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II.—Photoglyphic Engraving of Ferns ; with Remarks

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utriculus of carices to the superior glumella or palea of grasses, and adopt the views of Brown, who considers the palea formed of two coherent bracts. Lemaout and Adrien Jussieu entertained the same opinion. The point to be determined is whether the axis bearing the secondary flower takes its origin laterally—and in that case either to the right or left, and opposite one of the two teeth which surmount the utriculus, and which correspond to the two median ribs of the two perigonal divisions of Lindley; or whether that axis is inserted in front of the ovary. After careful examination, M. Wesmael finds that the latter view is the correct one—viz., that the secondary axis is produced in front of the ovary. This is the view taken also by Kunth, Gay, Roper, and Schlechtendal.

The following are the conclusions at which he has arrived:—

“1. The utriculus which envelopes the ovary of the carices has been considered in two different ways.

2. According to the theory of Lindley, this utriculus is formed by the cohesion of two bracts, whilst, according to Kunth, it is formed by a single bract.

3. Lindley believes in the presence of two bracts, from the existence of the two ribs in the utriculus, which he thus regards as analogous to the two-keeled palea of grasses.

4. Lindley looks on the utriculus as being developed on an axis, which gives origin both to it and the ovary.

5. This theory does not give a true view of the nature of the racheole.

6. The racheole is a prolongation of the secondary axis, which, in an abnormal inflorescence of *Carex acuta*, after having given origin to the normal utriculus, is prolonged, and comes out in company with the stigma at the orifice of the utriculus; it then gives origin to the bract, and afterwards to the secondary utriculus; and on the axil of this is developed a very short axis, terminated by the ovary.

7. The racheole is not developed to the right or left of the ovary,—that is to say, in front of the one or the other of the two principal ribs of the utriculus,—but is prolonged in front of the ovary, and consequently between it (the ovary) and the parent bract.

8. The mode of development of the racheole does not favour the view of Lindley; according to which it ought to have for its point of origin the axil of one of the two bracts constituting the utriculus.

9. The utriculus is an organisation analogous to that of the vaginiform bract which we observe at the base of the axis of inflorescence.

10. All the observations I have made are in favour of the theory of Kunth, and contrary to that of Lindley.”

II.—Photoglyphic Engraving of Ferns; with Remarks.

By H. FOX TALBOT, Esq., LL.D. (Plate XIV.)

Dr Talbot remarked—This plate, representing a fern leaf, is done by the process which I have called photoglyphic engraving, and which was published a few years ago in the various photographic journals. It consists in covering a plate of steel or copper with a film of gelatine mixed with bichromate of potash, placing the object, in this instance a fern leaf, upon the plate, and exposing it to sunlight for a minute, then removing the object, dusting the plate with finely powdered resin, to give a grain to the engraving, melting the resin, and when the plate is cold brushing it with a camel's-hair brush dipped in perchloride of iron, which speedily penetrates the parts upon which the light has not acted, and effects an etching, while the parts exposed to sunshine are thereby ren-

dered impermeable to the etching liquid. Such a plate (steel), thus prepared, is capable of yielding at least five thousand impressions. It will be remarked that the leaf exhibits no venation. This arises from its being a dried specimen from the herbarium; but recent specimens, especially of *Adiantum*, *Trichomanes*, *Hymenophyllum*, &c., yield engravings with a very beautiful venation. Grasses also succeed remarkably well, and one of the most curious objects when engraved is the feathery achenes of *Leontodon Taraxacum* (the common dandelion), which are so well given as sometimes to be almost deceptive, except that the achenes themselves are apt to come out too black to be natural. If printed in pale brown ink, I think they would have a strong resemblance to nature. I wished to have shown a plate of this description to the Botanical Society, but the occurrence of cloudy weather for several days in succession has prevented my doing so on the present occasion.

If this art had been invented a hundred years ago, it would have been very useful during the infancy of botany, when communications with distant countries were so difficult. It would have been easy for botanical travellers such as Thunberg, Aublet, Loureiro, &c., to have taken with them a small printing-press, and to have worked off a small edition of fifty copies of each engraving they made, and sent the copies home to Europe whenever an occasion presented itself. Some of the copies would doubtless have escaped shipwreck and come to the knowledge of European botanists. Supposing the engraving only represented a leaf and a flower of each plant described in the works, it would have greatly aided modern botanists in determining the plants intended by those authors, whose descriptions are frequently so incorrect that they are like so many enigmas, and have proved a hindrance and not an advantage to science.

III.—List and Localities of Rare Plants found in the vicinity of Perth.

By Mr JOHN SIM, A.B.S. Ed.

The following list of plants comprises only those of rare occurrence, and seldom to be met with in Scotland; indeed some here mentioned may be pretty generally distributed, but, as far as I am aware, are far from being common. The others are certainly rare; a few have been discovered by myself during the last eight years of my residence in Perth. For the benefit of the botanists of the Edinburgh Botanical Society, the following list is drawn up for insertion in the Society's Transactions. The plants recorded in this list, with two or three exceptions, are all found within a circuit of four miles radius, whose centre is Perth. I have during the last seven or eight years personally collected almost every plant myself, and therefore can vouch for the accuracy of the localities mentioned.—The nomenclature is that of the Society's catalogue.

Aquilegia vulgaris. North side of Birnam Hill, near the foot, about half a mile to the west of the railway terminus, but not in great plenty.

Helleborus fetidus. Quarrymill Den, one mile from Perth, on the road to Old Scone. Nearly, if not entirely, extirpated.

Trollius europæus. In a plantation near Junction of Almond with the Tay, two miles north from Perth. Not abundant.

Corydalis lutea. On a wall by the Old Scone Road, about three quarters of a mile from Perth.

Cardamine amara. Near the confluence of Almond with Tay, and elsewhere on the banks of the latter. Frequent.

Hesperis matronalis. In the woods or hills of Kinnoull and Moncrieffe. Abundant.

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Plate XII.

PHOTOGRAPHIC ENGRAVING OF A FERN.
H. F. Talbot.