other fragments of a remarkable Crustacean, probably *Pterygotus*; and an abundance of fish remains, consisting of jaws with teeth, large bony plates and scales of Ganoid fishes, comparable with *Coccosteus*, *Glyptolepis*, &c., of the Old Red Sandstone of Scotland. The most abundant of the Plants collected from this celebrated quarry is a large fossil fern, first made known by Professor Edward Forbes, at the British Association Meeting at Belfast, in 1852, and referred by him to the genus *Cyclopteris*, being named *Cyclopteris Hibernicus*. Since then, however, specimens have been submitted to M. Adolphe Brongniart, the eminent fossil botanist, who considered it to be more allied to *Sphenopteris*, and to belong to *Adiantites*, a section of that genus, in consequence of its possessing an intermediate pair of leaflets springing directly from the rachis between the lateral pinnae. From time to time other specimens have been collected of this, the most ancient tree fern, serving to elucidate various points in its structure, such as its mode of fructification, attachment to the stem, &c., which were alluded to by me, at subsequent meetings of the British Association, and in the Explanations of the Maps published by the Geological Survey of Ireland.\*

Another species of fossil fern has been described by me from the same place, under the name of *Sphenopteris Hookeri*; and for a third I propose the name of *Sphenopteris Humphreysianum*, after Mr. H. T. Humphreys, in whose fine collection of Kiltorean fossils I first observed it—the two latter species being comparatively rare, only a few specimens of each having been procured. There are numerous specimens of other Plants in the fine collections made from this place, at the Museums of Trinity College, the Royal Dublin Society, and the Irish Industrial Museum, some of them still remaining to be described; amongst them large fluted stems, which appeared to be identical with *Sagenaria Vellheimiana* of the German fossil botanists; Palæontologists, however, labour under great difficulty in dealing with some fossils, especially the remains of Plants, which are often fragmentary, and require the examination of a large number of specimens, and repeated visits to the places where they are

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\* Explanation of Sheets 147 and 157, Geological Survey of Ireland.

procured, before a clue can be obtained towards the elucidation of their history, or even sufficient to explain the relation of the several parts to each other; want of the necessary information, and too hurried an examination having repeatedly led to the mistake of applying distinct names to different parts of the same fossil plant or animal. The remarkable group of Plants to which this species of *Sagenaria* belongs is characterized by its conspicuous leaf scars, arranged in a spiral manner, and more or less distant from each other; they are very abundant amongst the Plant remains collected at Kiltorcan; several of the varieties are figured and described by the Rev. Professor Haughton, M. D., F. R. S.\*, under the name of *Cyclostigma*. The large fossil fern *Adiantites Hibernicus*, accompanied by the freshwater bivalve shell *Anodonta Jukesii*, and the stems referred to *Sagenaria*, has been found at several other places in the neighbourhood.

The next important fossil Plant locality to be mentioned is that a little east of Tallow Bridge, in the county of Waterford, in a cutting for the new road, through dark grey shales, full of Plant remains, described by the Geological Surveyors as the upper part of the Old Red Sandstone. At this place stems of large size may be seen crossing each other in all directions, some of them five or six feet in length, and six inches in breadth, coarsely ribbed lengthwise, and dividing into smaller branches, which again subdivide; the surfaces of these smaller branches showing a beautiful arrangement of alternating markings, the remains of leaf scars, giving them a lattice-work appearance. It is impossible to bring away these fossil Plants entire, in consequence of the number of joints crossing them. I have visited the place in connexion with my duties on the Geological Survey, and made a drawing of the appearance they presented on the spot, which, with the description of the locality, was inserted in the Explanation to Sheet 187, &c., of the Maps of the Geological Survey. I believe it to be the same description of Plant which occurs at Kiltorcan, and which I have referred to *Sagenaria Veltheimiana*. The Rev. Professor Haughton gives an account of this remarkably rich deposit of fossil Plants.† These Plants, although so abundant, belong for the most part to one species only, that already alluded to as *Sagenaria Veltheimiana*; and, as at Kiltorcan, a plant like *Stigmara* has been observed here, which is most probably the root of *Sagenaria*; smaller branching Plants, named by me *Filicites lineatus*, and masses of a grass-like character, perhaps rootlets, were all the varieties observed at this place.

Plant remains have been collected by the officers of the Geological Survey at a few other places in the same county. On the Fermoy road, one mile west of Tallow Bridge, branching plants occur in grey slate, with a bivalve shell—*Modiola Macadami*, a marine or brackish water species, characteristic of the Carboniferous slate. At Salter Bridge,

\* "Journal of the Royal Dublin Society," vol. ii., p. 407.

† "Journal of the Royal Geological Society of Ireland," vol. vi., p. 227, &c.

two miles north-east of Lismore, and Cappagh, eight miles east of the same place, Plant stems half an inch broad, with fine striæ lengthwise, have been collected, at the latter place, accompanied by the branching plants *Filicites lineatus*. The large fern, *Adiantites Hibernicus*, accompanied by *Anodonta Jukesii*, was found also near Cork, and still more south, at Tracarta, near Castle Townshend and Gokane Point, west of Toe Head Bay, where it was first noticed by Mr. A. Wyley, of the Geological Survey of Ireland, and afterwards Geological and Mineralogical Surveyor of Cape Colony—the fossils at both the latter places being much in the same condition with regard to their state of preservation: occurring in more slaty rocks, and subject to cleavage, they are not so easily obtained as those of Kiltorcan; neither are they so beautifully preserved. All the species are, however, identical. A single fish tooth only, precisely similar to that from Kiltorcan, I have referred to *Bothriolepis*—it was collected at Tracarta; the other fossils—being all Plants of the following species—*Adiantites Hibernicus*, *Sagenaria Veltheimiana*, *Cyclostigma Kiltorkense*, *Stigmaria*-like Plants, probably roots of *Sagenaria*, similar to that observed at Kiltorcan, and narrow-leaved branching Plants, perhaps rootlets.

At Gokane Point, from rocks on shore of similar character, the species of fossil Plants collected were the same, with the addition of *Sphenopteris Hookeri*. The large bivalve shell, *Anodonta Jukesii*, was also found here. It is somewhat remarkable that all these localities with similar fossil Plants are situated in nearly a straight line, running in a direction N. E. and S. W. from Kiltorcan, county of Kilkenny, to Tallow Bridge, county of Waterford, Tivoli Villa, Tracarta, and Gokane, county of Cork. The upper beds of the Old Red Sandstone are well shown in a large quarry which Mr. Joseph O'Kelly, M. A., Senior Geologist of the Geological Survey, pointed out to me, on a visit I made with that gentleman in 1862. Some of the beds were finely laminated, the layers being so full of Plant remains as to present quite a coaly aspect, crossing each other in matted masses. Some of these Plant stems, branching and striated lengthwise, were two and a half inches broad. The surface markings were, however, too obscure for anything like specific determination. Mr. Wynne, in the Explanation to Sheet 126 of the Maps of the Geological Survey, describes rocks of Old Red Sandstone in the River Bunnaw, near Killavilla, about three miles and a quarter north-east of Roscrea, as grey sandy shales, from which he collected branching Plant stems, with three-lobed leaflets attached, resembling *Sphenopteris*, the layers of rock being full of Plant remains, including stems of various sizes, from the tenth of an inch to nearly an inch broad, some of them branching.\*

Several fossil Plant localities were observed by the officers of the

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\* Sir Richard Griffith notices several of these localities in his paper "On the Remains of Fossil Plants of the Yellow Sandstone."—"Journal of the Royal Dublin Society," vol. i., p. 313.

Geological Survey in rocks referred to the Old Red Sandstone, in the county of Kerry, branching Plants, *Filicites lineatus*, occurring in purple slates on the west side of the Gap of Dunloe, and in micaceous slates and sandstones at Gortalunny and Rossacossane; and at Coolownig, one of the root-like Plants was procured resembling *Stigmaria*; and from rocks on the west side of Coomasahara Lake ribbed Plant stems were collected, some of them more than an inch in diameter. From rocks at Kilmore sea beach, blocks of sandstone were obtained by Mr. F. J. Foot, M. A., Senior Geologist of the Geological Survey, full of Plant remains, consisting of diverging fronds bearing striated stems.

Dr. E. Perceval Wright exhibited specimens of several new species of Echinoderms, belonging to the Families Ophiuridæ and Asteriadæ. These species were chiefly from the collection made some years ago by his colleague, Professor Harvey, on the coasts of New Zealand and Australia, and had been presented at the time to the Trinity College Museum. Dr. E. P. Wright also exhibited a specimen of the animal of the genus *Kuphus*, one of the Teredinidæ, which, in all probability, had not been seen or described since the days of Sir Everard Home. At one time, and indeed in all the best manuals of Mollusca, this genus was described as destitute of valves, in which respect it was unique among Lamellibranchiate Mollusca; but this specimen proved that in this respect this genus did not differ from all other bivalves. A specimen belonging to a new species of this genus was also exhibited. This Dr. Wright had described at a recent meeting of the Linnean Society, and for permission to do so he was indebted to the extreme kindness of his friend, Dr. J. E. Grey, of the British Museum. This species was from the coast of Australia, and had been collected by Mr. Clifton. In conclusion, Dr. Wright remarked that perhaps no Molluscan genus showed more than this one the extreme divergence in habit of very closely-allied species, one living in mud, and forming a most remarkable closed tube, sometimes equalling three feet in length—a giant among shipworms; another following the practice of all ordinary Teredines, and content, like them, to busy itself boring into timber—forming little or no tube, and being but of moderate dimensions.

Mr. Good, touching on the subject of Teredinidæ occurring in salt water only, remarked that in the St. Lawrence the submerged timber, called "Greenheart," had been found bored by a *Teredo* where no tidal water ever goes up. This would confirm Dr. Wright's record, made some time ago, of a *Teredo* occurring in undoubted fresh water in India.

The meeting adjourned to the first Thursday in June.